

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
Form 20-F

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d)
OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended: December 31, 2025
Commission file number: 001-38256

NEXA RESOURCES S.A.
(Exact name of Registrant as specified in its charter)

Grand Duchy of Luxembourg
(Jurisdiction of incorporation or organization)

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Securities registered or to be registered pursuant to Section 12(b) of the Act:

Title of Each Class	Trading Symbol	Name of Each Exchange on Which Registered
Common shares, each with par value of US\$1.00	NEXA	New York Stock Exchange

Securities registered or to be registered pursuant to Section 12(g) of the Act: None
Securities for which there is a reporting obligation pursuant to Section 15(d) of the Act: None
The number of outstanding shares of each class of stock of Nexa Resources S.A. as of December 31, 2025, was:
132,438,611 common shares, each with par value of US\$1.00

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.
Yes ☐ No ☒

If this report is an annual or transition report, indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934.
Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports) and (2) has been subject to such filing requirements for the past 90 days.
Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (\$232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).
Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer or an emerging growth company. See definition of “accelerated filer,” “large accelerated filer” and “emerging growth company” in Rule 12-b2 of the Exchange Act. (Check one):

Large accelerated filer ☐ Accelerated filer ☒ Non-accelerated filer ☐ Emerging growth company ☐

If an emerging growth company that prepares its financial statements in accordance with U.S. GAAP, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards† provided pursuant to Section 13(a) of the Exchange Act. ☐

The term “new or revised financial accounting standard” refers to any update issued by the Financial Accounting Standards Board to its Accounting Standards Codification after April 5, 2012.

Indicate by check mark whether the registrant has filed a report on and attestation to its management’s assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant’s executive officers during the relevant recovery period pursuant to § 240.10D-1(b). ☐

Indicate by check mark which basis of accounting the registrant has used to prepare the financial statements included in this filing:

U.S. GAAP ☐ International Financial Reporting Standards as issued by the International Accounting Standards Board ☒ Other ☐

If "Other" has been checked in response to the previous question, indicate by check mark which financial statement item the registrant has elected to follow.
Item 17 o Item 18 o

If this is an annual report, indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).
Yes o No p

TABLE OF CONTENTS

	<u>Page</u>
Form 20-F cross reference guide	iv
Forward-looking statements	1
About the Company	4
Presentation of financial and other information	5
Risk factors	7
<u>I. Information on the Company</u>	<u>32</u>
Business overview	32
Mining operations	37
Smelting operations	88
Tailings Disposal	92
Commercial and Logistics	97
Energy	102
Capital expenditures	106
Environmental, social and governance (ESG)	107
Regulatory matters	115
<u>II. Operating and financial review and prospects</u>	<u>124</u>
Overview	124
Results of operations	134
Liquidity and capital resources	145
Risk management	152
<u>III. Share ownership and trading</u>	<u>158</u>
Major shareholders	158
Related party transactions	159
Distributions	161
Trading markets	163
Purchases of equity securities by the issuer and affiliated purchasers	164
<u>IV. Corporate governance, management and employees</u>	<u>165</u>
Corporate governance	165
Board of directors	170
Executive officers and Management committee	179
Executive and Director compensation	183
Employees	186
<u>V. Additional information</u>	<u>188</u>
Legal proceedings	188
Articles of association	191
Taxation	194
Exchange controls and other limitations affecting security holders	203
Evaluation of disclosure controls and procedures	204
Internal control over financial reporting	205
Principal accountant fees and services	206
Information filed with securities regulators	207
Glossary	208
Exhibits	211
Signatures	212
Nexa Resources S.A. Financial Statements	213

FORM 20-F CROSS REFERENCE GUIDE

Item	Form 20-F caption	Location in this report	Page
1	Identity of directors, senior management and advisers	Not applicable	-
2	Offer statistics and expected timetable	Not applicable	-
3	Key information		
	3A Reserved	Not applicable	-
	3B Capitalization and indebtedness	Not applicable	-
	3C Reasons for the offer and use of proceeds	Not applicable	-
	3D Risk factors	Risk factors	7
4	Information on the Company		
	4A History and development of the Company	About the Company, Business overview, Capital expenditures	4, 32, 106
		Business overview, Mining operations, Smelting operations, Tailings Disposal, Commercial and Logistics, Energy, Regulatory matters	32, 37, 88, 92, 97, 102, 115
	4B Business overview	Business overview, List of Subsidiaries	32, Exhibit 8
	4C Organizational structure	Mining operations, Smelting operations, Tailings Disposal, Commercial and Logistics, Energy, Capital expenditures, Regulatory matters	37, 88, 92, 97, 102, 106, 115
	4D Property, plants and equipment		
4A	Unresolved staff comments	None	-
5	Operating and financial review and prospects		
	5A Operating results	Results of operations	134
	5B Liquidity and capital resources	Liquidity and capital resources	145
	5C Research and development, patents and licenses, etc.	Business overview	32
	5D Trend information	Results of operations	134
	5E Critical Accounting Estimates	Critical Accounting Estimates	-
6	Directors, senior management and employees		
	6A Directors and senior management	Board of directors, Executive officers and Management committee	170, 179
	6B Compensation	Executive and director compensation	183
	6C Board practices	Corporate governance, Board of directors	165, 170
	6D Employees	Employees	186
	6E Share ownership	Board of directors—Share ownership	178
	6F Disclosure of a registrant's action to recover erroneously awarded compensation	Executive and director compensation	183
7	Major shareholders and related party transactions		
	7A Major shareholders	Major shareholders	158
	7B Related party transactions	Related party transactions	159
	7C Interests of experts and counsel	Not applicable	-
8	Financial information		
	8A Consolidated statements and other financial information	Nexa Resources S.A. Financial Statements, Distributions, Legal proceedings	213, 161, 188
	8B Significant changes	Not applicable	-
9	The offer and listing		
	9A. Offer and listing details	Trading markets	163
	9B Plan of distribution	Not applicable	-

	9C Markets	Trading markets	163
	9D Selling shareholders	Not applicable	-
	9E Dilution	Not applicable	-
	9F Expenses of the issue	Not applicable	-
10	Additional information		
	10A Share capital	Not applicable	-
	10B Memorandum and articles of association	Articles of association	191
	10C Material contracts	Business overview, Results of operations, Related party transactions	32, 134, 159
	10D Exchange controls	Exchange controls and other limitations affecting security holders	203
	10E Taxation	Taxation	194
	10F Dividends and paying agents	Not applicable	-
	10G Statement by experts	Not applicable	-
	10H Documents on display	Information filed with securities regulators	207
	10I Subsidiary information	Not applicable	-
	10J Annual Report to Security Holders	Not applicable	-
11	Quantitative and qualitative disclosures about market risk	Risk management	152
12	Description of securities other than equity securities	Not applicable	-
13	Defaults, dividend arrearages and delinquencies	Not applicable	-
14	Material modifications to the rights of security holders and use of proceeds	Not applicable	-
15	Controls and procedures	Evaluation of disclosure controls and procedures, Internal control over financial reporting	204, 205
16A	Audit committee financial expert	Board of directors—Committees of our Board of directors—Audit committee	175
16B	Code of ethics	Corporate governance—Code of conduct	165
16C	Principal accountant fees and services	Principal accountant fees and services	206
16D	Exemptions from the listing standards for audit committees	Not applicable	-
16E	Purchases of equity securities by the issuer and affiliated purchasers	Purchases of equity securities by the issuer and affiliated purchasers	164
16F	Change in registrant's certifying accountant	Not applicable	-
16G	Corporate governance	Corporate governance	165
16H	Mine safety disclosure	Not applicable	-
16K	Cybersecurity	Risk management	152
16J	Insider trading policies	Executive and Director Compensation	183
17	Financial statements	Not applicable	-
18	Financial statements	Nexa Resources S.A. Financial Statements	213
19	Exhibits	Exhibits	211

FORWARD-LOOKING STATEMENTS

This annual report includes statements that constitute estimates and forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or Securities Act, and Section 21E of the Securities Exchange Act, as amended, or Exchange Act. The words “believe,” “will,” “may,” “may have,” “would,” “estimate,” “continues,” “anticipates,” “intends,” “plans,” “expects,” “budget,” “scheduled,” “forecasts” and similar words are intended to identify estimates and forward-looking statements. Estimates and forward-looking statements refer only to the date when they were made, and we do not undertake any obligation to update or revise any estimate or forward-looking statement due to new information, future events or otherwise, except as required by law. Estimates and forward-looking statements involve risks and uncertainties and do not guarantee future performance, as actual results or developments may be substantially different from the expectations described in the forward-looking statements.

These statements appear in a number of places in this report and include statements regarding our intent, belief or current expectations, and those of our officers and employees, with respect to, among other things: (i) our future financial or operating performance; (ii) our growth strategy; (iii) future trends that may affect our business and results of operations; (iv) the impact of competition and applicable laws and regulations on our results; (v) planned capital investments; (vi) future of zinc and/or other metal prices; (vii) estimation of mineral reserves and mineral resources; (viii) mine life; and (ix) our financial liquidity.

Forward-looking statements are not guarantees of future performance and involve risks and uncertainties. Actual results and developments may be substantially different from the expectations described in the forward-looking statements for several reasons, many of which are not under our control. Among them, the activities of our competition, the future global economic situation, current and future geopolitical scenarios, in the countries in which we operate, and associated decisions, weather conditions, market prices and conditions, exchange rates, and operational and financial risks. The unexpected occurrence of one or more of the above-mentioned events may significantly change the results of our operations on which we have based our estimates and forward-looking statements. Our estimates and forward-looking statements may be influenced by the following factors, including, among others:

- the cyclical and volatile prices of commodities;
- the changes in the expected level of supply and demand for commodities;
- foreign exchange rates, fluctuations, inflation and interest rate volatility;
- the risks and uncertainties related to economic and geopolitical conditions in the countries in which we operate;
- changes in global market conditions, impacting demand and pricing stability, including uncertainties related to global trade as a result of the imposition of tariffs in the international trade;
- the impact of expanded regional or global conflicts, and the resulting potential impacts on supply and demand for commodities, logistics of key-inputs and consumables, global security concerns, and market volatility;
- outbreaks of contagious diseases or health crises impacting overall economic activity regionally or globally, and the potential impact thereof on commodity prices and exchange rate variations in the currencies to which we are exposed to, our business and operating sites, and the global economy;
- demands and expectations from stakeholders with respect to our environmental, social and governance (“ESG”) practices, performance and disclosures, including the ability to meet energy requirements while complying with greenhouse gas emissions regulations and other energy transition policy changes and laws in the countries in which we operate;
- the impact of increasing severity of weather events on our operations, workforce and value chain;
- environmental, safety and engineering challenges and risks inherent to mining;

- severe natural disasters, such as storms, prolonged heavy rainfall and floods, severe drought, or earthquakes, disrupting our operations;
- operational risks, such as operator errors, mechanical failures and other accidents;
- the availability of materials, supplies, insurance coverage, equipment, required permits or approvals and financing;
- supply-chain and logistic related interruptions, including impacts to international and domestic freight and transportation networks;
- the implementation of our growth strategy, the availability of capital and the risks associated with related capital expenditures;
- failure to obtain financial assurance to meet closure and remediation obligations;
- the possible material differences between our estimates of Mineral Reserves and Mineral Resources and the mineral quantities we actually recover;
- the possibility that our permits, concessions, environmental studies, modificatory environmental studies and other governmental authorities requests may be terminated, not renewed or not granted by governmental authorities in the countries in which we operate which may result in impairment charges, fines and/or penalties;
- the impact of political, institutional and government changes in the countries in which we operate, and the effects of potential new legislation, including changes in taxation laws, tax rules interpretation, and any related agreements that we have entered or may enter into with local governments;
- legal and regulatory risks, including ongoing or future investigations by local authorities with respect to our business and operations, as well as the conduct of our customers, along with the impact to our financial statements regarding the resolution of any such matters;
- labor disputes or disagreements with local communities or unions in the countries in which we operate;
- loss of reputation due to unanticipated operational failures or significant occupational incidents;
- failure or outage of our digital infrastructure or information and operating technology systems;
- cyber events or attacks (including ransomware, state-sponsored, data breaches and other cyberattacks) due to negligence, IT security failures or the increased use of artificial intelligence ("AI");
- the future impact of competition and changes in domestic and international governmental and regulatory policies that apply to our operations;
- interest rates increases, making the cost of capital and financial expenses higher than expected or even unattainable;
- regulatory changes in the countries where we operate, including new trade restrictions, tariff escalations, and policy shifts affecting cross-border commerce and supply chains, such as recent tariff increases on imports from Canada, Mexico, and China; and
- other factors discussed under "Risk Factors."

Considering the risks and uncertainties described above, the events referred to in the estimates and forward-looking statements included in this report may or may not occur, and our business performance and results of operation may differ materially from those expressed in our estimates and forward-looking statements, due to factors that include but are not limited to those mentioned above.

These forward-looking statements are made as of the date of this annual report, and we assume no obligation to update them or revise them to reflect new events or circumstances. There can be no assurance that the forward-looking statements will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements.

ABOUT THE COMPANY

We are a large-scale, low-cost, integrated polymetallic producer, with zinc as our main product. We have over 65 years of experience developing and operating mining and smelting assets in Latin America. We currently own and operate five polymetallic mines – four long-life underground (two in the Central Andes region of Peru and two in Brazil, in the states of Minas Gerais and Mato Grosso), and one open-pit in the Central Andes region of Peru. We also own and operate three zinc smelters – two in the state of Minas Gerais in Brazil (Três Marias and Juiz de Fora), and one in Lima, Peru (Cajamarquilla), which is the largest zinc smelter in the Americas.

We are a public limited liability company (*société anonyme*) incorporated under the laws of Luxembourg on February 26, 2014. Our registered office is located at 37A, Avenue J.F. Kennedy, L-1855, Luxembourg, Grand Duchy of Luxembourg, and we are registered with the Luxembourg Trade and Companies Register under number B185489. Our telephone number at this address is +352 28 26 3727. Our main office outside of Luxembourg is located at Avenida Engenheiro Luís Carlos Berrini, n° 105, 6th floor, São Paulo, State of São Paulo, Brazil. Our website is www.nexaresources.com. None of the information available on our website is incorporated in this annual report and it should not be relied upon in deciding to invest in our common shares.

PRESENTATION OF FINANCIAL AND OTHER INFORMATION

Certain definitions

Unless otherwise indicated or the context otherwise requires, the terms below are defined in the following manner.

- “Nexa,” “we,” “us” and “our” or similar terms refer to Nexa Resources and, unless the context otherwise requires, its consolidated subsidiaries;
- “Nexa Resources” refers to Nexa Resources S.A., a Luxembourg public limited liability company (*société anonyme*);
- “Nexa CJM” refers to our subsidiary Nexa Resources Cajamarquilla S.A. (previously known as Votorantim Metais—Cajamarquilla S.A.), a corporation organized as a *sociedad anónima* under the laws of Peru;
- “Nexa Brazil” refers to our subsidiary Nexa Recursos Minerais S.A. (previously known as Votorantim Metais Zinco S.A.), a corporation organized as a *sociedade anônima* under the laws of Brazil;
- “Nexa Peru” refers to our subsidiary Nexa Resources Peru S.A.A. (previously known as Compañía Minera Milpo S.A.A.), a corporation organized as a *sociedad anónima abierta* under the laws of Peru and publicly traded on the Lima Stock Exchange;
- “Pollarix” refers to our subsidiary Pollarix S.A., a corporation organized as a *sociedade anônima* under the laws of Brazil;
- “VSA” refers to our controlling shareholder Votorantim S.A., a corporation organized as a *sociedade anônima* under the laws of Brazil;
- the “Votorantim Group” refers to our controlling shareholder VSA and, unless the context otherwise requires, its consolidated subsidiaries;
- the “*real*,” “*reais*” or “R\$” refers to the Brazilian *real*, the official currency of Brazil;
- “*sol*,” “*soles*” or “S/.” refers to the Peruvian *sol*, the official currency of Peru; and

In addition, the meaning of other defined terms used in this report are set out in “Glossary.”

Financial information

Our consolidated financial statements as of December 31, 2025, and 2024 and for each of the three years ended December 31, 2025, December 31, 2024, and December 31, 2023, are included in this annual report. Our consolidated financial statements are prepared in accordance with International Financial Reporting Standards as issued by the International Accounting Standards Board (“IFRS Accounting Standards”). References in this report to “our consolidated financial statements” are to our consolidated financial statements as of December 31, 2025, and 2024 and for each of the three years ended December 31, 2025, December 31, 2024, and December 31, 2023, and the related notes thereto included elsewhere in this report.

The financial information presented in this report should be read in conjunction with our consolidated financial statements, including the related notes, and the section of this report titled “Operating and Financial Review and Prospects.”

The main consolidated companies included in our consolidated financial statements are:

- **Nexa CJM** – a Peruvian company that is 99.997% directly and indirectly owned by Nexa Resources and is mainly engaged in smelting zinc contained in concentrate. Nexa CJM’s functional currency is the U.S. dollar.

- **Nexa Peru** – a Peruvian company that is 83.55% directly and indirectly owned by Nexa Resources and is mainly engaged in exploring, extracting, producing and trading zinc, copper and lead concentrates, extracted from its own three mining sites. Nexa Peru’s functional currency is the U.S. dollar. Nexa Peru is a public company with its shares listed on the Lima Stock Exchange.
- **Nexa Brazil** – a Brazilian company that is 100.00% owned by Nexa Resources and is mainly engaged in exploring, extracting and producing zinc, copper and lead concentrates, and smelting zinc contained in concentrate with operations in the states of Minas Gerais and Mato Grosso. Nexa Brazil’s functional currency is the *real*.

Non-IFRS Accounting Standards measures

For a discussion of how our management uses non-IFRS Accounting Standards measures as an additional measure of operational performance of our business, including discussion of our Adjusted EBITDA, reconciliation with most comparable IFRS Accounting Standards figures and changes made in 2025, see “Operating and Financial Review and Prospects—Results of Operations—Non-IFRS Accounting Standards measures and reconciliation.”

All forward-looking non-IFRS Accounting Standards financial measures in this document, including cash cost guidance, are provided only on a non-IFRS Accounting Standards basis. This is due to the inherent difficulty of forecasting the timing or number of items that would be included in the most directly comparable forward-looking IFRS Accounting Standards financial measures. As a result, reconciliation of the forward-looking non-IFRS Accounting Standards financial measures to IFRS Accounting Standards financial measures is not available without unreasonable effort and we are unable to assess the probable significance of the unavailable information.

Country, market and industry information

This report contains and refers to information and statistics regarding the countries in which we operate and the markets for the metals we produce and sell. This data is obtained from independent public sources, including publications and materials from participants in the industry, such as Wood Mackenzie and from governmental entities such as the Brazilian Central Bank, Bloomberg Finance L.P., LME, LBMA, Brazilian Ministry of Treasury (*Ministério da Fazenda*), Brazilian Ministry of Mines and Energy (*Ministério de Minas e Energia*, or “MME”), National Mining Agency (*Agência Nacional de Mineração*, or “ANM”), Brazilian Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística*, or “IBGE”), the Getulio Vargas Foundation (*Fundação Getúlio Vargas*, or “FGV”), the Peruvian Stock Market Superintendency (*Superintendencia del Mercado de Valores*), the Peruvian Central Bank, the Peruvian Ministry of Economy and Finance (*Ministerio de Economía y Finanzas*) and the Peruvian National Institute of Statistics and Informatics (*Instituto Nacional de Estadística e Informática*). Some data is also based on our estimates, which are derived from our review of internal reports, as well as independent sources.

Volume information

All tonnage information in this report is expressed in metric tonnes, unless stated otherwise, and all references to ounces are to troy ounces, in each case, unless otherwise specified.

RISK FACTORS

Nexa and its operations are exposed to several inherent risks and uncertainties, including those described below. The risks described below are not the only ones that we face. Additional risks that we do not presently consider material, considering financial materiality and impact materiality, or of which we are not currently aware, may also affect us. Our business, results of operations, financial condition and cash flows could be materially and adversely affected if any of these risks materialize. You should carefully consider these risks with respect to an investment in us. This section is divided in two sub-sections: the “Risk Factors Summary,” which provides a brief summary of our Risk Factors and “Detailed Risk Factors,” providing detailed information in relation to each Risk Factor identified.

Risk Factors Summary

The following summarizes the main risks to which we are subject. You should carefully consider all the information discussed below in “Item 3—Key Information—Risk Factors—Detailed Risk Factors” in this annual report for a comprehensive description of these and other risks.

Strategic risks

- Our business is highly dependent on the international market prices of the metals we produce, which are both cyclical and volatile.
- Adverse economic developments in China could have a negative impact on our revenues, cash flow and profitability.
- Changes in global trade policy could adversely affect our business.
- Changes in the demand and supply for the metals we produce, including as a result of the cyclicity of global economic activity, could adversely affect our sales volume and revenues.
- The mining industry is highly competitive.
- Our estimates of Mineral Reserves and Resources may be materially different from the total mineral quantities we recover, and changes in metal prices, operating and capital costs, and other assumptions used to calculate these estimates may render certain Mineral Reserves and Resources uneconomical to mine.
- We depend on our ability to replenish our Mineral Reserves for our long-term viability.
- Our mineral exploration efforts are highly speculative in nature and may be unsuccessful.
- Any acquisitions or divestitures we make may not be successful or achieve the expected benefits.
- Failure to meet ESG standards and achieve our environmental and social commitments could adversely affect our business, reputation, and financial condition.
- Political, economic and social conditions in the countries in which we have operations or projects, or in which we do business, could adversely impact our business, financial condition results of operations and the trading price of our securities.
- Political and social opposition to mining activities in the regions we operate could adversely impact our business and reputation.
- Our operations depend on our relations and agreements with local communities, and new projects require conducting a prior consultation procedure.
- VSA has substantial control over us, which could limit our shareholders’ ability to influence the outcome of important corporate decisions.

Operational risks

- We may be materially and adversely affected by challenges relating to slope and stability of underground openings.
- Our projects are subject to operational risks that may result in increased costs or delays that prevent their successful implementation and/or adversely affect their expected financial return.
- There are unique risks inherent to the development of underground mines, which may have a material adverse impact on our current and future cash flows.
- Changes in the assumptions underlying the carrying amount of certain assets could result in significant impairment charges.
- Disruption in supply of zinc concentrate, secondary feed materials, zinc calcine, key-consumables, natural gas, and electric energy could have a material adverse effect on our production levels and financial results.

- The nature of our business includes risks related to litigation and administrative proceedings that could materially and adversely affect our business and financial performance in the event of unfavorable rulings.
- Our business could be adversely affected by the failure of our counterparties to perform their obligations.
- We may be adversely affected by the failure or unavailability of adequate infrastructure and skilled labor.
- We may be adversely affected by labor disputes.
- We could face significant challenges due to failures or interruptions in our information technology systems or automated machinery, including system security breaches resulting from cyber-attacks.
- Our information and operational technology systems may be adversely affected by disruptions, damage, failure, and risks associated with implementation and integration of new technologies.
- The failure of a tailings dam could negatively impact our business, reputation and results of operations, and the implementation of associated regulations and decommissioning processes may be expensive.
- The collapse of dams, dry tailings or other geotechnical structures may cause severe damages, including personal, property, reputational, environmental damages, and loss of life.
- We are exposed to health, safety, and environmental risks in our operations, and we may not be able to prevent accidents from happening.
- Natural disasters and increasing severity of weather-related events could affect our business.
- Interruptions of energy supply or increases in energy costs may materially and adversely affect our operations.

Financial risks

- Our financial position and results of operations may be materially and adversely affected by currency exchange rate fluctuations.
- Fluctuations in interest rates could increase the cost of servicing our debt, affect returns on our financial investments and negatively affect our overall financial performance.
- We may engage in hedging and other derivatives activity that may not be successful and may result in losses or tax liabilities.
- We might not be able to pay the principal and interest on our debt obligations if they are accelerated due to the non-compliance with the restrictive covenants and clauses of our debt contracts.
- A downgrade of our credit ratings could increase our borrowing costs, trigger default or acceleration clauses in certain debt agreements, and limit our access to capital markets.
- Any tax-related investigations conducted by federal, state or local governments may result in a material impact on our business, results of operations and financial condition.
- Our business, financial position and results of operations may be adversely affected by inflation.
- Our business requires substantial capital expenditures and is subject to financing risks.
- We are exposed to credit risk in relation to our contractual and trading counterparties as well as to hedging and derivative counterparty risk, and our results of operations may be negatively impacted by increases in expected credit losses.
- The mining business is subject to inherent risks, some of which are not insurable, and any uninsured or underinsured loss could adversely affect our operating and financial results.
- Dividends or other distributions paid by us on our common shares will be subject to Luxembourg withholding tax.

Compliance risks

- Health, safety and environmental laws and regulations, including regulations pertaining to adverse weather events, may increase our costs of doing business, restrict our operations or result in the imposition of fines or revocation of permits.
- Recent and potential changes in commercial and mining laws, including trends like resource nationalism, may significantly impact our mining operations.
- Changes in tax laws, and any related tax agreements we have entered into or may enter into with local governments, may increase our tax burden and, as a result, could adversely affect our business, financial position, and results of operations.
- Differing interpretations of agency regulations or court rulings and the application of such laws and regulations could result in unintended non-compliance and may have a material effect on our business, results of operations, and financial position.

Detailed Risk Factors

Nexa and its operations are exposed to several inherent risks and uncertainties, including those described below.

Strategic risks

Our business is highly dependent on the international market prices of the metals we produce, which are both cyclical and volatile.

Our business and financial performance is significantly affected by market prices of the metals we produce, particularly the market prices of zinc, copper, silver, lead and, to a lesser extent, gold. Historically, prices of such metals have been subject to wide fluctuations and are affected by numerous factors beyond our control, including international economic and political conditions, the cyclicity of consumption, actual or perceived changes in levels of supply and demand, the availability and costs of substitutes, inventory levels maintained by users, actions of participants in the commodities markets and currency exchange rates. We cannot predict whether, and to what extent, metal prices will rise or fall in the future.

The imposition of tariffs in international trade has introduced additional volatility to global trade and, consequently, to the market prices of our products. We are actively monitoring the impact of these measures and cannot predict their ultimate effect on our business. Additionally, the persistent tensions surrounding international trade may increase the risk of an economic recession, which could lead to decreased demand for commodities and negatively affect commodity prices. The uncertainty surrounding these tariffs poses a significant risk that could adversely impact our financial performance and operations.

The ongoing international political tensions have increased global security concerns, the risk of broader regional or global escalation of such conflicts or any other military or trade disruptions. These have had, and may continue to have, adverse effects worldwide. Additionally, fluctuations in the value of the U.S. dollar, partly driven by global security concerns, directly impact commodity prices. Continued ramifications of these global conflicts include disruption of the supply chain, which has led, and may continue to lead, to impacts on production, investment, and demand and prices for our products; higher and more volatile prices for commodities, including oil and gas; disruption of global financial markets, and further exacerbation of overall macroeconomic trends, including high inflation and rising interest rates. For more information see “Operating and Financial Review and Prospects—Overview.”

Future declines in metal prices, especially with respect to zinc, copper, silver and lead prices, could have an adverse impact on our results of operations and financial position, and we might consider curtailing or modifying certain operations, selling certain operations, or not proceeding with our sustaining and/or growth strategy. In addition, we may not be able to adjust production volume in a timely or cost-efficient manner in response to changes in metal prices. Lower utilization of capacity during periods of weak prices may expose us to higher unit production costs since a significant portion of our cost structure is fixed in the short-term due to the high capital intensity of mining operations. Conversely, during periods of high prices, our ability to rapidly increase production capacity may be limited, which could prevent us from selling more products. Moreover, we may be unable to complete expansions and greenfield projects in time to take advantage of rising prices for zinc, copper, lead, or other products.

Adverse economic developments in China could have a negative impact on our revenues, cash flow and profitability.

China has been the primary driver of global commodity demand for commodities over the last few years. According to Wood Mackenzie, in 2025, Chinese demand accounted for 51.4% of global demand for refined zinc and 57.3% of global demand for refined copper. Any slowdown in China’s economic growth that is not offset by increased demand from other regions or a reduction in commodities supply could adversely affect demand for our products or commodity prices, leading to lower revenues, cash flow and profitability.

Changes in global trade policy could adversely affect our business.

Since January 2025, the U.S. administration has enacted sweeping tariff measures that raised the average applied U.S. tariff rate to elevated levels, materially elevating global trade uncertainty and cost structures. A universal “reciprocal tariff” baseline of 10% on most imports took effect April 5, 2025, alongside higher country-specific rates later implemented on August 7, 2025, with country rates spanning 10-50% that have been adjusted through executive orders, creating frequent changes our supply chains must monitor. Sector-specific tariffs were expanded materially, including steel, aluminum, and copper, receiving 50% tariffs.

U.S. tariffs have increased input costs and created sourcing and pricing volatility across metals, smelting inputs and mining operations. Project capital estimates and lead-times are being revised upward across the industry to reflect tariff pass-through on construction materials and equipment, with some firms evaluating onshoring or alternative investments. The breadth of new U.S. tariffs can dampen global growth, lowering metals demand and prices and delaying investment cycles, with modeled demand reductions for aluminum and copper being material under trade war scenarios.

Tariffs have increased our cost of inputs, logistics and capital projects; impacted availability of equipment and materials; and contributed to demand and pricing volatility for our products. While exemptions have been introduced, we cannot guarantee that our products and key-consumables will be included in them. In addition, recent U.S. Supreme Court decisions addressing the legality or scope of certain tariff authorities have introduced further uncertainty, as the practical effect of such rulings may be limited by ongoing or subsequent proceedings, transitional application, or the potential for tariffs to be reinstated, modified or replaced under alternative statutory authorities. We may be unable to pass these increased costs on to our customers, which could adversely affect our profitability, cash flows, and competitive position. The duration, scope and ultimate impact of current and future trade policies, including Supreme Court and other judicial developments, remain highly uncertain, and the continuation of global trade disputes may continue to have negative effects on the economies and economic prospects of the countries in which we operate, which in turn may continue to negatively affect our business and results of operations.

Changes in the demand and supply for the metals we produce, including as a result of the cyclical nature of global economic activity, could adversely affect our sales volume and revenues.

Our revenues depend on the volume of metals we sell (and, to a lesser extent, the volume of metals produced by others that are smelted in our facilities. Our sales volume, in turn, depends on the level of industrial and consumer demand for these metals. An increase in the global production of zinc, copper, silver and lead along with a decline in demand for these metals, due to technological advances, changes in industrial processes or consumer habits, such as increased demand for substitute materials, economic slow-downs, or tariffs increasing prices could put downward pressure on metal prices. A decrease in prices may compromise the profitability of smelters, potentially leading us to reduce the volume of metals we sell, which could have a material adverse impact on our operational results and financial position. Even if our sales volumes remain stable, lower prices could negatively impact our revenues.

The mining industry has historically been highly volatile largely due to the cyclical nature of industrial production, which affects the demand for minerals and metals. Demand for minerals and metals thus generally correlates to macroeconomic fluctuations in the global economy. Changes in the demand for the metals we produce could adversely affect our sales volume and revenues.

The mining industry is highly competitive.

We face competition from other mining, processing, trading and industrial companies in Brazil, Peru and around the world. Competition principally involves the following factors: sales, supply and labor prices; contractual terms and conditions; attracting and retaining qualified personnel; and securing the services, supplies and technologies we need for our exploratory activities and operations. Slower development in technology and innovation could impact costs, productivity and competitiveness. In addition, mines have limited life and, as a result, we must seek to replace and expand our mineral reserves by acquiring and exploring new properties. Significant competition exists to acquire mining concessions, land and related assets. There is also substantial demand for exploration and drilling equipment from our competitors. We cannot assure shareholders that competition will not adversely affect us in the future.

The international trade environment faces increasing uncertainty. Potential changes to international trade regulations and agreements, as well as other political and economic arrangements (including direct or indirect subsidies), may benefit competitors operating in countries other than where our mining operations are currently located. These changes could also adversely affect the prices we pay for the supplies we need and our export costs when we engage in international transactions. We cannot assure shareholders that we will be able to compete based on price or other factors with companies that in the future may benefit from favorable regulations, lower cost of capital, trading or other arrangements or that we will be able to maintain the cost of the supplies that we require as well as our export costs.

Risks related to our Mineral Reserves and Resources

Our mineral rights may be terminated or not renewed by governmental authorities.

Our business is subject to extensive regulation in Brazil and Peru, including with respect to acquiring and renewing the required authorizations, permits, concessions, and/or licenses from the relevant governmental regulatory bodies. We have obtained, or are in the process of obtaining, all material authorizations, permits, concessions, and licenses required to conduct our mining and mining-related operations.

In Brazil, we may need to renew exploration authorizations related to our Brazilian mining operations 60 days prior to their expiration date if we determine that we continue to have an economic or business interest in the area. If we fail to demonstrate the existence of technical and economically viable mineral deposits in an area covered by an exploration authorization, we may be required to return them to ANM. The ANM may then grant exploration authorizations to other parties that may conduct other mineral prospecting activities at said area. With respect to mining concessions, there is no renewal requirement once we have obtained such concession. However, we must continue to assess the mineral potential of each mining concession to determine if the costs of maintaining the related exploration authorizations and mining concessions are justified by the results of operations to date. If such costs are not justified and we abandon the mine or suspend the mining activities without the formal consent of the regulatory authority for a period of more than 180 days, we may lose the respective mining concessions. Alternatively, we may elect to withdraw or assign some of our exploration authorizations or mining concessions.

In Peru, once mineral concessions are granted, they may not be revoked if the titleholder complies with two obligations, (1) payment of an annual fee and (2) either achievement of the minimum annual production target or expenditure of the equivalent amount in exploration or investments before the statutory deadline. If the production, expenditure or investment targets are not met, a statutory penalty must be paid. Accordingly, mineral concessions will lapse automatically if any of these obligations are not met within the statutory period. Mining concessions in Peru may be terminated if the concessionaire does not comply with its obligations.

These authorizations, permits, concessions and environmental licenses are subject to our compliance with conditions imposed and regulations promulgated by the relevant governmental authorities. While we anticipate that all required authorizations, permits, concessions and environmental licenses or their renewals will be granted as and when sought, there is no assurance that these items will be granted as a matter of course, and there is no assurance that new conditions will not be imposed in connection with such renewals. If we were to violate any of the foregoing laws and regulations or the conditions of our concessions, authorizations, and environmental licenses, including the failure to remove all residents who are within the self-rescue zone, we may be subjected to substantial fines or criminal sanctions, revocations of operating permits or licenses and possible closings of certain of our facilities.

Our estimates of Mineral Reserves and Resources may be materially different from the total mineral quantities we recover, and changes in metal prices, operating and capital costs, and other assumptions used to calculate these estimates may render certain Mineral Reserves and Resources uneconomical to mine.

There is a degree of uncertainty attributable to the estimation of Mineral Reserves and Resources. Until Mineral Reserves and Resources are mined and processed, the quantity of metal and grades must be considered as estimates only and no assurance can be given that the indicated levels of metals will be produced. In making determinations about whether to advance any of our projects to development, we must rely upon estimated calculations for the Mineral Reserves and Mineral Resources and grades of mineralization on our properties.

The estimation of Mineral Reserves and Resources is a subjective process that is partially dependent upon the judgment of the Qualified Persons preparing such estimates. The process relies on the quantity and quality of available data and is based on knowledge, mining experience, statistical analysis of drilling results and industry practices. Valid estimates made at a given time may significantly change when new information becomes available.

Our estimates of Mineral Reserves and Resources are based on geological interpretation and statistical inferences or assumptions drawn from drilling and sampling analysis made as of the date of such estimates. We periodically update our Mineral Reserves and Resources estimates based on the conclusions of the relevant Qualified Persons with respect to new data from exploratory and infill drilling, results from technical studies and the experience acquired during the operation of the mine and metallurgical processing, as well as changes to the assumptions used to calculate these estimates.

Several of the assumptions used to calculate these estimates, including the market prices of commodities and foreign exchange rates, operating and capital costs and mining and metallurgical recovery rates, among others, can greatly fluctuate, which may result in significant changes to our current estimates. These changes may also render some or all our proven and probable Mineral Reserves and Measured and Indicated Mineral Resources uneconomic to exploit and may result in a reduction in Mineral Reserves and Resources.

In addition, Inferred Mineral Resources are subject to significant uncertainty regarding their existence, grade, and economic and legal feasibility. There is no assurance that any part of estimated Inferred Mineral Resources will be upgraded to a higher category or that any Mineral Resources not already classified as Mineral Reserves will be reclassified as Mineral Reserves. Future exploration, technical studies, or economic assessments may not support the conversion of these Mineral Resources estimates to Mineral Reserves, which could materially and adversely impact our results of operations and finances.

We depend on our ability to replenish our Mineral Reserves for our long-term viability.

Mineral Reserves data is only indicative of future results of operations at the time the estimates are prepared and are depleted over time as we conduct our mining operations. We use several strategies to replenish and increase our Mineral Reserves that are depleted, including exploration activities and the acquisition of mining concessions. If we are unable to replenish our Mineral Reserves or to convert and develop our Mineral Resources, our business, results of operations and prospects would be materially and adversely affected.

Our mineral exploration efforts are highly speculative in nature and may be unsuccessful.

Mineral exploration is highly speculative in nature, involves multiple uncertainties and risks and may be unsuccessful. It is performed to demonstrate the dimensions, position and mineral characteristics of mineral deposits, estimate Mineral Reserves and Resources, assess amenability of the deposit to mining and processing scenarios, and estimate potential deposit value.

Substantial expenditures are required to establish proven and probable Mineral Reserves, to determine processes to extract the metals and, if required, to construct mining and processing facilities and obtain permits to continue mining activities. Therefore, once mineralization is discovered, it may take several years from the initial exploration phases and Mineral Resources determination before production is possible, if at all, during which time the project's feasibility may change adversely.

Any acquisitions or divestitures we make may not be successful or achieve the expected benefits.

We regularly consider and evaluate opportunities to acquire assets, companies, and operations, as well as constantly review our project portfolio and operating assets. There can be no assurance that we will be able to successfully integrate any acquired assets, companies, or operations, nor guarantee success in connection with any divestment or sale of an operational or non-operational project or asset. In addition, any additional debt we might incur to finance an acquisition may materially and adversely affect our financial position and results of operations. If future acquisitions are significant, they could change the scale of our business and expose us to new geographic, political, operating, and financial risks. Similarly, any divestitures we make may not have the anticipated positive impacts and could lead to an impairment charge or other material adverse effects on our business, financial position, and results of operations.

Failure to meet ESG standards and achieve our environmental and social commitments could adversely affect our business, reputation, and financial condition.

Public interest and legislative pressure related to ESG practices may vary significantly across the countries and jurisdictions in which we operate. If our ESG practices fail to meet regulatory requirements, our medium- and long-term ESG commitments, or the evolving expectations of investors, customers, employees or other stakeholders, our reputation, brand and ability to attract and retain talent may be negatively impacted, and customers and suppliers may be unwilling to continue doing business with us. Key areas of stakeholder focus include environmental stewardship, support for local communities, human capital management, employee health and safety, product quality, corporate governance, and transparency.

Stakeholders may focus on environmental issues, including climate-related risks, greenhouse gas (“GHG”) emissions, dam safety, and energy and water use. Concerns over the severity of weather-related events may result in new or increased legal and regulatory requirements to reduce or mitigate environmental impacts. If we fail to adapt to or comply with new regulations or disclosure requirements, investors may reconsider their capital investment in us and customers may choose to stop purchasing our products, which could have a material adverse effect on our business and financial condition.

We disclose information about our ESG goals and initiatives in our annual sustainability report and other communications, including voluntary commitments regarding GHG emission reductions, water consumption and safety. However, achieving these goals within our estimated investments, costs and timelines is subject to significant risks and uncertainties, including availability and affordability of necessary technology, unplanned operational issues, inability to obtain required permits, lack of necessary materials, customer acceptance of sustainable supply chain solutions, and shifts in public opinion and political leadership. Our ESG practices and initiatives may also result in increased operational costs, including monitoring, reporting, equipment and energy costs, which could materially impact our financial condition.

Additionally, certain political and regulatory developments reflect growing pushback against ESG initiatives, including measures that restrict or discourage ESG-related investment strategies and corporate initiatives. This may create challenges in balancing stakeholder expectations and could lead to legal, financial or reputational risks if our ESG approach is perceived as misaligned with regulatory or investor sentiment in different markets.

Political, economic, social and regulatory risks

Political, economic and social conditions in the countries in which we have operations or projects, or in which we do business, could adversely impact our business, financial condition results of operations and the trading price of our securities.

Political, economic and social conditions in the countries in which we have operations or projects, or in which we do business, may negatively affect our financial performance. Our business, financial position and results of operations may be affected by the general conditions of the Peruvian, Brazilian and other national political conditions, economies, economic recessions, price instability, exchange rate volatility, inflation, interest rates, and domestic regulatory and taxation policies. There can be no assurance that the countries in which we operate or do business will not face political, economic or social problems in the future or that these problems will not increase the volatility of the price of securities of issuers with operations in those countries, like us, or interfere with our ability to operate and service our indebtedness. For additional information, see “Operating and Financial Review and Prospects—Overview—Key factors affecting our business and results of operations.”

In all these countries, we are exposed to various additional risks over which we have no control, such as social unrest, bribery, cyberattacks, extortion, corruption, robbery, sabotage, kidnapping, civil strife, terrorism, acts of war and guerilla activities. These issues may adversely affect the economic and other conditions under which we operate in ways that could have a material and adverse effect on our business.

The current Brazilian political landscape may result in difficulties for the Brazilian federal government to obtain a majority of votes in the National Congress, which may lead to delays in the approval or the non-approval of certain economic measures, which may adversely affect Brazil’s economic growth and inflationary environment. These instabilities in Brazil may impair our business, financial condition or results of operations or adversely affect the market value of our securities.

Similarly, in recent years, Peru has experienced significant political instability. In 2025, Peru continued to face political uncertainty, including the appointment of a new president and changes in key members of the executive branch, which in turn have increased uncertainty regarding governance and the direction and implementation of economic and public policies. This continued in 2026, with the impeachment of President José Jeri and the election of José María Balcázar as the interim President. Such political conditions have adversely affected, and may continue to adversely affect, investor confidence and the overall economic outlook in the country. Inflationary pressures reduced economic growth and fluctuations in the Sol exchange rate may adversely affect our financial condition and results of operations. Political instability in Peru may also result in changes to, or delays in the enactment or implementation of, legislation and regulations applicable to our business in Peru.

Political and social opposition to mining activities in the regions we operate could adversely impact our business and reputation.

Disputes with communities where we operate may arise from time to time. In some instances, our operations and mineral reserves are located on or near lands owned or used by indigenous people or other groups of stakeholders. Some of our mining and other operations are in territories where title may be subject to disputes or uncertainties, or in areas claimed for agriculture or land reform purposes, which may lead to disagreements with organized social movements, local communities and the government. Further social or political changes, particularly in Peru and Brazil, may lead to a potential increase in these claims. We may be required to consult and negotiate with these groups as part of the process to obtain licenses required to operate, to mitigate impact on our operations or to obtain access to their lands. Disagreements or disputes with local groups, including indigenous groups, organized social movements and local communities could cause delays or interruptions to our operations, adversely affect our reputation or otherwise hamper our ability to develop our reserves and conduct our operations. Protesters have taken actions to disrupt our operations and projects, and they may continue to do so in the future, which may harm our operations and could adversely affect our business. In recent years, Peru has experienced protests against mining projects in several regions. On several occasions, local communities have opposed these operations and accused them of polluting the environment and hurting agricultural and other traditional economic activities. Social demands and conflicts could have a material adverse effect on our business and results of operations and the economy in general of the countries in which we operate.

Our operations depend on our relations and agreements with local communities, and new projects require conducting a prior consultation procedure.

There are several local communities that surround our operations in Brazil and Peru, most of which we have entered into agreements with that provide for the use of their land for our operations. We also interact with regional and local governments and depend on our close relations with local communities and such governments to conduct our operations. From time to time, we may experience disputes with local communities and if our relations with the local communities and such governments were to deteriorate, or the local communities do not comply with the existing agreements or renew them upon expiration, it could have a material adverse effect on our business, reputation, properties, operating results, financial position, or prospects. In addition, a disruption in the relations between the local communities, governments and other parties may affect us indirectly.

In August 2025, we experienced a partial suspension of mining activities at the Atacocha and El Porvenir mines for seven days. A small group of individuals from the San Juan de Milpo community illegally blocked access to the mines as part of protest activities. The temporary and partial disruption resulted in an estimated zinc production loss of approximately 1.2kt of zinc, which was partially recovered in following months.

In January 2026, we also experienced a partial suspension of mining activities at the Atacocha mine for approximately four weeks, when a small group of individuals from the Joraoniyoc community blocked road access to the mine as part of protest activities. The temporary disruption resulted in an estimated zinc production loss of approximately 0.9kt of zinc. These disruptions could delay project development, reduce mining volumes, increase mining or exploration costs, and hinder the transportation of raw materials to our sites or the delivery of concentrates to customers.

We also may face certain risks in relation to artisanal mining near the areas in which we operate. The increase of artisanal mining activity or the failure of these artisanal miners to abide with our existent agreement may have an adverse effect on the development of our operations. For example, see “Mining Operations—Aripuanã—History.”

Furthermore, to develop new projects in the countries in which we operate on land owned by, or in the possession of, third parties, we need to reach an agreement with such third parties to use that land. Any delay or failure to reach such agreements or obtain governmental approvals for our new projects could result in a material and adverse effect on our business, properties, operating results, financial position or prospects.

Risks relating to our corporate structure

It could be difficult for investors to enforce any judgment obtained outside Luxembourg against us or any of our associates.

We are organized under the laws of Luxembourg. Furthermore, certain of our directors and officers reside outside the United States and Canada and most of their assets are located outside the United States and Canada. Most of our assets are located outside the United States or Canada. As a result, it may not be possible for investors to effect service of process upon us or our directors and officers within the United States, Canada, or other jurisdictions outside Luxembourg or to enforce against us or our directors and officers, judgments obtained in the United States, Canada, or other jurisdictions outside Luxembourg. Because judgments of United States or Canadian courts for civil liabilities based upon the U.S. federal securities laws or Canadian securities laws may only be enforced in Luxembourg if certain requirements are met, investors may face greater difficulties in protecting their interest in actions against us or our directors and officers than would investors in a corporation incorporated in a state or other jurisdiction of the United States or Canada.

VSA has substantial control over us, which could limit our shareholders' ability to influence the outcome of important corporate decisions.

As of March 26, 2026, VSA owns 64.68% of our issued and outstanding common shares. As a result, VSA can influence or control matters requiring approval by our shareholders, including the election of directors, the allocation of profits, the appointment of external auditors and the approval of mergers, acquisitions, or other extraordinary transactions. VSA may also have interests that differ from those of our other investors and may vote in a way that conflicts with or is adverse to the interests of our other investors. Additionally, VSA's control over us may result in a lack of trading liquidity.

In addition, we have entered into several shared services contracts and similar agreements with other entities within the Votorantim Group in order to achieve operational economies of scale. Since we rely on the Votorantim Group for the negotiation, renewal and extension of these agreements, there can be no assurances that we will always have access to the services procured pursuant to these agreements at the same prices and conditions. See "Share Ownership and Trading—Related Party Transactions."

The rights of our shareholders, and the responsibilities of VSA as our controlling shareholder, are governed by Luxembourg law and are subject to certain Brazilian law provisions and differ in some respects from the rights and responsibilities of shareholders under the laws of other jurisdictions, including the United States and Canada, and shareholders may have more difficulty protecting their interests than they would as shareholders of a U.S. corporation.

Our corporate affairs are governed by our articles of association and by the laws governing limited liability companies organized under the laws of Luxembourg, as well as such other applicable local law, rules and regulations, and certain provisions of Brazilian corporate law. The rights of our shareholders and the responsibilities of VSA as our controlling shareholder and of our directors and officers under Luxembourg law are different from those applicable to a corporation incorporated in the United States or Canada. There may be less publicly available information about us than is regularly published by or about U.S. or Canadian issuers. Also, Luxembourg regulations governing the securities of Luxembourg companies may not be as extensive as those in effect in the United States or Canada, and Luxembourg law and regulations in respect of corporate governance matters may not be as protective of non-controlling shareholders as corporation laws in the United States or Canada. Therefore, shareholders may have more difficulty protecting their interests in connection with actions taken by us, our directors and officers or our principal shareholders than they would as shareholders of a corporation incorporated in the United States or Canada.

Our ability to pay dividends or other distributions and repurchase shares is subject to several factors and conditions.

The determination to pay dividends and the payment of dividends or other distributions (including reimbursements of share premium) will be subject to the approval of our Board of directors and/or our shareholders, as applicable, and will depend on a number of factors, including, but not limited to, our cash balance, cash flow, earnings, capital investment plans, expected future cash flows from operations, our strategic plans and cash dividend distributions from our subsidiaries, as well as restrictions imposed by applicable law and contractual restrictions (although as of the date of this annual report there are no contractual restrictions on our ability to pay dividends or other distributions to our shareholders), LME and LBMA metal prices and other factors our Board of directors may deem relevant at the time. Luxembourg law also imposes certain requirements regarding distributions. For additional information, see “Share Ownership and Trading—Distributions.”

We are a holding company and have no material assets other than our ownership of shares in our subsidiaries. When we pay a dividend or other distribution on our common shares, we generally cause our operating subsidiaries, including subsidiaries that are not wholly owned by us, to make distributions to the parent company in an amount sufficient to fund any such dividends or distributions to our shareholders. Although as of December 31, 2025, there were no material contractual restrictions on our subsidiaries’ ability to make distributions, their ability to do so is subject to, among other things, their capacity to generate sufficient earnings and cash flow and may also be affected by statutory accounting and tax rules in Brazil and Peru.

The determination to repurchase shares of our common stock is discretionary. Our ability to repurchase shares will depend on a number of factors, including, but not limited to, metal prices, restrictions imposed by applicable law, contractual restrictions, and other factors our Board of directors may deem relevant at the time. Our decision to repurchase shares could have a negative effect on our free cash flow and/or the liquidity of our common stock.

Operational risks

We may be materially and adversely affected by challenges relating to slope and stability of underground openings.

Our underground mines get deeper, and our waste and tailings storage facilities increase in size as we continue with and expand our mining activities. This presents certain geotechnical challenges, including the possibility of failure of underground openings. If we are required to further reinforce such openings or take additional actions to prevent such a failure, we could incur additional costs and expenses, and our operations and stated mineral reserves could be negatively affected. We have taken actions we consider appropriate to maintain the stability of underground openings, but additional actions may be required in the future. Unexpected failures or additional requirements to prevent such failures may materially and adversely affect our costs and expose us to health, safety and other liabilities in the event of an accident, as well as adversely impacting our reputation. These developments may in turn materially and adversely affect the results of our operations and financial position, as well as potentially diminish our stated mineral reserves.

Our projects are subject to operational risks that may result in increased costs or delays that prevent their successful implementation and/or adversely affect their expected financial return.

We invest in sustaining and increasing our mine and metal production capacity and developing new operations. Our projects are subject to several risks that may materially and adversely affect our growth prospects and profitability, including the following:

- we may encounter delays or higher than expected costs in completing technical, engineering studies and obtaining the necessary equipment, machinery, materials, supplies, labor or services, in project execution by third-party contractors and in implementing new technologies to develop and operate a project;
- we may experience delays in commencing and/or ramping up the operations of a new project or the expansion of an existing operation to its design capacity;
- our efforts to develop projects according to schedule may be hampered by a lack of infrastructure, including a reliable power supply;

- we may fail to obtain or renew, or experience delays or higher than expected costs in obtaining or renewing, the required agreements, authorizations, licenses, approvals and permits to develop a project, including the prior consultation procedure and agreements with local communities;
- changes in market conditions or regulations may make a project less profitable than expected at the time we initiated work on it;
- accidents, natural disasters, labor disputes, equipment failures, water shortages, logistical issues, interruption of energy supply and increase in energy costs;
- adverse mining conditions may delay and hamper our ability to produce the expected quantities and qualities of minerals upon which the project was budgeted;
- mineral reserves and resources are estimates based on the interpretation of limited sampling data and test work that may not be representative of the deposits as a whole, or the technical and economic assumptions used in the estimates may prove to be materially different when the deposits are mined, that could result in materially different economic outcomes; and
- conflicts with local communities, unions and/or strikes or other labor disputes may delay the implementation or the development of projects.

There are unique risks inherent to the development of underground mines, which may have a material adverse impact on our current and future cash flows.

The development of underground mines is subject to other unique risks including, but not limited to, geotechnical conditions, underground floods, issues relating to ventilating harmful gases, fall-of-ground accidents, and seismic activity resulting from unexpected or difficult geological conditions. While we anticipate taking all measures to safely operate, there is no assurance that the effect of these risks will not cause schedule delays, revised mine and operational plans, injuries to persons and property, and/or increased capital costs, any of which may have a material adverse impact on our cash flows.

We are subject to mine closure and environmental reclamation obligations, which may require substantial financial assurance and could negatively impact our liquidity and financial condition.

As a mining company, we are obliged to reclaim and remediate operationally affected areas during and after mining activities. These obligations are subject to regulatory changes, site conditions, and other external factors. In certain jurisdictions, we are required to provide financial assurances, such as bank guarantees, to ensure compliance with reclamation requirements. While these assurances are currently modest relative to our overall obligations, they may increase over time.

The costs associated with mine closure and environmental reclamation could be significant and may increase annually due to inflation, changes in regulatory requirements, and unforeseen site conditions. As of December 31, 2025, we have recognized provisions for these obligations; however, actual costs may exceed estimates. Changes in the regulatory requirements or the scope of necessary reclamation work could further impact our financial position and cash flows.

Failure to fulfil our reclamation and closure obligations or to provide adequate financial assurance could result in regulatory penalties, including fines, permits revocations, or other adverse consequences. Such risks could materially and adversely affect our operations, financial results, and reputation.

Changes in the assumptions underlying the carrying amount of certain assets could result in significant impairment charges.

We periodically assess whether our tangible and intangible assets have suffered any impairment, in accordance with the accounting policy stated in our consolidated financial statements. If our estimates of the recoverable amount of asset change or are inaccurate, we may determine that impairment charges are necessary. While impairment does not affect reported cash flow, the decrease in the recoverable amount determined could have a material adverse effect on our results of operations. Assurances cannot be given as to the absence of significant impairment charges in future periods, particularly if market conditions deteriorate.

Disruption in supply of zinc concentrate, secondary feed materials, zinc calcine, key-consumables, natural gas, and electric energy could have a material adverse effect on our production levels and financial results.

A portion of the zinc concentrate processed in our smelters is obtained from third parties, and we may be adversely affected if we are unable to source adequate supplies. In 2025, 49.2% of the zinc concentrate processed in our smelters was obtained from third parties, with the remainder supplied by our own mining operations and from secondary feeds. The availability and price of zinc concentrate may be negatively affected by factors beyond our control, including interruptions in production by our mines or suppliers, decisions by suppliers to allocate supplies to other purchasers, price fluctuations and increasing transport costs. The efficiency of our smelter production is also affected by the mix of zinc concentrate qualities and grades processed. Where we cannot source adequate supplies of the concentrate qualities and grades that comprise the most efficient mix, alternative types may be available, but their use may increase production costs or reduce smelter productivity.

In addition, zinc sourced from secondary feed materials represented approximately 10.1% of the zinc content used by our Juiz de Fora smelter in 2025. The use of secondary feed material provides a competitive advantage over zinc concentrate, due to lower acquisition costs and operational gains. We have also incorporated zinc calcine processed by third parties into our operations to increase smelter production. To the extent we are unable to obtain adequate supplies of zinc secondary feeds or zinc calcine, or if we must pay higher than anticipated prices, our business, results of operations and financial position may be adversely affected. In recent years, our calcine supplier in Peru shut down its facilities, impacting smelter production. Since 2022, we have partially offset the reduction in calcine availability through development and consumption of new sources of secondary raw materials, such as third-party waelz oxide, which now provides flexibility for consumption of different raw materials in our smelter operations. Though we have secured a new source of calcine in Peru in 2024, we cannot assure shareholders that we will be able to continuously have secure access to the raw materials required for our operations in the future.

Natural gas is a critical energy input for our Peruvian smelting operations, particularly at Cajamarquilla, where it is used in the roasting and refining processes. Our supply is sourced under contracts with Peruvian natural gas distributors and is subject to risks including price volatility, pipeline disruptions, regulatory changes affecting the Peruvian natural gas market, and potential supply constraints driven by competing industrial demand. Any sustained interruption in natural gas supply or a material increase in its price could reduce smelter output and increase our operating costs in Peru.

Electric energy is a key consumable across all of our mining and smelting operations. Our electricity supply is sourced predominantly from renewable sources, primarily hydroelectric power, with renewable sources accounting for 98.3% in 2025. While this positions us favorably from a carbon-intensity and cost perspective, it also exposes us to hydrological risk. Prolonged drought conditions, which have affected Brazilian and Peruvian water systems in recent years, can reduce hydroelectric generation capacity and result in supply constraints or higher spot market prices. In Peru, electricity supply to our operations is subject to the regulatory framework governing the national interconnected grid, and any adverse changes to that framework, including pricing mechanisms or dispatch priorities, could increase our energy costs or affect supply reliability. To the extent we are unable to secure adequate electric energy supply at anticipated costs, our production levels and financial results may be adversely affected.

The nature of our business includes risks related to litigation and administrative proceedings that could materially and adversely affect our business and financial performance in the event of unfavorable rulings.

The nature of our business exposes us to various litigation matters, including civil liability claims, environmental matters, health and safety matters, regulatory and administrative proceedings, governmental investigations, tort claims, contract disputes, labor matters, and tax matters, among others. We cannot assure shareholders that these or other legal proceedings will not have a material adverse effect on our ability to conduct our business or on our financial position and results of operations, through distraction of our management team, diversion of resources or otherwise. In addition, although we establish provisions in our financial statements as we deem necessary in accordance with IFRS Accounting Standards, the level of provisions that we record could vary significantly from any cash amounts we pay, due to the inherent uncertainties in the estimation process, which, in the aggregate, may negatively impact on our financial condition.

We may be liable for certain payments to individuals employed by third-party contractors.

Under Peruvian law, we may become responsible under certain circumstances to pay mandatory labor benefits or other obligations to personnel employed by our third-party contractors or sub-contractors. Although we believe that we are in substantial compliance with Peruvian labor laws, we cannot assure shareholders that any proceedings initiated by outsourced employees will be resolved in our favor and that we will not be liable for any mandatory labor benefits or for-profit sharing benefits. In the beginning of 2022, a law was published in Peru prohibiting companies from outsourcing core operational activities. More than 70% of our Peruvian workforce is employed by third-party contractors. In July 2023, the law was deemed to be unconstitutional because it was determined to be an unenforceable bureaucratic barrier by the National Institute for the Defense of Competition and the Protection of Intellectual Property (“INDECOPI”). In addition, we initiated a lawsuit seeking to declare the unconstitutionality of this law. However, in October 2025 the Constitutional Court determined that the prohibition to outsource core activities is constitutional. As a result of this ruling, chances of obtaining a favorable outcome in our action seeking a declaration of unconstitutionality of this law are remote. In parallel, there is a class action initiated by Servicio de Agua Potable y Alcantarillado de Lima (“SEDAPAL”) and other companies challenging the aforementioned law, which is pending a final judgment on appeal. We are not a party to this class action, but its outcome may impact the legal criteria applicable to our situation. Even so, the complaint filed at INDECOPI is still in effect in our favor, and we continue to monitor any developments. However, we cannot assure that the final outcome will be favorable to us or that the law will not have any material impact on us. Additionally, any future laws or regulations that would make us responsible under Peruvian law for paying mandatory labor benefits or for-profit sharing benefits for individuals employed by third-party contractors could have an adverse impact on our business, financial position, and results of operations. For more information, see “Information on the Company—Regulatory Matters—Peruvian regulatory framework—Regulation of other activities.”

Under Brazilian law, outsourcing is permitted if certain requirements are met. In addition, Brazilian law provides that the contractor will be held liable on a secondary basis if the outsourced or subcontracted companies do not fulfill their labor obligations. In cases where the outsourced or subcontracted companies do not pay the workers the labor sums they are entitled to, the contractor is responsible for those payments. These payments may have an adverse effect on our results of operation and financial position.

Our business could be adversely affected by the failure of our counterparties to perform their obligations.

Customers, suppliers, contractors, financial institutions, joint venture partners, and other counterparties may fail to perform existing contracts and obligations, which may unfavorably impact our operations and financial results. The ability of suppliers and customers to perform their obligations may be adversely affected in times of financial stress and economic downturn.

We currently operate important parts of our operations, particularly those related to our energy consumption and investments, through joint ventures. Our forecasts and plans for these joint ventures assume that our partners will observe their obligations to make capital contributions, purchase products and, in some cases, provide skilled and competent managerial personnel. If any of our partners fails to observe its commitments, the affected joint venture or consortium may not be able to operate in accordance with its business plans, or we may have to increase the level of our investment to implement these plans.

Some of our investments are controlled by joint venture partners or have separate and independent management. These investments may not fully comply with our standards, controls and procedures, including our health, safety, environment and community standards. Failure by any of our partners or joint ventures to adopt adequate standards, controls and procedures could lead to higher costs, reduced production or environmental, health and safety incidents or accidents, which could adversely affect our results and reputation.

We may be adversely affected by the failure or unavailability of adequate infrastructure and skilled labor.

Our mining, smelting, processing, development, and exploration activities depend to a large degree on adequate infrastructure. The regions where certain of our current operations, projects and prospects are located in remote, sparsely populated regions that are difficult to access. To conduct our operations efficiently, we depend on reliable roads, bridges, power sources, and water supplies. The availability and cost of this infrastructure directly impact our capital and operating expenses, as well as our ability to maintain expected production and sales levels. Several factors, such as unusual weather events (including heavy rainfall and flooding), other natural disasters, sabotage, government actions or external interference (including protests by local communities that could temporarily suspend our projects), may disrupt infrastructure maintenance or availability.

In addition, the mining industry is labor-intensive, and our success depends to a significant extent on our ability, and our contractors' ability to attract, hire, train and retain qualified employees, including individuals with the necessary skills in the regions in which we operate. We could experience increases in recruitment and training costs, as well as decreases in operating efficiency, productivity, and profit margins, if we are unable to attract, hire and retain a sufficient number of skilled employees to support our operations.

We may be adversely affected by labor disputes.

Mining is a labor-intensive industry. We depend on more than 15,000 workers, including employees and contractors, to conduct our operations. A portion of our employees are unionized. On June 26, 2025, operations at the Cajamarquilla smelter were partially and temporarily suspended, as operator employees, represented by their labor union, initiated a strike on June 25, 2025. On June 30, 2025, operations at the Cajamarquilla smelter fully resumed at normal capacity utilization levels, following the successful conclusion of negotiations. The temporary suspension lasted three days. We cannot assure that we will not experience further work slowdowns, work stoppages, strikes or other labor disputes in the future, particularly in the context of the annual renegotiation of our collective bargaining agreements.

We may also be affected by labor-related disputes that broadly develop in the countries in which we operate. Strikes and other labor disruptions at any of our operations could have a material adverse effect on our business, financial position and results of operations.

We could face significant challenges due to failures or interruptions in our information technology systems or automated machinery, including system security breaches resulting from cyber-attacks.

Our information technology systems and automation technology systems may be impacted by failures associated with various risks, including security system breaches or cyberattacks targeted at our technological infrastructure. In this regard, we invest in resources that help us deploy and enhance cybersecurity controls.

We have implemented and use systems and technological solutions for our operational and administrative processes. These can have material and adverse impacts on our results in the event of failures or unavailability due to malicious activities resulting from unauthorized access to our internal systems, vulnerabilities in critical systems, malware, corporate espionage, third-party system failures, and sabotage. These events may lead to the loss of critical data, unscheduled downtime or degradation of operations, disclosure or misuse of confidential information, reduced revenue, unexpected operational costs, reputational damage, and potential legal or regulatory violations. All of these factors could materially and adversely impact our financial and operational results.

We have observed an increase in cyber risk, significantly driven by geopolitical conflicts and the growing use of emerging technologies, particularly those based on AI. Recent data shows a considerable rise in attacks targeting critical infrastructure, industrial companies, and government bodies. There has also been a notable evolution in the sophistication of malicious actions, requiring greater efforts from companies to enhance their readiness and ability to detect, respond to and recover from cyberattacks. Given the current scenario, we are susceptible to cyber incidents that may affect our technological infrastructure, whether proprietary or provided by business partners.

A successful cyberattack or other cybersecurity incident could result in production and operational downtimes, data corruption, unauthorized disclosure of sensitive information, reduced revenue, unexpected operational costs, reputational damage, and potential legal or regulatory violations. Although cyber incidents to date have not resulted in any material breaches, disruptions, or loss of business-critical information, our systems and procedures for preparing and protecting against such attempts and mitigating such risks may prove to be insufficient against future attacks. These events may subject us to significant expenses, remediation costs, disputes, financial losses, regulatory actions or investigations, litigation, reputational harm, and delays in the deployment of critical technologies, which could result in damages, material fines and penalties, and harm to our reputation, any of which could have a significant effect on our financial condition, results of operations, liquidity, and cash flows.

Privacy, data protection, and cybersecurity are constantly adapting to frequently changing regulations and standards. The General Data Protection Regulation (“GDPR”) of the European Union came into effect in 2018, introducing stricter rules regarding the security of personal data. The GDPR requires companies to comply with new guidelines for handling personal and sensitive information, including its use, protection, and the rights of individuals to correct or delete their stored data. In Peru, the Personal Data Regulation, Law No. 29.733, known as the *Ley de Protección de Datos Personales* (“LPDP”), was enacted in 2011 and was supplemented by Supreme Decree No. 016-2024-JUS, published in 2024. Cybersecurity matters in Peru are regulated under a separate legal framework from the LPDP (Urgency Decree No.007-2020, which approves Peru’s Digital Trust Framework and provides measures to regulate and strengthen the Digital Trust Framework, approved by Supreme Decree 126-2025-PCM). Similarly, in Brazil, Law No 13.709, the *Lei Geral de Proteção de Dados* (“LGPD”) came into effect in 2020, which closely mirrors the principles outlined in the GDPR. These regulations reflect the ongoing evolution of privacy, data protection, and cybersecurity standards worldwide. We also observe a series of deliberations by regulatory bodies responsible for Data Protection in these countries and regions, primarily focused on responsibilities and data breach reporting criteria; sanctions; and how to adequately calculate fines, and the role of the Data Protection Officer. Regarding data governance, Peru has also issued specific rules on the role of a Data Protection Officer (“DPO”), through a Directive that establishes the requirements for the designation, performance, and functions of a DPO (approved by Directorial Resolution No. 100-2025-JUS/DGTAIPD). Both the LGPD and LPDP represent comprehensive data protection laws, establishing detailed rules for the collection, use, processing and storage of personal data and affecting all economic sectors, including the relationship between customers and suppliers of goods and services, employees and employers and other relationships in which personal data is collected, whether in a digital or physical environment. In public companies that require certain disclosures regarding cybersecurity risk, such scrutiny from the regulators increases the risk of investigations into the cybersecurity practices, and related disclosures, of companies within its jurisdiction, which at a minimum can result in an increase in administrative costs, distraction of management and diversion of resources for targeted businesses. Any noncompliance with the GDPR, the LGPD, the LPDP, the SEC cybersecurity rules, or any other privacy, data protection and cybersecurity regulations could result in proceedings or actions against us by governmental entities, the imposition of fines or penalties and damage to our reputation, which could have an adverse effect on us and our business, reputation, and results of operations.

Our information and operational technology systems may be adversely affected by disruptions, damage, failure, and risks associated with implementation and integration of new technologies.

Information and operational technology systems are constantly evolving, and to remain competitive, we must implement new technologies in a timely, cost-effective, and efficient manner. We actively update our corporate strategy for AI and the use of new technologies, which may increase our exposure to cybersecurity risks. AI models are used to support decision-making, while material financial and operational decisions remain subject to human review and approval in accordance with our governance framework. While AI has the potential to improve efficiency and safety, it also presents unique vulnerabilities that may adversely impact our operations, including algorithmic biases that could lead to inaccurate decisions or unintended outcomes; data integrity risks, such as manipulation or corruption of datasets used to train AI systems (data poisoning); AI hallucination, which can generate incorrect or misleading information that may negatively impact internal decision-making processes; and unauthorized access or exploitation of AI-powered systems, potentially compromising operations or sensitive data.

Additionally, adopting new technologies like AI requires new capabilities, which may require re-skilling of our existing workforce and could replace some tasks and result in workforce changes. A failure to manage these changes effectively could lead to adverse impacts including eroding our workplace culture and operational disruptions.

The increased interconnectivity of automated, AI, and cloud-based systems, combined with the expansion of our remote workforce, increases our cyber-attack risk. This requires heightened vigilance and the implementation of advanced security measures.

At the same time, despite our best efforts, failure to adopt new technologies, such as AI, as efficiently or as quickly as our competitors may adversely affect our competitiveness and, consequently, the results of our operations.

Health, safety and environmental risks

The failure of a tailings dam could negatively impact our business, reputation and results of operations, and the implementation of associated regulations and decommissioning processes may be expensive.

As a mining company, we face inherent risks associated with the operation of tailings dams, which are structures built for the containment of the mining or industrial waste, known as tailings, and in the operation of related structures and facilities. We currently have 40 disposal facilities, 22 of which are active and 18 inactive, including industrial waste dams, tailings dams, waste piles, dry stacking disposal facilities, effluent dams, sediment dams and water storage dams. 18 of these structures are located in Peru and 22 are located in Brazil. Some of our tailing's dams contain materials that could increase the potential hazard in the event of unexpected failure. As evidenced by the collapse of dams in Brazil over the last decade, any such failure could result in significant personal, property, reputational, social and environmental damages, and materially and adversely affect our reputation and our ability to conduct our operations and expose us to significant liability.

Regulatory changes have increased the time and costs associated with construction, operation, inspection, maintenance, and decommissioning tailings dams. In Brazil, obtaining or renewing an environmental license for new tailings dams or for building new dams now requires additional compliance measures. As part of this process, companies must present a proposal for an environmental bond to guarantee the socio-environmental recovery in the event of an accident or the deactivation of the dam. For more information see "Information on the Company—Mining Operations—Tailings Disposal."

In compliance with applicable regulations, we have conducted engineering studies to evaluate stability and confirm the construction method of old inactive industrial waste containment structures located in our Juiz de Fora unit, located in the State of Minas Gerais. These structures, since they became inactive more than 20 years ago, have been subject to decommissioning as monitored by the environmental agency of the State of Minas Gerais as part of the environmental licensing process for the unit. None of these structures contain mining tailings, water or liquid waste. After discussions with the State Environment Foundation, FEAM (*"Fundação Estadual do Meio Ambiente"*) they have been characterized as dry stacking structures (piles). Therefore, no de-characterization projects are required. All structures are non-operational and are stable. As a result, the provision previously recorded for potential de-characterization will be reduced, leaving only a residual amount for necessary adjustments for closure and preventive maintenance.

Certain regulations, such as those enacted by ANM between 2020 and 2025, may also impose requirements that are more restrictive than our current standards, including mandated compliance with emergency plans and increased insurance requirements and premiums, or require us to pay additional fees or royalties to operate tailings dams. We may also be required to facilitate the relocation of communities and facilities impacted by tailings dam failures. Moreover, insurance coverage for damages resulting from tailings dams' failure may not be available. As a result, we may incur increased expenses in connection with compliance with applicable standards, which may adversely impact on our results. If we fail to comply with applicable requirements, we may be exposed to liability and other penalties.

The collapse of dams, dry tailings or other geotechnical structures may cause severe damages, including personal, property, reputational, environmental damages, and loss of life.

We own several dams, dry stacking disposal facilities, and other geotechnical structures, which may present higher stability risks, especially related to liquefaction. We cannot guarantee that our safety measures will be sufficient and the collapse of any of these structures could cause significant loss of life, personal property and environmental damage, as well as having a material adverse effect on our business, operations, and reputation.

We are exposed to health, safety and environmental risks in our operations, and we may not be able to prevent accidents from happening.

Working underground in mines, in tailings' disposal facilities and across all our activities is inherently risky, presenting potential health, safety, industrial, environmental, and other risks that may affect our operations, employees and surrounding communities. Although safety is our number one priority throughout all our operations, we cannot eliminate the risk of accidents. In 2024 and 2025, such accidents resulted in three and two fatalities, respectively, which underscores the inherent risks of our activities that may have a negative effect on our results of operations and reputation. See "Environmental, Social and Governance (ESG)—Materiality Matrix—Health, safety and well-being."

Global or regional health considerations, including the outbreak of a pandemic or contagious disease, have impacted and could continue to impact our business, financial condition, and results of operations.

Pandemics or health crises could have significant impacts, including disruption to financial markets, rising inflation, and increased volatility due to market expectations for a global recession. The outbreak of contagious diseases, or future pandemics and public crises could present risks to our operations (including the ability of employees to be physically present at work), employee health and safety, mandatory operational closures and general macroeconomic activity, including international market prices for the metals we produce, as well as have a severe impact to our business, customers, or supply chain. This impact could continue for an extended period of time or impact our financial condition and results of operations and continued weak or worsening economic conditions could negatively impact demand for our products.

Natural disasters and increasing severity of weather-related events could affect our business.

Natural disasters could significantly damage our mining and production facilities and infrastructure and may cause a contraction in sales to countries adversely affected due to, among other factors, power outages and the destruction of industrial facilities and infrastructure. In particular, the Central Andean region, where two of our mines are located, is prone to mudslides and earthquakes of varying magnitudes. Due to the El Niño and La Niña weather phenomena, Peru typically experiences extreme weather events that lead to flooding and mudslides, and which could adversely affect our operations. In the past, extreme flooding and mudslides in Peru have interrupted the supply of metal concentrates from our mines and the supply of zinc products to our plants. In addition, Brazil has been experiencing increasingly unpredictable and severe weather events, including historically heavy rainfall in multiple consecutive years. The physical impact of adverse weather events on our business remains uncertain, but we are likely to experience changes in rainfall patterns, increased temperatures, water shortages, rising sea and river levels, lower water levels in rivers due to natural or operational conditions, increased storm frequency, and intensity as a result of increasing severity of weather-related events, which may adversely affect our operations. For example, in the Pasco region (El Porvenir and Atacocha) and at Aripuanã we faced atypical heavy rainfall, with Aripuanã recording rainfall volumes more than 30% above the two-year historical average. Our local team effectively responded to these events ensuring the safety and stability of operations, but we cannot guarantee that any future natural disasters or events will not adversely affect our operations. Although we have certain insurance policies covering damage caused by natural disasters, extensive damage to our properties and facilities and staff casualties due to natural disasters may not be covered by our insurance policies and/or could materially and adversely affect our ability to conduct our operations and, as a result, reduce our future operating results.

In addition, the potential physical impact of adverse weather events on our operations is highly uncertain and would be particular to the geographic circumstances of our facilities and operations. It may include changes in rainfall patterns, water shortages, forest fires, rising sea and river levels, changing storm patterns and intensities, and changing temperatures. These effects may materially impact the cost, production, and financial performance of our operations.

Interruptions of energy supply or increases in energy costs may materially and adversely affect our operations.

Energy is a key component of our production costs. In Peru, we obtain the majority of our electric power for our operations from third parties through energy supply contracts. Although we are party to long-term power purchase agreements with Electroperú S.A. (until the end of 2026) and Kallpa Generación S.A. (from 2027 to 2036), we cannot ensure that we will have secure access to energy sources in Peru at the same prices and conditions in the event of any interruption or failure of our sources of energy, failures or congestion in any part of the *Sistema Eléctrico Interconectado Nacional* (“SEIN”), any failure to renew or extend our other existing energy supply contracts, or due to any regulatory changes that may impact energy rates. In 2025, rainfall was stable throughout the year. Without major water shortages, average energy prices remained around US\$30/MWh. However, the inefficient energy generation in the SEIN, which currently lacks renewable energy projects (i.e., hydroelectric, wind and solar), may adversely impact our operations in case of lack of rain in central Peru, given that most of the energy consumption in the country comes from hydroelectric plants, and may result in an increase in energy prices. These types of renewable projects are expected to lower the prices that energy generators are able to offer to large industrial users.

In Brazil, we obtain electric power for our operations from hydroelectric plants grouped into several legal entities—which are directly or indirectly jointly owned by us, our controlling shareholder, and its affiliates—pursuant to long-term power purchase agreements. In 2025, self-production plants represented 82.2% of energy supply, in terms of energy acquired via energy purchase and sale contracts. Furthermore, our energy costs under these agreements could increase in the event of differences in the hydrology forecast due to the fact that these hydroelectric plants share hydrological risk, in addition to payment of higher energy taxes. For more information, see “Information on the Company—Energy—Power and energy supply.”

Prices and availability of energy resources for our operations may be subject to changes or curtailment due to, among other things, new laws or regulations, the imposition of new taxes or tariffs, supply interruptions, equipment damage, volatility and increase in worldwide price levels for energy and related components, market conditions, and any inability to renew our existing supply contracts. Disruptions in energy supply or increases in costs of energy resources could increase our production costs and have a material adverse effect on our financial position and results of operations.

Shortages of water supply due to permitting, licensing, and other governmental regulations, explosives, critical spare parts, maintenance service and new equipment and machinery may materially and adversely affect our operations and development projects.

Our mining and smelting operations require the use of significant quantities of water for extraction activities, processing, and related auxiliary facilities. Water usage, including extraction, containment, and recycling requires appropriate permits, which are granted by regulatory authorities in Brazil and Peru. The available water supply may be adversely affected by shortages or changes in governmental regulations. We cannot assure shareholders that water will be available in sufficient quantities to meet our future production needs or will prove sufficient to meet our water supply needs. In addition, we cannot assure shareholders that we will maintain our existing licenses related to water rights, particularly if political changes lead to additional regulatory requirements or review of existing licenses. A reduction in our water supply could materially and adversely affect our business, results of operations and financial position. In addition, if we are unable to obtain the necessary licenses with respect to water use, we may be prevented from pursuing some of our planned expansion projects.

In addition to water, our mining operations require intensive use of equipment and machinery as well as explosives. To be able to acquire and use explosives, we must first obtain the corresponding authorizations, which are granted by the relevant regulatory authorities in Brazil and Peru. A shortage in the supply of key spare parts, adequate maintenance service, new equipment and machinery to replace old ones and cover expansion requirements, or explosives, including due to the inability to deliver such water, energy, supplies, critical spare parts, explosives, or equipment and machinery to our operations, or regulatory change impacting our ability to obtain authorization for the acquisition of such materials, could materially and adversely affect our operations and development projects.

Financial risks

Our financial position and results of operations may be materially and adversely affected by currency exchange rate fluctuations.

Our revenues are primarily denominated in U.S. dollars, while certain portions of our operating costs, particularly labor costs, are denominated in *reais* and *soles*. As a result, an increase in inflation in Brazil and Peru, without a corresponding devaluation of the *real* or *sol*, could materially and adversely affect our financial position, results of operations, net income, and cash flows. See “Operating and Financial Review and Prospects—Key factors affecting our business and results of operations—Macroeconomic conditions of the countries and regions where we operate” for a discussion of inflation in 2025.

Given the structure of our operations, a decrease in the value of the U.S. dollar relative to the foreign currencies in which we incur costs could negatively impact our results of operations or financial position. Our exposure to foreign currency fluctuations increases the risk of volatility in our financial position, results of operations and cash flows. We cannot assure shareholders that currency fluctuations, or costs associated with our hedging activities (including fluctuations in exchange rates contrary to our expectations), will not adversely impact our financial position, credit ratings and results of operations.

Fluctuations in interest rates could increase the cost of servicing our debt, affect returns on our financial investments and negatively affect our overall financial performance.

A portion of our indebtedness bears interest based on variable/floating interest rates, including the Secured Overnight Financing Rate (“SOFR”), the Interbank Deposit Certificate (“CDI”), and the Long-Term Rate (“TLP”). As of December 31, 2025, 21.2% of our total debt was subject to variable/floating interest rates. These rates have fluctuated in response to changes in economic growth, monetary policy, and regulatory changes. A significant increase in underlying interest rates, particularly in SOFR and CDI, could materially increase our financial expenses and materially and adversely affect our overall financial performance and credit ratings. For more information, see “Operating and Financial Review and Prospects—Liquidity and Capital Resources—Debt.”

We may engage in hedging and other derivatives activity that may not be successful and may result in losses or tax liabilities.

We may use foreign exchange and metal commodity non-deliverable forwards, swaps and options to mitigate the risks associated with currency and metal price volatility. Despite having a conservative hedging and derivatives financial policy, our hedging activities could cause us to lose or limit our ability to benefit from increases in the prices of the metals we produce if prices rise above the levels set out in our hedge positions, or from favorable variations in currency prices. The cash flow and the mark-to-market values of our production hedges can be affected by factors such as currency volatility and fluctuations in metal prices, which are beyond our control.

Our hedging agreements contain events of default and termination events that could lead to early closeouts of our hedges such as failure to pay, breach of the agreement, misrepresentation, default under our loans or other hedging agreements and bankruptcy. In the event of an early termination of our hedging agreements, the relevant hedge positions would be required to be settled at that time. In that event, there could be a lump sum payment to be made either to or by us. The magnitude and direction of such a payment would depend upon, among other things, the characteristics of the hedge instruments that were terminated and the relevant market prices at the time of termination. Any of the factors described above could have a material adverse effect on our financial position, results of operations or cash flows. See “Operating and Financial Review and Prospects—Risk Management—Financial risk—Metal price sensitivity.”

In addition, we have faced the risk that the Peruvian tax authority (“SUNAT”) does not recognize the deductibility of losses from certain hedge transactions in our Corporate Income Tax (“CIT”) calculations. SUNAT has challenged past hedge transactions that were previously considered eligible for deduction, resulting in tax assessments against Nexa Peru and Nexa CJM totaling approximately US\$17.5 million. At this time, a provision has been recognized in connection with these assessments, primarily due to challenge in retrieving supporting documentation for transactions that occurred many years ago. Beginning in fiscal year 2019, Nexa CJM reclassified its derivative instruments as speculative, rather than hedging instruments for tax purposes, in order to mitigate the risk of future deductibility challenges by SUNAT. This tax treatment has been consistently applied in subsequent fiscal years and is expected to continue on a prospective basis. Nevertheless, residual risk remains with respect to prior periods currently under challenge by SUNAT, which could result in the disallowance of previously claimed deductions or the obligation to pay substantial additional tax amounts.

We might not be able to pay the principal and interest on our debt obligations if they are accelerated due to the non-compliance with the restrictive covenants and clauses of our debt contracts.

Any default on the contracts governing our debts that are not remedied or waived by our lenders or noteholders could result in the acceleration of our obligation to pay the outstanding amounts. If we are unable to generate sufficient cash flow from our operations or secure the necessary resources to make the principal and interest payments on our debts as a result of such acceleration, our business, financial position, credit ratings, and results of operations could be materially and adversely affected. For more information on restrictive covenants in our debt contracts, see “Operating and Financial Review and Prospects—Liquidity and Capital Resources—Debt.”

A downgrade of our credit ratings could increase our borrowing costs, trigger default or acceleration clauses in certain debt agreements, and limit our access to capital markets.

We cannot guarantee that our current credit ratings will be maintained. A downgrade of our credit ratings by one or more rating agencies could increase our borrowing costs, limit our access to capital markets, and trigger default or acceleration clauses in certain debt agreements, requiring us to implement cure mechanisms and/or post additional collateral under specific arrangements.

Any tax-related investigations conducted by federal, state, or local governments may result in a material impact on our business, results of operations and financial condition.

We may be subject to tax investigations by authorities arising from our actions or omissions, as well as those of our customers. Such investigations have the potential to impact our results and operations materially and adversely. Such investigations may lead to significant legal and financial consequences, including fines, penalties, and reputational damage. We may not be able to identify and address potential compliance issues, implement robust internal controls, and foster a culture of transparency and accountability with our customers.

In 2023, after cooperating with an investigation by the Public Prosecutor's Office and Tax Authority of the State of Minas Gerais ("MG Authorities") into the commercial and value added tax ("VAT") practices of certain former customers with respect these practices and our interactions with them, we reached a settlement and with the MG Authorities, without admitting wrongdoing, agreed to make certain tax payments, including interest, and penalties to the State of Minas Gerais on behalf of certain former customers who allegedly failed to meet their tax obligations. This resolution concluded the MG Authorities' investigations on us. We made the scheduled 2025 installment payments as required under the agreement and we do not expect any further developments or provisions regarding these VAT matters but cannot assure you we will not be subject to future tax-related investigations.

For more information about this investigation and its resolution, see "Additional Information—Legal Proceedings—Other legal proceedings." The effects of any future tax-related investigations may have a material impact on our business and financial condition.

Our business, financial position and results of operations may be adversely affected by inflation.

According to the International Monetary Fund, global inflationary pressures eased in 2025 compared to 2024 and are expected to continue declining in 2026. However, downside risks could alter this outlook, depending on shifts in technology expectations and the escalation of geopolitical tensions. Certain countries in which we operate have experienced, and may experience again in the future, periods of elevated inflation, potentially increasing our operating costs and affecting domestic demand for our products. Central banks are expected to persist in their efforts to maintain inflation within, or close to, established target ranges. These pressures have already impacted on our operating margins through cost increases and may increase the cost of financing and impact on our ability to access international financial markets. Further, government policies in the countries where we operate could materially and adversely affect their overall national economies, which in turn may materially and adversely affect us. Furthermore, as we follow international market prices, we may not be able to adjust the prices we charge our customers to offset potential effects of inflation on our cost structure. In addition, although the functional currency for our Peruvian operations is the U.S. dollar, high inflation rates could still increase our operating costs, further adversely impacting our operating margins if we are not able to pass these increased costs on to consumers.

Our business requires substantial capital expenditures and is subject to financing risks.

Our business is capital intensive. Exploration for and exploitation of mineral deposits, maintenance of machinery and equipment and compliance with applicable laws and regulations require substantial capital expenditures. We must continue to invest capital to maintain and potentially expand our existing brownfield operations, develop our greenfield projects pipeline in order to sustain and grow production, in addition to conducting investments in sustaining, health, safety and environment. In 2025, we invested US\$351.9 million in capital expenditures. We depend partially on our operating cash flows to support our capital expenditures. See "Information on the Company—Capital Expenditures."

No assurance can be given that we will be able to maintain our production levels or generate sufficient cash flow, or have access to sufficient investments, loans, or other financing alternatives to finance our capital and other projects expenditure program at a level necessary to sustain and grow our current exploration and exploitation activities. Any equity or debt financing, if available, may not be on terms that are favorable to us. If our access to external financing is limited, we may not be able to execute our strategy, which could adversely affect our business, financial position and results of operations.

We are exposed to credit risk in relation to our contractual and trading counterparties as well as to hedging and derivative counterparty risk, and our results of operations may be negatively impacted by increases in expected credit losses.

We are subject to the risk that the counterparties with whom we conduct our business (in particular our customers) and who are required to make payments to us are unable to make such payment in a timely manner or at all. Credit risk is present in our hedging operations, customer operations and cash management operations. If the amounts that are due to us are not paid or not paid in a timely manner, this may impact not only on our current trading and cash-flow position but also on our financial and business position. In addition, our derivatives, metals hedging, and foreign currency and energy risk management activities expose us to the risk of default by the counterparties to such arrangements. Any such default could have a material adverse effect on our business, financial position, and results of operations.

We hold a significant balance of accounts receivable and, therefore, provide an allowance to cover the amount that may not be received due to customer default. We record expected credit losses at an amount considered sufficient to cover estimated losses in the realization of receivables, taking into account our historical losses and internal risk classification of our customers, although we cannot guarantee that these amounts are sufficient to cover any losses. Additionally, delays in payment cycles from significant customers may adversely affect our liquidity and our ability to obtain financing for working capital, such as receivables sales.

The mining business is subject to inherent risks, some of which are not insurable, and any uninsured or underinsured loss could adversely affect our operating and financial results.

The business of mining zinc, copper, silver, lead, and other minerals is subject to several risks and hazards. Hazards associated with underground mining operations include underground fires and explosions, including those caused by flammable gas, gas and coal outbursts, cave-ins or falls of ground, rock falls, openings collapse, lack of oxygen, air pollution, tailings dam failures or other discharges of tailings, hazardous substances and materials, gases and toxic chemicals, water ingress and flooding, sinkhole formation, ground subsidence, and other accidents and conditions resulting from underground mining activities, such as drilling, blasting, removing and processing material. In addition, we may encounter geotechnical challenges as we continue with and expand our mining activities, including the possibility of failure of underground openings.

Such occurrences could result in damage to, or destruction of, our properties or production facilities, third-party property, human exposure to pollution, personal injury or death, environmental and natural resource damage or contamination, delays in mining, monetary losses and legal liability. In addition, any such occurrence could adversely affect our reputation. Damages to our reputation could result in additional environmental and health and safety legal oversight, and authorities could impose more stringent conditions in connection with the licensing process of our projects and operations. In addition, our customers may be less willing to buy metals from us if we have been subject to significant adverse publicity. We maintain insurance typically in the mining industry, and in amounts that we believe to be adequate, but which may not provide complete coverage in certain circumstances. Insurance against certain risks (including certain liabilities for environmental contamination, tailings dam failures and other hazards as a result of exploration, production or extreme weather) may not be generally available or is uneconomical to afford. If we incur significant liability for which we are not fully insured, we may not be able to finance the uninsured liability amount on acceptable terms to us or at all, and we could be required to divert a significant portion of our cash flow from normal business operations. This could have a material impact on our financial position.

We could also incur additional expenses due to failures in our industrial drainage system or other environmental control equipment. Any such failures could also have adverse impacts on the environment, which could lead to adverse weather events and a further impact on our reputation if we are found to contribute, or there is a perception that we have contributed, to adverse environmental impacts in the areas in which we operate.

The insurance market may not offer, or may offer only insufficient, coverage for certain risks to which we are exposed, and we cannot guarantee that all operational, cyber, property, civil liability and other critical risks will be fully covered under our insurance program. As a result, loss events involving uninsured or partially insured risks, including those considered critical to our operating could occur. Although we seek to diversify our counterparties, including insurers, reinsurers and brokers, to obtain the most appropriate and effective coverage available, there can be no assurance that adequate insurance will be accessible on commercially reasonable terms. Any uninsured or underinsured loss event could have a material adverse effect on our operations and financial condition.

Dividends or other distributions paid by us on our common shares will be subject to Luxembourg withholding tax.

Any dividends or other distributions paid by us on our common shares will be subject to a Luxembourg withholding tax at a rate of 15.0% unless an exemption or reduction in rate applies. The withholding tax must be withheld from the gross distribution and paid to the Luxembourg tax authorities. Under certain circumstances, distributions such as share capital reductions or share premium reimbursements may not be subject to withholding tax, but there are no assurances that we will be able to make such distributions in the future. See “Additional Information—Taxation—Luxembourg tax considerations—Shareholders.”

Compliance risks***We are subject to anti-corruption, anti-bribery and anti-money laundering laws and regulations in various jurisdictions. Any violations of any such laws or regulations could have a material adverse impact on our reputation and results of operations and financial position.***

We are subject to anti-corruption, anti-bribery, anti-money laundering and other international laws and regulations and are required to comply with the applicable laws and regulations of Brazil, Peru, Luxembourg, Canada and the United States, among others. In addition, we are subject to economic sanctions regulations that restrict our dealings with certain sanctioned countries, individuals, and entities. Our governance and compliance processes may not timely identify or prevent future breaches of legal, accounting or governance standards. We may be subject to instances of fraudulent behavior, corrupt practices and dishonesty by our affiliates, employees, directors, officers, partners, agents, and service providers. Any violations by us of anti-bribery and anti-corruption laws, sanctions regulations or other standards could have a material adverse effect on our business, reputation, results of operations and financial position.

We may be subject to misconduct by our employees, third-party contractors, or customers.

We may be subject to misconduct by our employees, third-party contractors, or customers, such as theft, bribery, sabotage, fraud, insider trading, violation of laws, including taxation laws, violation of human rights, slander, or other illegal actions. Any such misconduct may lead to fines or other penalties, slow-downs in production, increased costs, lost revenues, increased liabilities to third parties, impairment of assets or harmed reputation, any of which may have a material adverse effect on our business, results of operations or financial position.

Health, safety and environmental laws and regulations, including regulations pertaining to adverse weather events, may increase our costs of doing business, restrict our operations or result in the imposition of fines or revocation of permits.

Our mining and smelting activities are subject to Brazilian and Peruvian laws and regulations, including health, safety, and environmental matters. In January 2023, the EU Corporate Sustainability Reporting Directive (“CSRD”) entered into force, modernizing and strengthening social and environmental reporting requirements to help investors and stakeholders assess corporate sustainability impact. EU Member States had until July 2024 to implement the Directive into national law; Luxembourg submitted its draft implementation bill in March 2024. The CSRD replaces existing non-financial disclosure rules. In 2025, the European Commission introduced the “Omnibus” legislative package, which was approved in late 2025 and is currently subject to transposition and implementation by EU Member States. As a result of the Omnibus package, the scope and implementation timelines of the CSRD were significantly revised, based on the agreement confirmed by the European Parliament in December 2025. The final legal text remains subject to formal approval by the Council of the European Union and publication in the Official Journal of the European Union, after which national transposition into local laws will occur. Under the revised thresholds, CSRD will apply to companies with more than 1,000 employees and a minimum net turnover threshold of approximately €450 million in annual revenue, which would include us. In addition, the Omnibus package introduced a “stop-the-clock” mechanism, postponing compliance deadlines. Large companies previously classified under “Wave 2,” which were originally expected to begin reporting for fiscal years 2025 or 2026, are now required to begin CSRD reporting for fiscal years starting in 2027, with the first sustainability reports to be published in 2028. Furthermore, the review process of the European Sustainability Reporting Standards (“ESRS”) remains ongoing, including the development of simplified standards and delegated acts to be adopted following the completion of national transposition.

Additional matters subject to legislation include, but are not limited to, transportation, mineral storage, water use and discharge, use of explosives, hazardous and other non-hazardous waste, and reclamation and remediation measures. Our operations are subject to periodic inspections and special inspections in certain circumstances by governmental authorities and consultation with local communities. In Peru, Congress began a revision process of a law to prohibit economic activities in the headwaters of basins, which are currently considered vulnerable areas that require protection and mitigation measures. However, the revision process lost momentum and has shown no sign of progress to date. If adopted, this law could have a material impact on our projects in case any new projects were to occur in headwaters of basins. For more information about these Peruvian environmental regulations, see “Information on the Company—Regulatory Matters—Peruvian regulatory framework—Environmental regulations.” Compliance with these laws and regulations and new or existing regulations that may be applicable to us in the future could increase our operating costs and adversely affect our financial results of operations and cash flows.

Regulatory and industry responses to climate change and greenhouse gas emissions—including international agreements like the Paris Agreement, Kyoto Protocol and COP26—could significantly increase our operating costs through new emission controls, carbon credit purchases, and enhanced monitoring and reporting requirements, adversely affecting our business and financial results. In December 2024, Brazil enacted legislation establishing a regulated carbon market to reduce GHG emissions and promote sustainable development. The law creates: (i) a structured carbon market with economic incentives for emissions reduction; (ii) an emissions cap-and-trade system; (iii) mandatory verification and reporting guidelines; (iv) compliance obligations with penalties for non-compliance; (v) support for green projects and technology adoption; and (vi) a governance framework for market oversight. In 2025, the process of regulatory implementation of this legislation began, and regulation is expected to define, among other aspects, sectoral emissions limits, eligible offset and compensation mechanisms, and applicable tariffs or charges for emissions exceeding established thresholds. Compliance with this new framework may require substantial capital investment and increase our operating costs. In addition, the Brazilian government has initiatives to grant environmental licenses in connection with the license holder’s commitment to reducing greenhouse gases, especially in the state of Minas Gerais. As health, safety, and environmental regulations, requirements, best practices, and industry standards are evolving and becoming stricter in Brazil, we may incur increased expenditures for compliance with these increasingly demanding requirements.

Pursuant to applicable environmental regulations and laws, we could be found liable for all, or substantially all the damage caused by mining activities at our current or former facilities or those of our predecessors at disposal sites. We could also be found liable for all incidental damage due to the exposure of individuals to hazardous substances or other environmental damage, all of which could significantly and negatively affect our reputation. We cannot assure shareholders that our costs of complying with current and future environmental and health and safety laws and regulations, including decommissioning and remediation requirements, and any liabilities arising from past or future releases of, or exposure to, hazardous substances will not materially and adversely affect our business, financial position, and results of operations.

Recent and potential changes in commercial and mining laws, including trends like resource nationalism, may significantly impact our mining operations.

Changes to the Brazilian and Peruvian regulatory framework that could be enacted in the future may result in an increase in our expenses, particularly mining royalties, and tax-related expenses, among others. Any changes in the interpretation of Brazilian or Peruvian mining laws and regulations, including changes to our concession agreement and changes in commercial rules and protections, may increase our compliance, operational or other costs. In 2012, Peru launched REINFO (*Registro Integral de Formalización Minera*), a registration program that grants temporary permits to operators of informal mining activities while operators wait for formal approval. During this period, such operators are not required to adhere to the regulations governing the operations of formally approved mining operations, such as ours. Such regulations include the prohibition of mining in concession areas without the concession holder’s approval. The program has become increasingly popular in recent years and has been extended several times. The last extension was authorized in December 2025 through Law No. 32537, which provides that the program will remain in effect until December 31, 2026, or until other specific legislation and regulation is enacted. The establishment of REINFO has increased the presence of informal mining activities in Peru, including the mining of copper. The institutionalization of informal mining activities by the Peruvian government may significantly and adversely affect our operations and projects.

In December 2022, a new tax on mining operations was approved in the state of Mato Grosso, where the Aripuanã project is located. The Brazilian Supreme Court declared the tax unconstitutional, however in December 2023, a new tax replacing the previous one was approved by the state of Mato Grosso. We continue to follow and support discussions about the constitutionality of the new regulation, conducted by an association of the Mining Sector but cannot guarantee that the outcome will be favorable to us.

In addition, there is a risk that resource nationalism in Brazil or Peru may result in operational limitations, local content requirements, and even expropriations and nationalizations. For additional information, see “Information on the Company—Regulatory Matters—Brazilian regulatory framework—Mining rights and regulation of mining activities.”

Changes in tax laws, and any related tax agreements we have entered into or may enter into with local governments, may increase our tax burden and, as a result, could adversely affect our business, financial position, and results of operations.

The Brazilian, Peruvian and Luxembourg governments from time to time implement changes to tax laws and regulations. Any such changes, as well as changes in the interpretation of such laws and regulations, or changes to former precedents on tax decisions by authorities or courts, may result in increases to our overall tax burden, which would negatively affect our profitability. Moreover, some tax laws may be subject to controversial interpretation by tax authorities, including, but not limited to, the regulation applicable to corporate restructurings. In the event an interpretation different than the one on which we based our transactions prevails, we may be adversely affected.

In addition, as a result of the VAT tax benefit adopted by Minas Gerais State on the commercialization of several products, including metallic zinc, there has been increased scrutiny by the tax authorities of companies incorporated in this State. For more information about the VAT tax benefit, see “Information on the Company—Regulatory Matters—Brazilian regulatory framework—Royalties and other taxes on mining activities.” See also “Additional Information—Legal Proceedings” for information about the investigation by the Fiscal Office of the State of Minas Gerais and the Public Ministry of Minas Gerais relating to the VAT-related practices of certain of our former customers, as well as our relationship with such former customers.

On January 1, 2024, new transfer pricing regulations came into effect in Brazil, which adopted an arm’s length principle to transfer pricing similar to that of the Organization for Economic Co-operation and Development (OECD). Additionally, a substantial VAT tax reform for indirect and consumption taxes that eliminates existing federal, state, and municipal indirect taxes and creates three classes of taxes was approved in Brazil in December 2023 and will begin as of 2026. The reform’s goals are simplification, competitiveness and uniformization of legislation, and a long and gradual transition period is expected from 2026 to 2033. On January 16, 2025, *Lei Complementar* (Complementary Law) 214 was approved, which lays the foundation for tax reform and regulates the Constitutional Amendment 132/23 and institutes the Tax on Goods and Services (IBS), the Social Contribution on Goods and Services (CBS), the Selective Tax (IS) and creates the IBS Management Committee. On January 13, 2026, *Lei Complementar* 227 was enacted, amending the *Lei Complementar* 214 and finalizing the tax reform regulation. We are currently assessing the impact of the legal framework on its operations and there is no assurance that these new regulations will not increase taxes for us and will not materially and adversely affect our business.

Additionally, the OECD’s Pillar Two tax reform, which establishes a global minimum effective tax rate of 15%, became effective in Luxembourg on January 1, 2024. See “Taxation—Luxembourg tax considerations” for more information about this tax regime and its potential impact on us. Brazil enacted Pillar Two legislation during 2024, which went into effect on January 1, 2025. Peru has not yet enacted the Pillar Two legislation, however adopting this regime could have a potential impact on our business, financial position, and results of operations.

In 2025, we performed an assessment of our potential exposure to Pillar Two income taxes under the OECD transitional safe harbor rules and the Global Anti-Base Erosion (“GloBE”) income calculation. Our assessment concluded that there was no material impact on our financial results.

Further, we are engaged in ongoing tax-related matters with the SUNAT related to the stability agreement of Cerro Lindo's operations. The Peruvian tax authority revised the tax audits for the years ended December 31, 2014, 2015, 2016 and 2017. In 2024 and 2025, SUNAT concluded the tax audits for the years ended December 31, 2018, and December 31, 2019, respectively recognizing that part of the production was within the stabilization criteria. In October 2025, the tax court issued unfavorable decisions for the 2014 and 2015 years and in December 2025, we initiated judicial proceedings seeking the partial annulment of these tax court decisions. In January 2026, Nexa was notified of the tax court resolutions regarding the 2016 and 2017 years, in which the tax court declared SUNAT's tax stability assessments null. As of the date of this annual report, SUNAT is now auditing the year-ended December 31, 2020, and 2021, which are the last fiscal years covered by the stability agreement. Although we continue to believe that there are legal grounds to obtain favorable outcomes in these matters, we may have to pay the disputed amounts under discussion to continue the legal process at judicial levels which may impact on our results, cash flow and liquidity. For more information, see "Additional Information—Legal Proceedings" and Note 11(d) to our consolidated financial statements.

In addition, we may face the risk that SUNAT does not recognize the deductibility of certain expenses in our calculation of Corporate Income Tax, which could lead to tax assessments against us.

The Brazilian, Peruvian or Luxembourg governments may implement additional changes to tax regulations in the future, which could adversely affect our business, financial position, and results of operations.

Differing interpretations of agency regulations or court rulings and the application of such laws and regulations could result in unintended non-compliance and may have a material effect on our business, results of operations, and financial position.

The courts in some of the jurisdictions in which we operate may offer less certainty as to the judicial outcome of legal proceedings or a more protracted judicial process than is the case in more established economies. Businesses can become involved in lengthy court cases over simple issues when rulings are not clearly defined, and the poor drafting of laws and excessive delays in the legal process for resolving issues or disputes compound such problems. In addition, there may be limited or no relevant case law providing guidance on how courts would interpret such laws and the application of such laws to our contracts, joint ventures, licenses, license applications or other legal arrangements. Accordingly, there can be no assurance that contracts, joint ventures, licenses, license applications, tax agreements, or other legal arrangements will not be adversely affected by the actions of government authorities and the effectiveness of and enforcement of such arrangements in these jurisdictions. Moreover, the commitment of local businesses, government officials and agencies and the judicial system in these jurisdictions to abide by legal requirements and negotiated agreements may be more uncertain and may be susceptible to revision or cancellation, and legal redress may be uncertain or delayed. These uncertainties and delays could have a material adverse effect on our business and results of operations. Finally, certain interpretations of regulations and laws may lead to increasing governmental fines and sanctions, even for non-material violations of these rules and regulations. If we are deemed to be in violation of agency regulations or court rulings and are required to make payments in connection with the alleged violations, this may have a material impact on our business, results of operations and financial position.

Regulation of other activities.

We are subject to mining and environmental regulation related to, among other activities, the use of explosives, fuel storage, controlled substances, discharges, telecommunications, archeological remains and energy concessions. We are also subject to more general legislation on data privacy, labor, occupational health and safety, and peasant and indigenous communities, among others, which may adversely affect our business. See "Information on the Company—Regulatory Matters—Brazilian regulatory framework" and "Information on the Company—Regulatory Matters—Peruvian regulatory framework."

I. INFORMATION ON THE COMPANY

BUSINESS OVERVIEW

Overview

We are a leading large-scale, low-cost, integrated polymetallic producer, with zinc as our main product. We have over 65 years of experience developing and operating mining and smelting assets in Latin America.

We currently own and operate five polymetallic mines – four long-life underground (two in the Central Andes region of Peru and two in Brazil, in the states of Minas Gerais and Mato Grosso), and one open-pit in the Central Andes region of Peru. The majority of our operations are large-scale, modern, mechanized mines. Our mines are located in close proximity to each other or to our smelters, creating synergies and operational efficiencies. Two of our mines, Cerro Lindo in Peru and Vazante in Brazil, are among the top 30 largest zinc-producing mines globally. Combined with our other mining operations, this placed us among the top six global zinc producers in 2025, according to Wood Mackenzie. In addition to zinc, which accounted for 46.9% of our mined metal production in 2025, measured on a zinc equivalent basis, we produce substantial amounts of copper, lead, silver and, to a lesser extent, gold as by-products, which reduce our overall costs to produce mined zinc. We also own and operate three zinc smelters: two in Minas Gerais, Brazil (Três Marias and Juiz de Fora), and one in Lima, Peru (Cajamarquilla), which produce metallic zinc, zinc oxide and several by-products. In 2025, we were the sixth largest producer of refined zinc globally, according to Wood Mackenzie. Our smelters are the only units of their kind in Latin America (excluding Mexico), providing us with benefits from higher premiums in the region. Cajamarquilla is the only operating zinc smelter in Peru and was ranked as the fifth largest zinc smelter globally by production volume in 2025, according to Wood Mackenzie. Peru is the second largest producer of mined zinc in the world, also according to Wood Mackenzie, ensuring long-term supply of zinc concentrates to Cajamarquilla. Given our proximity to concentrate producers (both to our own mines and third-party producers), we also benefit from freight parity.

Mining production decreased in 2025 as compared to 2024, mainly driven by lower production at Vazante. In the smelting segment, production also fell compared to 2024, largely due to lower volumes from Juiz de Fora and Três Marias.

- In 2025, our zinc mining production decreased by 3.5% compared to 2024, mainly driven by our increased focus on mining activities in lower-grade areas in the Vazante mine due to geotechnical constraints in the first half of 2025 in high-grade areas of the underground mine. Our mining operations produced 315.6 thousand tonnes of zinc contained in concentrates, 33.4 thousand tonnes of copper contained in concentrates, 63.1 thousand tonnes of lead contained in concentrates, 10.9 million ounces of silver and 38.2 thousand ounces of gold, for a total of 672.4 thousand tonnes of metal on a zinc equivalent basis (based on the average LME prices in 2025).
- Total smelting production (zinc metal + oxide) in 2025 decreased by 5.1% compared to 2024. Our smelters produced 564.4 thousand tonnes of zinc metal and oxide available for sale in different formats and sizes during 2025, along with by-products, principally sulfuric acid, Nexa's largest by-product by volume, silver concentrate, copper cement and copper sulfate, most of which are under annual or multi-year contracts to regional and international clients.
- Our smelters primarily process zinc concentrate. In 2025, 50.1% of the total zinc raw material consumption was sourced from our mines, while 49.9% was purchased from third parties or obtained as secondary raw material (excluding oxide). In 2025, the total production volume of the contained zinc in concentrates produced by our mines was processed by our own smelters. All our copper and lead concentrates were sold to third parties. We market our products both in Latin America and globally, through our commercial offices in Luxembourg, the United States, Brazil, and Peru. Additionally, we own energy assets (hydroelectric power plants) in both Brazil and Peru, which provide us with access to a reliable and competitive power supply.

The ramp-up phase at Aripuanã was completed in June 2024, marking Aripuanã's transition to a fully operational mine. In 2025, we continued to optimize operational performance, with a focus on the tailings filtration circuit, where available capacity remains a constraint to higher and sustained throughput. The installation of a fourth tailings filter is expected to be commissioned in the first half of 2026, which is designed to address this constraint and provide additional operational flexibility. For a detailed discussion of Aripuanã's operational status and improvement initiatives, see "Information on the Company—Mining operations—Aripuanã."

In 2024, our Board of Directors, through the Finance Committee, approved the first phase of the Cerro Pasco Integration Project: the tailings pumping and piping system, following a recommendation from the Sustainability and Capital Projects (“SCP”) Committee. The Integration Project is designed to consolidate the El Porvenir and Atacocha underground mines into an integrated complex, capturing operational synergies, reducing the environmental footprint and extending the combined life of the mining complex. Phase I encompasses the construction of a tailings treatment plant at El Porvenir and the refurbishment of a 6 km pipeline (mostly underground) connecting El Porvenir to Atacocha’s tailings storage facility. Construction began in July 2025 and remains in line with the planned schedule, with commissioning expected in 2026. We also submitted in December 2025 the two major environmental filings required by SENACE, and approvals are expected in the first quarter of 2027. For a description of Phase II and the project’s financial parameters, see “Information on the Company—Mining operations—Cerro Pasco Complex—Integration Project.”

History

We commenced operating in 1956 under the name “*Companhia Mineira de Metais*”, in the state of Minas Gerais, Brazil. After a series of restructurings in the subsequent fifty-eight years, in 2014, a new corporate governance model was implemented by our controlling shareholder VSA in the corporate group. The main consequence of this new corporate model was that the new governance structure demanded a higher level of empowerment and accountability of senior management, and the establishment of a Board of directors at each company. In addition, in connection with the implementation of the new corporate governance model, VSA’s equity participations in Nexa CJM (formerly Votorantim Metais – Cajamarquilla S.A.) and Nexa Brazil (formerly Votorantim Metais Zinco S.A.) were transferred to Nexa Resources on June 18, 2014, and July 1, 2014, respectively.

In October 2017, we completed our initial public offering and listed our common shares on the New York Stock Exchange (“NYSE”) and on the Toronto Stock Exchange (“TSX”) under the ticker symbol NEXA. In connection with becoming a public company, VM Holding S.A. changed its corporate name to Nexa Resources S.A. and our subsidiaries Votorantim Metais—Cajamarquilla S.A., Votorantim Metais Zinco S.A. and Compañía Minera Milpo S.A.A. changed their corporate names to Nexa CJM, Nexa Brazil and Nexa Peru, respectively.

On November 30, 2021, our common shares were voluntarily delisted from the TSX following an internal assessment that the costs and administrative requirements of maintaining the dual listing outweighed its benefits. We remain a reporting issuer in each of the provinces and territories of Canada and continue to file continuous and periodic disclosure documents to Canadian resident holders of our common shares. We intend to apply to cease to be a reporting issuer in Canada once we are in a position to satisfy or obtain relief from the applicable regulatory requirements.

Corporate structure and principal subsidiaries

Nexa CJM

Currently, Nexa Resources is the beneficial owner of 99.916% of the outstanding shares of Nexa CJM, and the remaining outstanding shares are owned by Nexa Recursos Minerais S.A. with 0.081% and by other minority shareholders holding 0.003% in aggregate.

Nexa Peru

Currently, Nexa Peru’s share capital consists of 1,257,754,353 common shares. In addition to common shares, Nexa Peru has issued investment shares that represent a participation in its net worth (*patrimonio*). Although the investment shares do not represent a participation in our capital nor grant any voting rights, they grant their holders the right, among others, to participate in any dividend distributions and liquidation proceeds, pro rata to the percentage they represent in the total net worth of Nexa Peru; as well as to participate in any capital increases (in order to maintain the participation they represent in the total net worth) and the right to have their shares redeemed in certain circumstances. As of December 31, 2025, approximately 67.02% of the investment shares are free float and 32.98% are treasury shares.

Both the common shares and the investment shares of Nexa Peru are registered with the Peruvian Public Registry of Securities (*Registro Público del Mercado de Valores*) and listed on the Lima Stock Exchange. As a result, Nexa Peru is required to comply with certain disclosure obligations such as filing quarterly and annual financial statements, reporting on material events (*hechos de importancia*) and disclosing information regarding the economic group to which it belongs.

The following table sets forth information concerning the ownership of the capital stock of Nexa Peru, excluding the investment shares.

Shareholder	Number	Share Capital (%)
Nexa CJM	1,048,621,896	83.37%
Nexa Resources	2,277,601	0.18%
Public float	206,854,856	16.45%
Total	1,257,754,353	100.0%

Nexa Brazil

Nexa Brazil is 100% owned by Nexa Resources, and owns the Vazante and Aripuanã mines, and Três Marias and Juiz de Fora smelters.

Producing mines and smelters

Producing mines:

- ***Cerro Lindo.*** Our Cerro Lindo mine is an underground mine located in Peru wholly owned by Nexa Peru, which is 83.55% directly and indirectly owned by Nexa Resources. Operations began in 2007 and, in 2025, the Cerro Lindo mine produced approximately 87.1 thousand tonnes of zinc contained in concentrates, 27.1 thousand tonnes of copper contained in concentrates, 10.3 thousand tonnes of lead contained in concentrates, 4.0 million ounces of silver contained in concentrates and 4.1 thousand ounces of gold contained in concentrates. The ore is treated at a concentrate plant that has a processing capacity of 20.0 thousand tonnes of ore per day.
- ***Vazante.*** Our Vazante mine is an underground and open pit mine located in Brazil wholly owned by Nexa Brazil, which is 100% owned by Nexa Resources. Operations began in 1969 and, in 2025, the Vazante mine produced approximately 128.4 thousand tonnes of zinc contained in concentrates, 0.86 thousand tonnes of lead contained in concentrates and 0.4 million ounces of silver contained in concentrates. The ore is treated at a concentrate plant that has a processing capacity of 5.0 thousand tonnes of ore per day.
- ***El Porvenir.*** Our El Porvenir mine is an underground mine located in Peru (part of the Cerro Pasco Complex) wholly owned by Nexa Resources El Porvenir S.A.C., which is 83.55% directly and indirectly owned by Nexa Resources. Operations began in 1949 and, in 2025, the El Porvenir mine produced approximately 53.1 thousand tonnes of zinc contained in concentrates, 0.4 thousand tonnes of copper contained in concentrates, 25.2 thousand tonnes of lead contained in concentrates, 4.4 million ounces of silver contained in concentrates and 7.7 thousand ounces of gold contained in concentrates. The ore is treated at a concentrate plant that has a processing capacity of 6.7 thousand tonnes of ore per day.
- ***Atacocha.*** Our Atacocha mine is an underground and open pit mine located in Peru (part of the Cerro Pasco Complex) wholly owned by Nexa Resources Atacocha S.A.A. (formerly Compañía Minera Atacocha), which is 83.01% directly and indirectly owned by Nexa Resources. Operations began in 1938 and, in 2025, the Atacocha mine produced approximately 11.9 thousand tonnes of zinc contained in concentrates, 13.7 thousand tonnes of lead contained in concentrates, 1.2 million ounces of silver contained in concentrates and 10.2 thousand ounces of gold contained in concentrates. The ore is treated at a concentrate plant that has a processing capacity of 4.6 thousand tonnes of ore per day. Since 2020, activities at the Atacocha underground mine have been suspended and have been placed under care and maintenance until the Cerro Pasco Integration Project is concluded and the rehabilitation milestone is achieved.

- **Aripuanã.** Our Aripuanã mine is an underground mine located in Brazil wholly owned by Nexa Brazil, which is 100% owned by Nexa Resources. In June 2024, the mine completed the ramp-up phase and transitioned to an ongoing operation. In 2025, the Aripuanã mine produced approximately 35.2 thousand tonnes of zinc contained in concentrates, 5.9 thousand tonnes of copper contained in concentrates, 13.0 thousand tonnes of lead contained in concentrates, 1.0 million ounces of silver contained in concentrates and 16.2 thousand ounces of gold contained in concentrates. The ore is treated at a concentrate plant that has a processing capacity of 6.3 thousand tonnes of ore per day. For a detailed discussion of Aripuanã's project implementation history, current operational status, production data, and mineral reserves and resources, see "Information on the Company—Mining operations—Aripuanã."

Smelters:

- **Cajamarquilla.** Our Cajamarquilla smelter, which is wholly owned by Nexa CJM, which is 99.997% directly and indirectly owned by Nexa Resources, is located in Peru and began operating in 1981. It is currently the largest zinc smelter in Latin America (excluding Mexico) and was the fifth largest zinc smelter in the world in 2025, according to Wood Mackenzie. This smelter uses Roast-Leach-Electrowinning technology. With a nominal production capacity of 344.4 thousand tonnes of refined metal per year, Cajamarquilla produced 345.3 thousand tonnes of zinc metal available for sale in 2025, at the nominal capacity, and 334.1 thousand tonnes in 2024. In 2025, 37.9% of the zinc contained in raw material used by Cajamarquilla was sourced from our mines in Peru and 62.1% was purchased from third parties or obtained from secondary feed materials. In addition to zinc metal, Cajamarquilla produced 594,124 tonnes of sulfuric acid in 2025, of which 566,279 tonnes were sold, along with silver concentrate and copper cement.
- **Três Marias.** Our Três Marias smelter, which is wholly owned by Nexa Brazil, which is 100% owned by Nexa Resources, is located in Brazil and began operating in 1969. Três Marias processes zinc silicate concentrate from our Vazante mine and zinc sulfide concentrate. This smelter uses Roast-Leach-Electrowinning technology. With a nominal production capacity of 192.2 thousand tonnes of refined metal per year, Três Marias produced 157.3 thousand tonnes of zinc metal and oxide in 2025 and 178.7 thousand tonnes in 2024. In 2025, 81.8% of the zinc contained in raw materials used by Três Marias was sourced from our mining operations in Brazil and Peru and 18.2% was purchased from third parties or obtained from secondary feed materials. Três Marias also produces sulfuric acid as a by-product of the roasting process, substantially all of which is consumed internally in the leach plant, with the remaining 877 tonnes sold.
- **Juiz de Fora.** Our Juiz de Fora smelter, which is wholly owned by Nexa Brazil, which is 100% owned by Nexa Resources, is located in Brazil and began operating in 1980. This smelter uses Roast-Leach-Electrowinning and Waelz Furnace technologies. With a nominal production capacity of 96.9 thousand tonnes of refined metal per year, Juiz de Fora produced 61.8 thousand tonnes of zinc metal in 2025 and 82.0 thousand tonnes in 2024. In 2025, 37.2% of the zinc raw material used in Juiz de Fora was zinc concentrate sourced from our mining operations, 52.6% was purchased from third parties and 10.1% was obtained from secondary feed materials from electric arc furnace ("EAF") and brass oxide. Juiz de Fora produced 105,832 tonnes of sulfuric acid in 2025, of which 50,170 tonnes were sold, as well as silver concentrate and copper sulfate.

Growth Projects

In addition to our operating assets, we maintain a portfolio of brownfield and greenfield exploration and development projects at various stages of advancement, focused on extending the life of our existing mines and building optionality in copper and zinc.

We have interests in three greenfield projects in Peru (Magistral, Hilarión and Florida Canyon Zinc) as well as a number of prospects in Peru, Brazil, and Namibia. For more information about the projects, please see "Information on the Company—Mining Operations—Mining greenfield projects." We also own 12.15% of the issued and outstanding shares of Tinka Resources Limited, which in turn owns 100% of the Ayawilca zinc-silver development project located 40 kilometers northwest of Cerro de Pasco in the Central Andes region of Peru.

Brownfield growth projects

Our key brownfield growth initiatives are focused on extending the life of existing operations. The most significant is the Cerro Pasco Complex Integration Project, which is designed to integrate the El Porvenir and Atacocha underground mines into a single complex, extending the combined life of mine by over a decade. Total capital expenditures for the project are estimated at US\$148.8 million, of which US\$117.1 million relates to Phase I (tailings pumping and piping system) and US\$31.7 million to Phase II (underground tunnel connection and shaft upgrade). Phase I construction progressed as planned in 2025, with commissioning expected in 2026. In parallel, Phase II preparatory work continued in 2025, including technical assessments of the Picasso shaft and underground integration alternatives to determine the complex's optimal long-term operational configuration. For a full description of the project's scope, phasing and execution status, see "Information on the Company—Mining operations—Cerro Pasco Complex—Integration Project."

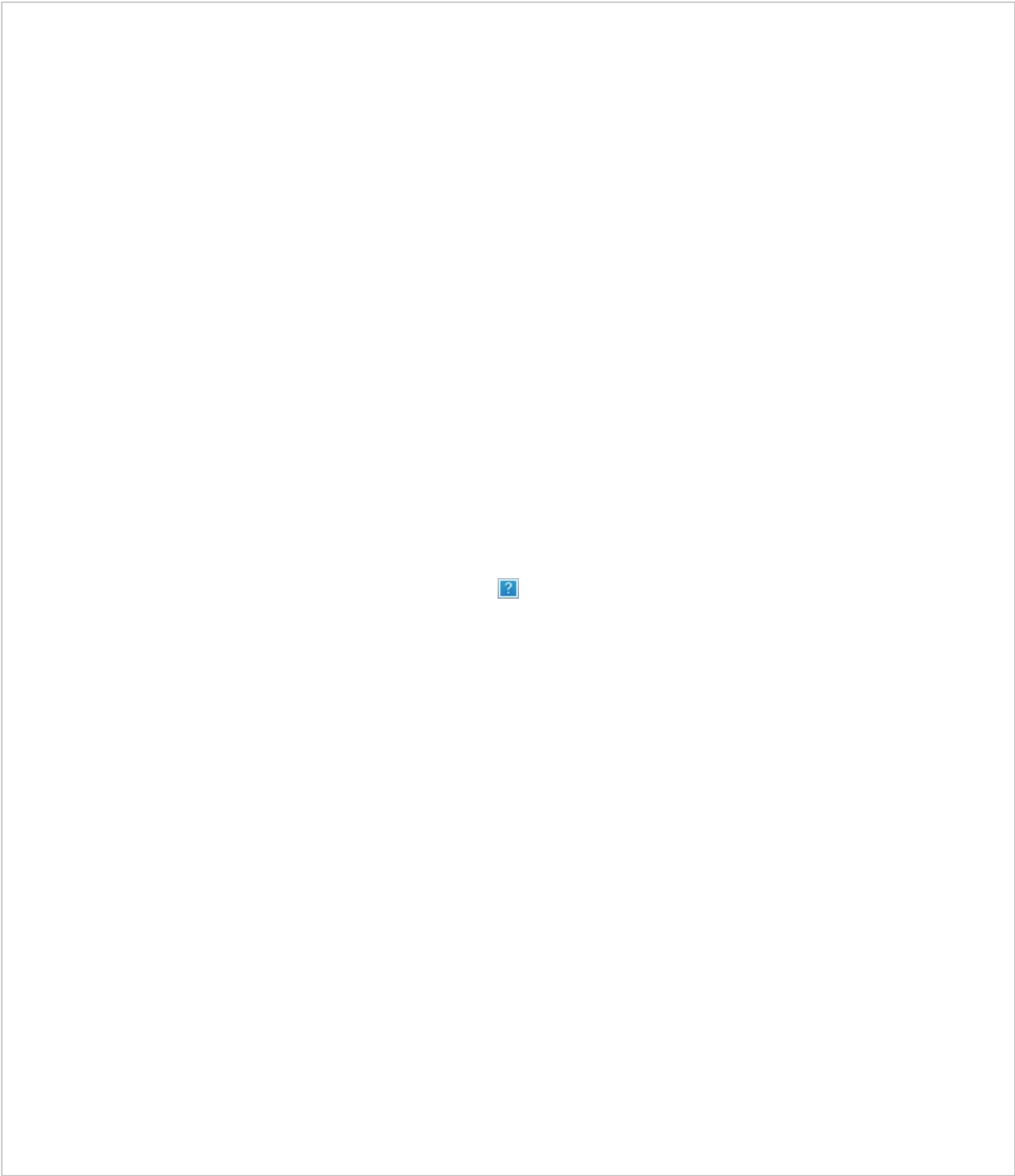
Another main brownfield project is the Vazante mine deepening project, which is expected to be completed in 2028, together with related mineral exploration and infrastructure upgrades (e.g., pumping, ventilation, access, and electrical works). Civil works are targeted for completion in 2026 and additional electromechanical work planned for 2027–2028. For additional information, see "Information on the Company—Mining operations—Mining brownfield projects."

Mining greenfield projects

Our greenfield portfolio consists of several exploration and early-stage projects, none of which currently have Mineral Reserves under S-K 1300. The Magistral copper-molybdenum project in Peru encompasses 36 concessions totaling approximately 16,416 hectares. The Hilarión zinc-lead-silver-copper skarn project consists of 48 concessions covering approximately 9,374 hectares. The Florida Canyon Zinc project, a joint venture in which we hold 61% ownership, continues as an advanced exploration project. In Namibia, we closed the sale of the Otavi Project in December 2025 as part of our portfolio optimization strategy. Namibia remains a region of strategic interest, supporting the advancement of copper exploration initiatives in the Kalahari Copper Belt. For additional information, see below "Mining greenfield projects" and "Other Greenfield exploration projects."

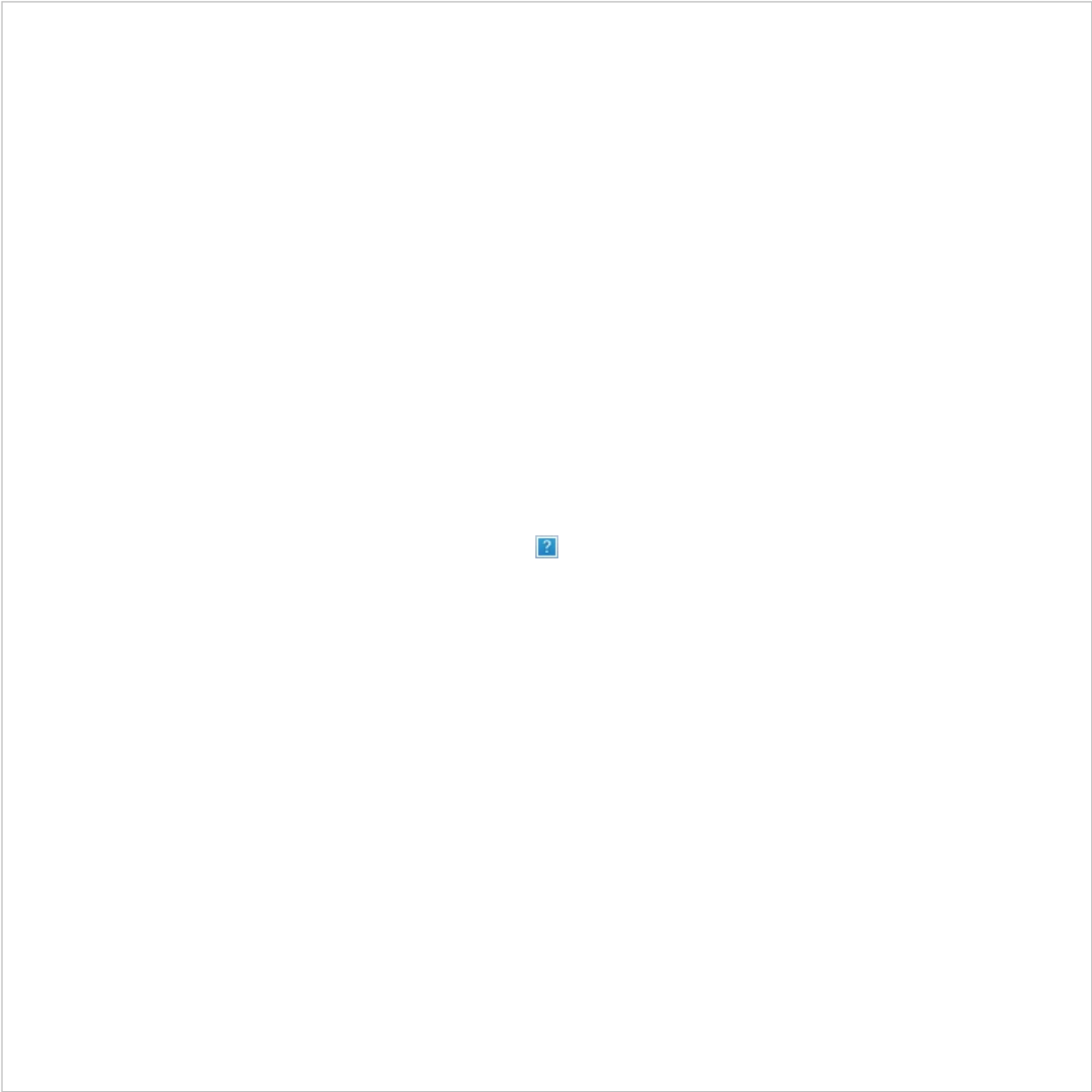
MINING OPERATIONS

Map 1. Mines, Projects and Prospects in Peru



Source: Nexa Resources.

Map 2. Mines, Projects and Prospects in Brazil



Source: Nexa Resources.

The following table summarizes our concentrate production, metal contained in concentrate production in each metal and zinc equivalent production in each of our operating mines.

To calculate the zinc equivalent production for the years ended December 31, 2025, 2024, and 2023, we convert the relevant metal contained in concentrate production used in the zinc equivalent grade based on the average benchmark prices for 2025, namely, US\$2,869.66 per tonne (US\$1.30 per pound) for zinc, US\$9,944.94 per tonne (US\$4.51 per pound) for copper, US\$1,963.44 per tonne (US\$0.89 per pound) for lead, US\$40.03 per ounce for silver and US\$3,431.54 per ounce for gold.

	For the Year Ended December 31,		
	2025	2024	2023
Treated Ore (in tonnes)	13,024,510	13,420,966	13,846,530
Mining Production—Metal Contained in Concentrate			
Zinc (in tonnes)	315,648	326,995	333,154
Copper (in tonnes)	33,396	35,698	33,385
Lead (in tonnes)	63,086	69,303	65,194
Silver (in oz)	10,905,969	11,694,073	10,300,672
Gold (in oz)	38,247	36,027	27,627
Mining Production—Zinc Equivalent Production			
Cerro Lindo (in tonnes of zinc equivalent)	248,009	264,682	239,680
Vazante (in tonnes of zinc equivalent)	134,774	147,945	154,682
El Porvenir (in tonnes of zinc equivalent)	142,258	144,264	144,078
Atacocha (in tonnes of zinc equivalent)	49,934	46,632	44,360
Aripuanã (in tonnes of zinc equivalent)	97,422	91,821	58,507
Morro Agudo ⁽¹⁾ (in tonnes of zinc equivalent)	-	9,778	35,463
Total	672,397	705,122	676,769

(1) Considers only the four months of operations from January to April 2024. On April 30, 2024, we sold the Morro Agudo Complex.

The following table summarizes the average ore grade for the periods indicated.

	For the Year Ended December 31,		
	2025	2024	2023
Average Ore Grade			
Zinc (%)	2.85	2.90	2.90
Copper (%)	0.34	0.35	0.34
Lead (%)	0.62	0.67	0.66
Silver (in ounces per tonne)	1.101	1.159	1.002
Gold (in ounces per tonne)	0.006	0.006	0.005

We have determined that our material properties are Cerro Lindo, Vazante, Cerro Pasco Complex (El Porvenir and Atacocha mines) and Aripuanã. Each of these mining properties consists of one mine, one treatment plant and related infrastructure. We summarize below information as of December 31, 2025, for each of our five mines.

Mineral Reserves and Resources

Registrants engaged in mining operations must comply with Regulation S-K Subpart 1300 ("S-K 1300" or the "SEC Mining Modernization Rules"), which came into force on January 1, 2021. S-K 1300 governs the mineral property disclosure requirements for mining registrants. For the meanings of certain technical terms used in this prospectus, see "Additional Information—Glossary."

As a reporting issuer in Canada, we are also subject to Canadian National Instrument 43-101—*Standards of Disclosure for Mineral Projects* ("NI 43-101"), which is an instrument administered by the provincial and territorial securities regulatory authorities that governs how issuers in Canada disclose scientific and technical information about their mineral projects to the public. NI 43-101 imposes certain requirements in respect of such disclosure, including the requirement to have prescribed information prepared by, or under the supervision of, a Qualified Person and the filing of NI 43-101 technical reports in the prescribed circumstances. Any reference to a NI 43-101 report is for informational purposes only, and such reports are not incorporated herein by reference.

Descriptions in this report of our mineral deposits prepared in accordance with S-K 1300, as well as similar information provided by other issuers in accordance with S-K 1300, may not be comparable to similar information prepared in accordance with NI 43-101 that is presented elsewhere outside of this report.

The Qualified Persons that have reviewed and approved the scientific and technical information contained in this annual report are identified in the footnotes to the tables summarizing the Mineral Reserves and Resources estimates below. For the meanings of certain technical terms used in this report, see "Additional information—Glossary."

We periodically update our reserves and resources estimates when we have new geological data, economic assumptions or when mining plans become available. During 2025, we performed an analysis of our reserves and resources estimates for certain operations, resulting in updated estimates as of December 31, 2025. Reserves and resources estimates for each operation assume that we either have or expect to obtain all the necessary rights and permits to mine, extract and process mineral reserves or resources at each mine. Where we own less than 100% of the operation, reserves and resources estimates have been adjusted to reflect our ownership interest. Certain figures in the tables, discussions and notes have been rounded. For a description of risks relating to our estimates of Mineral Reserves and Resources, see “Risk factors—Risks related to our Mineral Reserves and Resources.”

Consolidated Overview

The total Consolidated Mineral Reserves and Mineral Resources estimates are based on the definitions for Mineral Reserves and Mineral Resources in SK-1300 and the tables below are based on costs and modifying factors from all operating mines, and zinc and copper projects.

Consolidated - Year End Mineral Reserves as of December 31, 2025 (on an attributable ownership basis) ⁽¹⁾⁽²⁾

Class	Tonnage ⁽³⁾ (Mt)	Grade ⁽³⁾					Contained Metal ⁽³⁾				
		Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Proven	37.09	3.25	0.32	28.2	0.53	0.06	1,205.9	117.7	33,593	197.7	65.9
Probable	67.17	3.86	0.20	36.9	1.00	0.11	2,592.6	131.8	79,599	669.5	237.0
Total	104.27	3.64	0.24	33.8	0.83	0.09	3,798.5	249.5	113,192	867.2	302.9

Notes:

1. Subpart 1300 of Regulation S-K definitions were followed for Mineral Reserves, which also are consistent with the CIM (2014) definitions.
2. The point of reference for Mineral Reserves in this table is mill feed materials.
3. Numbers may not add due to rounding.

Consolidated - Year End Mineral Reserves as of December 31, 2025 (on a 100% ownership basis) ⁽¹⁾⁽²⁾

Class	Tonnage ⁽³⁾ (Mt)	Grade ⁽³⁾					Contained Metal ⁽³⁾				
		Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Proven	42.01	3.11	0.33	28.7	0.52	0.05	1,307.2	139.1	38,697	220.0	70.8
Probable	73.08	3.75	0.21	37.4	0.97	0.11	2,739.4	152.1	87,970	706.9	251.6
Total	115.09	3.52	0.25	34.2	0.81	0.09	4,046.6	291.2	126,667	926.8	322.4

Notes:

1. Subpart 1300 of Regulation S-K definitions were followed for Mineral Reserves, which also are consistent with the CIM (2014) definitions.
2. The point of reference for Mineral Reserves in this table is mill feed materials.
3. Numbers may not add due to rounding.

Consolidated - Net Difference in Mineral Reserves between December 31, 2025, versus December 31, 2024 (on an attributable ownership basis)

Class	Tonnage		Zinc		Copper		Contained Metal Silver		Lead		Gold	
	(Mt)	%	(kt)	%	(kt)	%	(koz)	%	(kt)	%	(koz)	%
Proven	(1.07)	(2.8)	(27.3)	(2.2)	(25.6)	(17.9)	(2,238)	(6.2)	(16.3)	(7.6)	(4.2)	(8.3)
Probable	5.75	9.4	(3.1)	(0.1)	15.5	13.4	(304)	(0.4)	(31.8)	(4.5)	(3.9)	(2.2)
Total	4.67	4.7	(30.4)	(0.8)	(10.0)	(3.9)	(2,543)	(2.2)	(48.1)	(5.6)	(8.2)	(3.6)

Consolidated - Net Difference in Mineral Reserves between December 31, 2025, versus December 31, 2024 (on a 100% ownership basis)

Class	Tonnage		Zinc		Copper		Contained Metal Silver		Lead		Gold	
	(Mt)	%	(kt)	%	(kt)	%	(koz)	%	(kt)	%	(koz)	%
Proven	(1.52)	(3.5)	(33.0)	(2.5)	(30.2)	(17.8)	(2,611)	(6.3)	(18.5)	(7.8)	(4.5)	(8.5)
Probable	6.34	9.5	4.7	0.2	18.5	13.8	(192)	(0.2)	(34.7)	(4.7)	(4.9)	(2.7)
Total	4.83	4.4	(28.3)	(0.7)	(11.7)	(3.9)	(2,802)	(2.2)	(53.2)	(5.4)	(9.4)	(4.0)

In comparison to 2024, Consolidated Mineral Reserves increased by 4.4% in mass to total 115.1Mt from 110.3Mt, mainly attributed to increases in El Porvenir, Cerro Lindo and Vazante mines reflecting mineral resources conversion drilling, along with an increase at the Cerro Pasco Complex resulting from the metal price update, while decreased by 0.7% in zinc content (kt), mainly due to a decline in Cerro Lindo and Aripuanã mines driven by mineral reserves depletion replaced by lower grade material at both mines and a review in geotechnical parameters at Aripuanã. Total Mineral Reserve depletion during 2025 accounted for 13.1Mt containing 370.2kt of zinc.

Consolidated - Year End Mineral Resources as of December 31, 2025 (on an attributable ownership basis) (1)(2)(3)

Class	Tonnage ⁽⁴⁾ (Mt)	Grade ⁽⁴⁾					Contained Metal ⁽⁴⁾				
		Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Measured	5.72	2.69	0.32	29.2	0.55	0.08	154.0	18.3	5,373	31.6	15.5
Indicated	16.47	3.34	0.17	33.0	0.83	0.14	549.5	28.7	17,476	136.6	72.9
Total	22.19	3.17	0.21	32.0	0.76	0.12	703.5	47.0	22,849	168.2	88.3
Inferred	89.33	3.86	0.25	45.9	0.97	0.26	3,445.3	227.2	131,727	865.4	735.1

Notes:

1. Subpart 1300 of Regulation S-K definitions were followed for Mineral Resources, which also are consistent with the CIM (2014) definitions.
2. Mineral Resources are reported exclusive of those Mineral Resources that were converted to Mineral Reserves, and Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
3. The point of reference for Mineral Resources in this table is mill feed materials.
4. Numbers may not add due to rounding.

Consolidated - Year End Mineral Resources as of December 31, 2025 (on a 100% ownership basis) (1)(2)(3)

Class	Tonnage ⁽⁴⁾ (Mt)	Grade ⁽⁴⁾					Contained Metal ⁽⁴⁾				
		Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Measured	6.69	2.60	0.32	29.6	0.55	0.08	174.1	21.7	6,354	37.1	17.7
Indicated	18.53	3.18	0.18	33.4	0.82	0.13	589.8	32.8	19,910	151.3	79.8
Total	25.22	3.03	0.22	32.4	0.75	0.12	763.9	54.6	26,265	188.4	97.5
Inferred	95.82	3.81	0.26	47.4	0.97	0.25	3,650.6	246.6	145,892	931.5	769.5

Notes:

1. Subpart 1300 of Regulation S-K definitions were followed for Mineral Resources, which also are consistent with the CIM (2014) definitions.
2. Mineral Resources are reported exclusive of those Mineral Resources that were converted to Mineral Reserves, and Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
3. The point of reference for Mineral Resources in this table is mill feed materials.
4. Numbers may not add due to rounding.

Consolidated - Net Difference in Mineral Resources between December 31, 2025, versus December 31, 2024 (on an attributable ownership basis)

Class	Tonnage		Zinc		Copper		Contained Metal Silver		Lead		Gold	
	(Mt)	%	(kt)	%	(kt)	%	(koz)	%	(kt)	%	(koz)	%
Measured	(1.44)	(20.1)	(30.7)	(16.6)	(9.5)	(34.1)	(1,758)	(24.6)	(9.0)	(22.2)	(1.6)	(9.2)
Indicated	(1.27)	(7.1)	3.5	0.6	(7.5)	(0.2)	(3,221)	(15.6)	(12.0)	(8.1)	2.6	3.7
Total	(2.71)	(10.9)	(27.2)	(3.7)	(16.9)	(0.3)	(4,979)	(17.9)	(21.0)	(11.1)	1.0	1.2
Inferred	2.22	2.6	(158.8)	(4.4)	1.0	0.0	9,229	7.5	2.0	0.2	180.4	32.5

Consolidated - Net Difference in Mineral Resources between December 31, 2025, versus December 31, 2024 (on a 100% ownership basis)

Class	Tonnage		Zinc		Copper		Contained Metal Silver		Lead		Gold	
	(Mt)	%	(kt)	%	(kt)	%	(koz)	%	(kt)	%	(koz)	%
Measured	(1.76)	(20.9)	(37.9)	(17.9)	(11.3)	(34.1)	(2,157)	(25.3)	(11.2)	(23.1)	(1.4)	(7.3)
Indicated	(1.60)	(7.9)	(4.9)	(0.8)	(8.7)	(0.2)	(3,958)	(16.6)	(15.5)	(9.3)	3.8	5.0
Total	(3.36)	(11.8)	(42.9)	(5.3)	(20.0)	(0.3)	(6,115)	(18.9)	(26.6)	(12.4)	2.4	2.5
Inferred	2.68	2.9	(137.0)	(3.6)	2.0	0.0	11,324	8.4	6.0	0.7	212.6	38.2

In comparison to 2024, consolidated Inferred Mineral Resources increased by 2.9% in mass to total 95.8Mt from 93.8Mt, mainly attributed to exploration drilling at El Porvenir and Vazante, and decreased by 3.6% in zinc content (kt), reflecting the conversion of Inferred Mineral Resources to Mineral Reserves at Cerro Lindo, El Porvenir and Vazante.

In comparison to 2024, Consolidated Measured and Indicated Mineral Resources decreased by 11.8% in mass to total 25.2Mt from 28.6Mt, and by 5.3% in zinc content (kt), due to updated metal prices and conversion of Indicated and Measured Mineral Resources to Mineral Reserves at Atacocha, El Porvenir and Cerro Lindo.

Mineral Reserves

The following table shows our estimates of Attributable Mineral Reserves for our material mining properties as of December 31, 2025, prepared in accordance with Subpart 1300 of Regulation S-K.

	Ownership Interest (%)	Class	Tonnage (1) (Mt)	Grade					Contained Metal				
				Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Cerro Lindo ⁽³⁾	83.55	Proven	18.47	1.52	0.50	20.3	0.20	-	280.7	93.1	12,036	36.3	-
		Probable	14.67	0.99	0.41	22.4	0.19	-	144.8	59.9	10,556	27.4	-
		Subtotal	33.14	1.28	0.46	21.2	0.19	-	425.5	153.0	22,592	63.7	-
Vazante ⁽⁴⁾	100	Proven	6.59	7.45	-	10.5	0.20	-	490.8	-	2,219	13.0	-
		Probable	7.07	8.11	-	8.5	0.21	-	572.9	-	1,920	14.6	-
		Subtotal	13.66	7.79	-	9.4	0.20	-	1,063.7	-	4,140	27.7	-
Vazante Aroeira Tailings ⁽⁵⁾	100	Proven	-	-	-	-	-	-	-	-	-	-	-
		Probable	1.88	4.05	-	7.0	0.24	-	75.9	-	424	4.5	-
		Subtotal	1.88	4.05	-	7.0	0.24	-	75.9	-	424	4.5	-
El Porvenir ⁽⁶⁾	83.55	Proven	3.61	4.35	0.27	69.3	1.06	0.16	157.1	9.8	8,039	38.4	18.7
		Probable	9.92	4.16	0.26	64.8	0.96	0.20	412.7	25.3	20,666	95.3	64.2
		Subtotal	13.52	4.21	0.26	66.0	0.99	0.19	569.8	35.1	28,704	133.7	83.0
Atacocha (Underground) ⁽⁷⁾	83.01	Proven	1.65	3.70	0.33	81.2	1.44	-	60.9	5.4	4,297	23.7	-
		Probable	3.89	4.24	0.45	75.6	1.24	-	164.7	17.5	9,441	48.2	-
		Subtotal	5.53	4.08	0.41	77.2	1.30	-	225.7	22.9	13,738	71.9	-
Atacocha (Open pit) ⁽⁸⁾	83.01	Proven	1.10	1.17	-	37.4	1.21	0.17	12.9	-	1,330	13.4	6.1
		Probable	1.35	1.19	-	33.0	1.21	0.22	16.1	-	1,426	16.3	9.4
		Subtotal	2.45	1.18	-	35.0	1.21	0.20	29.0	-	2,756	29.7	15.5
Aripuanã ⁽⁹⁾	100	Proven	5.67	3.59	0.16	31.1	1.28	0.23	203.5	9.3	5,672	72.8	41.0
		Probable	28.41	4.24	0.10	38.5	1.63	0.18	1,205.4	29.1	35,166	463.2	163.4
		Subtotal	34.08	4.13	0.11	37.3	1.57	0.19	1,408.9	38.4	40,838	536.1	204.4
Total		Proven	37.09	3.25	0.32	28.2	0.53	0.06	1,205.9	117.7	33,593	197.7	65.9
		Probable	67.17	3.86	0.20	36.9	1.00	0.11	2,592.6	131.8	79,599	669.5	237.0
		Total	104.27	3.64	0.24	33.8	0.83	0.09	3,798.5	249.5	113,192	867.2	302.9

Notes:

* Numbers may not add due to rounding.

* The point of reference for Mineral Reserves in this table is mill feed materials.

* The El Porvenir, Atacocha Underground and Atacocha Open Pit mines are part of the Cerro Pasco Complex.

The following table shows our estimates of Mineral Reserves (100% ownership basis) for our material mining properties as of December 31, 2025, prepared in accordance with Subpart 1300 of Regulation S-K.

	Ownership Interest (%)	Class	Tonnage (2) (Mt)	Grade					Contained Metal				
				Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Cerro Lindo ⁽³⁾	83.55	Proven	22.11	1.52	0.50	20.3	0.20	-	336.0	111.4	14,406	43.4	-
		Probable	17.56	0.99	0.41	22.4	0.19	-	173.3	71.7	12,634	32.8	-
		Subtotal	39.67	1.28	0.46	21.2	0.19	-	509.3	183.1	27,040	76.2	-
Vazante ⁽⁴⁾	100	Proven	6.59	7.45	-	10.5	0.20	-	490.8	-	2,219	13.0	-
		Probable	7.07	8.11	-	8.5	0.21	-	572.9	-	1,920	14.6	-
		Subtotal	13.66	7.79	-	9.4	0.20	-	1,063.7	-	4,140	27.7	-
Vazante Aroeira Tailings ⁽⁵⁾	100	Proven	-	-	-	-	-	-	-	-	-	-	-
		Probable	1.88	4.05	-	7.0	0.24	-	75.9	-	424	4.5	-
		Subtotal	1.88	4.05	-	7.0	0.24	-	75.9	-	424	4.5	-
El Porvenir ⁽⁶⁾	83.55	Proven	4.32	4.35	0.27	69.3	1.06	0.16	188.0	11.8	9,622	45.9	22.4
		Probable	11.87	4.16	0.26	64.8	0.96	0.20	494.0	30.3	24,734	114.0	76.9
		Subtotal	16.19	4.21	0.26	66.0	0.99	0.19	682.0	42.1	34,356	160.0	99.3
Atacocha (Underground) ⁽⁷⁾	83.01	Proven	1.98	3.70	0.33	81.2	1.44	-	73.4	6.5	5,176	28.6	-
		Probable	4.68	4.24	0.45	75.6	1.24	-	198.5	21.1	11,374	58.0	-
		Subtotal	6.66	4.08	0.41	77.2	1.30	-	271.8	27.6	16,550	86.6	-
Atacocha (Open pit) ⁽⁸⁾	83.01	Proven	1.33	1.17	-	37.4	1.21	0.17	15.6	-	1,602	16.2	7.3
		Probable	1.62	1.19	-	33.0	1.21	0.22	19.4	-	1,718	19.6	11.3
		Subtotal	2.95	1.18	-	35.0	1.21	0.20	34.9	-	3,320	35.7	18.7
Aripuanã ⁽⁹⁾	100	Proven	5.67	3.59	0.16	31.1	1.28	0.23	203.5	9.3	5,672	72.8	41.0
		Probable	28.41	4.24	0.10	38.5	1.63	0.18	1,205.4	29.1	35,166	463.2	163.4
		Subtotal	34.08	4.13	0.11	37.3	1.57	0.19	1,408.9	38.4	40,838	536.1	204.4
Total		Proven	42.01	3.11	0.33	28.7	0.52	0.05	1,307.2	139.1	38,697	220.0	70.8
		Probable	73.08	3.75	0.21	37.4	0.97	0.11	2,739.4	152.1	87,970	706.9	251.6
		Total	115.09	3.52	0.25	34.2	0.81	0.09	4,046.6	291.2	126,667	926.8	322.4

Notes:

* Numbers may not add due to rounding.

* The point of reference for Mineral Reserves in this table is mill feed materials.

* The El Porvenir, Atacocha Underground and Atacocha Open Pit mines are part of the Cerro Pasco Complex.

- (1) The total tonnage and content amounts presented in this table represent our attributable ownership basis.
- (2) The total amounts and content presented in this table have not been adjusted to reflect our ownership interest. The information presented in this table includes 100% of the Mineral Reserve estimates for the property. Please refer to our ownership percentage for the amounts attributable to our ownership interest in the property.
- (3) The Qualified Person for the Mineral Reserves estimate is Cesar Moreno, B.Eng., MAusIMM, our employee. Subpart 1300 of Regulation S-K definitions were followed for Mineral Reserves, which also are consistent with the CIM (2014) definitions. Mineral Reserves are estimated at an NSR break-even cut-off value of US\$45.66/t processed. Some incremental material with values between US\$30.44/t and US\$45.66/t was included. Mineral Reserves estimates are based on average long-term metal prices of zinc: US\$2,999.30/t (US\$1.36/lb); copper: US\$9,398.60/t (US\$4.26/lb); lead: US\$1,963.53/t (US\$0.89/lb); and silver: US\$29.11/oz. Metallurgical recoveries are accounted for in NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average head grades are 87.40% for Zn, 82.67% for Cu, 65.22% for Pb, and 68.78% for Ag. A minimum mining width of 5.0 m was used. Dilution and extraction factors are applied based on stope type and location. Bulk density varies depending on mineralization domain.
- (4) The Qualified Person for the Mineral Reserves estimate is Mateus Gomes Ribeiro, B.Eng., MAusIMM, our employee. Subpart 1300 of Regulation S-K definitions were followed for Mineral Reserves, which also are consistent with the CIM (2014) definitions. Mineral Reserves are estimated at a NSR cut-off value of US\$62.42/t processed. Some incremental material with values between US\$41.32/t and US\$62.42/t was included. Mineral Reserves estimates are based on average long-term metal prices of zinc: US\$2,999.30/t (US\$1.36/lb); lead: US\$1,963.53/t (US\$0.89/lb); and silver: US\$29.11/oz. Metallurgical recoveries are accounted for in NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average head grades are 84.36% for Zn, 21.08% for Pb, and 42.00% for Ag. A minimum mining width of 2 m was applied.
- (5) The Qualified Person for the Mineral Reserves estimate is Mateus Gomes Ribeiro, B.Eng., MAusIMM, our employee. Subpart 1300 of Regulation S-K definitions were followed for Mineral Reserves, which also are consistent with the CIM (2014) definitions. Mineral Reserves are estimated at a NSR cut-off value of US\$25.73/t processed. Mineral Reserves estimates are based on average long-term metal prices of zinc: US\$2,999.30/t (US\$1.36/lb); lead: US\$1,963.53/t (US\$0.89/lb); and silver: US\$29.11/oz. Metallurgical recoveries are accounted for in NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at Vazante Aroeira Tailings average head grades are 67.39% for Zn, 33.63% for Pb and 42.00% for Ag.
- (6) The Qualified Person for the Mineral Reserves estimate is Renzo Suarez, B.Eng., MAusIMM, our employee. Subpart 1300 of Regulation S-K definitions were followed for Mineral Reserves, which also are consistent with the CIM (2014) definitions. Mineral Reserves were estimated at a NSR cut-off values ranging from US\$72.91/t to US\$74.76/t for SLS areas, and US\$74.04/t to US\$75.89/t for C&F areas depending on the zone. A number of incremental material (with values between US\$46.22/t and US\$48.07/t for SLS and values between US\$47.35/t and US\$49.20/t for C&F mining) was included in the estimates. Mineral Reserves estimates are based on average long-term metal prices of zinc: US\$2,999.30/t (US\$1.36/lb); copper: US\$9,398.60/t (US\$4.26/lb); lead: US\$1,963.53/t (US\$0.89/lb); and silver: US\$29.11/oz; and gold: US\$2,464.12/oz. Metallurgical recoveries are accounted for in NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average head grade are 89.26% for Zn, 15.62% for Cu, 79.36% for Pb, 62.92% for Ag, and 30.19% for Au. Minimum mining width of 5.0 m for C&F mining and 4.0 m for SLS mining were used for reserves shapes and development design and are reported inclusive of extraction losses and dilution.
- (7) The Qualified Person for the Mineral Reserves estimate is Renzo Suarez, B.Eng., MAusIMM, our employee. Subpart 1300 of Regulation S-K definitions were followed for Mineral Reserves, which also are consistent with the CIM (2014) definitions. Mineral Reserves were estimated at a NSR cut-off of US\$77.60/t for SLS areas, and US\$78.77/t for C&F areas depending on the zone. A number of incremental material (with values between US\$50.91/t and US\$77.60/t for SLS and values between US\$52.08/t and US\$78.77/t for C&F mining) was included in the estimate. Mineral Reserves estimates are based on average long-term metal prices of zinc: US\$2,999.30/t (US\$1.36/lb); copper: US\$9,398.60/t (US\$4.26/lb); lead: US\$1,963.53/t (US\$0.89/lb); and silver: US\$29.11/oz.. Metallurgical recoveries are accounted for in NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average head grades 89.20% for Zn, 15.73% for Cu, 80.02% for Pb, and 62.92% for Ag. Minimum mining width of 5.0 m for C&F mining and 4.0 m for SLS mining were used for reserves shapes and development design and are reported inclusive of extraction losses and dilution.
- (8) The Qualified Person for the Mineral Reserves estimate is Renzo Suarez, B.Eng., MAusIMM, our employee. Subpart 1300 of Regulation S-K definitions were followed for Mineral Reserves, which also are consistent with the CIM (2014) definitions. Mineral Reserves were estimated at a NSR cut-off values of US\$22.91/t. A number of incremental material (with values between US\$16.54/t and US\$22.91/t was included in the estimates. US\$2,999.30/t (US\$1.36/lb); lead: US\$1,963.53/t (US\$0.89/lb); and silver: US\$29.11/oz; and gold: US\$2,464.12/oz . Metallurgical recoveries are accounted for in NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average head grades are 70.44% for Zn, 84.03% for Pb, 75.76% for Ag, and 65.46% for Au.

- (9) The Qualified Person for the Mineral Reserves estimate is Cristovao Teofilo dos Santos, B.Eng., FAusIMM, our employee. Subpart 1300 of Regulation S-K definitions were followed for Mineral Reserves, which also are consistent with the CIM (2014) definitions. A break-even NSR cut-off value is US\$63.86/t processed was estimated from forecasted operating costs and some incremental material between US\$49.56/t and US\$63.86/t was included. A minimum mining width of 4.0 m was used for Bench Stoping and 15.0 m for VRM. The long-term prices derived are in line with the consensus forecasts from banks and independent institutions. Mineral Reserves estimates are based on average long-term metal prices of zinc: US\$2,999.30/t (US\$1.36/lb); copper: US\$9,398.60/t (US\$4.26/lb); lead: US\$1,963.53/t (US\$0.89/lb); and silver: US\$29.11/oz; and gold: US\$2,464.12/oz. Recoveries at LOM average head grades are 89.89% for Zn, 55.62% for Cu, 54.10% for Pb, 68.00% for Ag, and 67.80% for Au.

Mineral Resources

The following table shows our estimates of Attributable Mineral Resources for our material mining properties as of December 31, 2025, prepared in accordance with Subpart 1300 of Regulation S-K.

	Ownership Interest (%)	Class	Tonnage ⁽¹⁾ (Mt)	Grade					Contained Metal				
				Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Cerro Lindo ⁽³⁾	83.55	Measured	1.87	2.28	0.73	23.4	0.26	-	42.5	13.7	1,405	4.9	-
		Indicated	2.44	1.22	0.37	24.1	0.29	-	29.9	9.0	1,897	7.0	-
		Subtotal	4.31	1.68	0.53	23.8	0.28	-	72.4	22.7	3,301	11.9	-
		Inferred	7.19	1.29	0.25	25.3	0.32	-	93.0	18.3	5,846	22.9	-
Vazante ⁽⁴⁾	100	Measured	0.51	8.51	-	14.3	0.26	-	43.3	-	235	1.3	-
		Indicated	1.95	9.39	-	6.1	0.11	-	183.1	-	380	2.2	-
		Subtotal	2.46	9.21	-	7.8	0.14	-	226.4	-	615	3.5	-
		Inferred	12.33	8.67	-	12.1	0.20	-	1,069.2	-	4,790	24.8	-
Vazante Aroeira Tailings ⁽⁴⁾	100	Measured	-	-	-	-	-	-	-	-	-	-	-
		Indicated	-	-	-	-	-	-	-	-	-	-	-
		Subtotal	-	-	-	-	-	-	-	-	-	-	-
		Inferred	0.59	4.26	-	7.6	0.25	-	25.2	-	145	1.5	-
El Porvenir ⁽⁵⁾	83.55	Measured	0.54	3.17	0.28	43.9	0.63	0.12	17.1	1.5	764	3.4	2.1
		Indicated	2.42	3.21	0.24	51.8	0.77	0.15	77.6	5.9	4,023	18.5	11.7
		Subtotal	2.96	3.20	0.25	50.3	0.74	0.15	94.7	7.4	4,787	21.9	13.9
		Inferred	17.12	3.69	0.22	83.8	1.24	0.30	632.0	37.5	46,141	211.9	167.5
Atacocha (Underground) ⁽⁶⁾	83.01	Measured	0.75	2.99	0.27	48.3	0.78	-	22.5	2.0	1,165	5.8	-
		Indicated	1.82	3.25	0.33	51.6	0.90	-	59.1	6.0	3,016	16.3	-
		Subtotal	2.57	3.17	0.31	50.6	0.86	-	81.6	8.0	4,181	22.1	-
		Inferred	7.10	4.12	0.58	79.8	1.21	-	292.3	41.2	18,201	85.8	-
Atacocha (Open pit) ⁽⁷⁾	83.01	Measured	1.66	1.11	-	28.8	0.78	0.16	18.5	-	1,542	13.0	8.8
		Indicated	3.57	0.96	-	27.8	0.87	0.20	34.2	-	3,185	31.0	22.5
		Subtotal	5.23	1.01	-	28.1	0.84	0.19	52.7	-	4,727	44.0	31.3
		Inferred	1.24	1.07	-	25.0	0.89	0.18	13.3	-	994	11.1	7.2
Aripuanã ⁽⁸⁾	100	Measured	0.39	2.59	0.29	21.1	0.83	0.37	10.1	1.1	263	3.2	4.6
		Indicated	4.27	3.88	0.18	36.2	1.44	0.28	165.6	7.7	4,975	61.5	38.6
		Subtotal	4.66	3.77	0.19	34.9	1.39	0.29	175.7	8.8	5,238	64.8	43.2
		Inferred	43.78	3.02	0.30	39.5	1.16	0.40	1,320.4	130.3	55,611	507.6	560.4
Total		Measured	5.72	2.69	0.32	29.2	0.55	0.08	154.0	18.3	5,373	31.6	15.5
		Indicated	16.47	3.34	0.17	33.0	0.83	0.14	549.5	28.7	17,476	136.6	72.9
		Total	22.19	3.17	0.21	32.0	0.76	0.12	703.5	47.0	22,849	168.2	88.3
		Inferred	89.33	3.86	0.25	45.9	0.97	0.26	3,445.3	227.2	131,727	865.4	735.1

Notes:

* Numbers may not add due to rounding.

* The estimation of Mineral Resources involves assumptions about future commodity prices and technical mining matters. Mineral Resources are reported exclusive of those Mineral Resources that were converted to Mineral Reserves, and Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.

* The point of reference for Mineral Resources in this table is mill feed materials.

* The El Porvenir, Atacocha Underground and Atacocha Open Pit mines are part of the Cerro Pasco Complex.

The following table shows our estimates of Mineral Resources (100% ownership basis) for our material mining properties as of December 31, 2025, prepared in accordance with Subpart 1300 of Regulation S-K.

	Ownership Interest (%)	Class	Tonnage ⁽²⁾ (Mt)	Grade					Contained Metal				
				Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Cerro Lindo ⁽³⁾	83.55	Measured	2.23	2.28	0.73	23.4	0.26	-	50.9	16.4	1,681	5.8	-
		Indicated	2.93	1.22	0.37	24.1	0.29	-	35.8	10.8	2,270	8.4	-
		Subtotal	5.16	1.68	0.53	23.8	0.28	-	86.7	27.2	3,951	14.2	-
		Inferred	8.60	1.29	0.25	25.3	0.32	-	111.3	21.8	6,997	27.4	-
Vazante ⁽⁴⁾	100	Measured	0.51	8.51	-	14.3	0.26	-	43.3	-	235	1.3	-
		Indicated	1.95	9.39	-	6.1	0.11	-	183.1	-	380	2.2	-
		Subtotal	2.46	9.21	-	7.8	0.14	-	226.4	-	615	3.5	-
		Inferred	12.33	8.67	-	12.1	0.20	-	1,069.2	-	4,790	24.8	-
Vazante Aroeira Tailings ⁽⁴⁾	100	Measured	-	-	-	-	-	-	-	-	-	-	-
		Indicated	-	-	-	-	-	-	-	-	-	-	-
		Subtotal	-	-	-	-	-	-	-	-	-	-	-
		Inferred	0.59	4.26	-	7.6	0.25	-	25.2	-	145	1.5	-
El Porvenir ⁽⁵⁾	83.55	Measured	0.65	3.17	0.28	43.9	0.63	0.12	20.5	1.8	914	4.1	2.5
		Indicated	2.89	3.21	0.24	51.8	0.77	0.15	92.9	7.1	4,815	22.1	14.1
		Subtotal	3.54	3.20	0.25	50.3	0.74	0.15	113.4	8.9	5,729	26.2	16.6
		Inferred	20.49	3.69	0.22	83.8	1.24	0.30	756.5	44.9	55,225	253.6	200.4
Atacocha (Underground) ⁽⁶⁾	83.01	Measured	0.90	2.99	0.27	48.3	0.78	-	27.0	2.4	1,404	7.0	-
		Indicated	2.19	3.25	0.33	51.6	0.90	-	71.2	7.3	3,633	19.6	-
		Subtotal	3.10	3.17	0.31	50.6	0.86	-	98.2	9.7	5,037	26.7	-
		Inferred	8.55	4.12	0.58	79.8	1.21	-	352.2	49.6	21,926	103.3	-
Atacocha (Open pit) ⁽⁷⁾	83.01	Measured	2.00	1.11	-	28.8	0.78	0.16	22.3	-	1,857	15.6	10.6
		Indicated	4.30	0.96	-	27.8	0.87	0.20	41.1	-	3,837	37.4	27.1
		Subtotal	6.30	1.01	-	28.1	0.84	0.19	63.5	-	5,694	53.0	37.7
		Inferred	1.49	1.07	-	25.0	0.89	0.18	16.0	-	1,197	13.3	8.7
Aripuanã ⁽⁸⁾	100	Measured	0.39	2.59	0.29	21.1	0.83	0.37	10.1	1.1	263	3.2	4.6
		Indicated	4.27	3.88	0.18	36.2	1.44	0.28	165.6	7.7	4,975	61.5	38.6
		Subtotal	4.66	3.77	0.19	34.9	1.39	0.29	175.7	8.8	5,238	64.8	43.2
		Inferred	43.78	3.02	0.30	39.5	1.16	0.40	1,320.4	130.3	55,611	507.6	560.4
Total		Measured	6.69	2.60	0.32	29.6	0.55	0.08	174.1	21.7	6,354	37.1	17.7
		Indicated	18.53	3.18	0.18	33.4	0.82	0.13	589.8	32.8	19,910	151.3	79.8
		Total	25.22	3.03	0.22	32.4	0.75	0.12	763.9	54.6	26,265	188.4	97.5
		Inferred	95.82	3.81	0.26	47.4	0.97	0.25	3,650.6	246.6	145,892	931.5	769.5

Notes:

* Numbers may not add due to rounding.

* The estimation of Mineral Resources involves assumptions about future commodity prices and technical mining matters. Mineral Resources are reported exclusive of those Mineral Resources that were converted to Mineral Reserves, and Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.

* The point of reference for Mineral Resources in this table is mill feed materials.

* The El Porvenir, Atacocha Underground and Atacocha Open Pit mines are part of the Cerro Pasco Complex.

- (1) The total tonnage and content amounts presented in this table represents our attributable ownership basis.
- (2) The tonnage and content amounts presented in this table represents 100% of the Mineral Resources estimates for the property. Please refer to our ownership percentage for the amounts attributable to our ownership interest in the property.
- (3) The Qualified Person for the Mineral Resources estimate is Jerry Huaman Abalos, B.Geo., MAusIMM CP(Geo), our employee. Subpart 1300 of Regulation S-K definitions were followed for Mineral Resources which also are consistent with the CIM (2014) definitions. Mineral Resources are estimated at an NSR cut-off value of US\$45.66/t. Mineral Resources estimates are based on average long-term metal prices of: zinc: US\$3,449.20/t (US\$1.56/lb); copper: US\$10,808.39/t (US\$4.90/lb); lead: US\$2,258.06/t (US\$1.02/lb); and silver: US\$33.48/oz. Metallurgical recoveries are accounted for in NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average head grades are 87.40% for Zn, 82.67% for Cu, 65.22% for Pb, and 68.78% for Ag. A minimum mining width of 4.0 m was used to create resource shapes. Bulk density varies depending on mineralization domain..

- (4) The Qualified Person for the Mineral Resources estimate is José Antonio Lopes, B.Geo., FAusIMM(Geo), our employee. Subpart 1300 of Regulation S-K definitions were followed for Mineral Resources, which also are consistent with the CIM (2014) definitions. Mineral Resources are estimated at various NSR cut-off values appropriate to the mineralization style and mining method. For Supergene Mineralization (calamine) the resources are estimated at a NSR cut-off value of US\$29.25/t for soil and US\$31.16/t for fresh rock and transition material. For Aroeira Tailings the resources are estimated at a NSR cut-off value of US\$25.73/t and for Hypogene Mineralization (willemite) a cut-off value of US\$62.42/t for all resources shapes. Mineral Resources are estimates are based on average long-term metal prices of zinc: US\$3,449.20/t (US\$1.56/lb); lead: US\$2,258.06/t (US\$1.02/lb); and silver: US\$33.48/oz. Metallurgical recoveries are accounted for NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average hypogene mineralization (willemite) head grades are 84.36% for Zn, 21.08% for Pb, and 42.00% for Ag. Recovery at LOM average supergene mineralization head grade is 55.0% for Zn. Recoveries at LOM average Aroeira Tailings head grades are 67.39% for Zn, 33.63% for Pb and 42.00% for Ag. A minimum thickness of 3.0 m for underground SLS, open pit shell for calamine and above original topography for tailings was applied. Bulk density was assigned based on rock type..
- (5) The Qualified Person for the Mineral Resources estimate is Jerry Huaman Abalos, B.Geo., MAusIMM CP(Geo), our employee. Subpart 1300 of Regulation S-K definitions were followed for Mineral Resources, which also are consistent with the CIM (2014) definitions. Mineral Resources are estimated at NSR cut-off grade values ranging from US\$72.91/t to US\$74.76/t for SLS areas and US\$74.04/t to US\$75.89/t for C&F areas depending on the zone. Mineral Resources estimates are based on average long-term metal prices of zinc: US\$3,449.20/t (US\$1.56/lb); copper: US\$10,808.39/t (US\$4.90/lb); lead: US\$2,258.06/t (US\$1.02/lb); silver: US\$33.48/oz; and gold: US\$2,833.74/oz. Metallurgical recoveries are accounted for in NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average head grades are 89.26% for Zn, 15.62% for Cu, 79.36% for Pb, 62.92% for Ag, and 30.19% for Au. A minimum mining width of 4.0 m was used for C&F, and a minimum mining width of 3.0 m was used for SLS resource stopes shapes, respectively. Bulk density varies depending on mineralization domain.
- (6) The Qualified Person for the Mineral Resources estimate is Jerry Huaman Abalos, B.Geo., MAusIMM CP(Geo), our employee. Subpart 1300 of Regulation S-K definitions were followed for Mineral Resources, which also are consistent with the CIM (2014) definitions. Mineral Resources are estimated at a NSR cut-off value of US\$77.60/t for SLS, and US\$78.77/t for C&F. Mineral Resources estimates are based on average long-term metal prices of: zinc: US\$3,449.20/t (US\$1.56/lb); copper: US\$10,808.39/t (US\$4.90/lb); lead: US\$2,258.06/t (US\$1.02/lb); and silver: US\$33.48/oz. Metallurgical recoveries are accounted for in NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average head grades are 89.20% for Zn, 15.73% for Cu, 80.02% for Pb, and 62.92% for Ag. A minimum mining width of 4.0 m was used for C&F, and a minimum mining width of 3.0 m was used for SLS resource stopes shapes, respectively. Density was assigned based on rock type.
- (7) The Qualified Person for the Mineral Resources estimate is Jerry Huaman Abalos, B.Geo., MAusIMM CP(Geo), our employee. Subpart 1300 of Regulation S-K definitions were followed for Mineral Resources, which also are consistent with the CIM (2014) definitions. Mineral Resources are reported within optimized pit shell. Mineral Resources are estimated at a NSR cut-off value of US\$22.91/t. Mineral Resources estimates are based on average long-term metal prices of: zinc: US\$3,449.20/t (US\$1.56/lb); lead: US\$2,258.06/t (US\$1.02/lb); silver: US\$33.48/oz; and gold: US\$2,833.74/oz. Metallurgical recoveries are accounted for in NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average head grades are 70.44% for Zn, 84.03% for Pb, 75.76% for Ag, and 65.46% for Au. Mineral resources are reported within open pit shell. Density was assigned based on rock type.
- (8) The Qualified Person for the Mineral Resources estimate is José Antonio Lopes, B.Geo., FAusIMM(Geo), our employee. Subpart 1300 of Regulation S-K definitions were followed for Mineral Resources, which also are consistent with the CIM (2014) definitions. Mineral Resources reported using a cut-of value of US\$60.68/t. Mineral Resources estimates are based on average long-term metal prices of: zinc: US\$3,449.20/t (US\$1.56/lb); copper: US\$10,808.39/t (US\$4.90/lb); lead: US\$2,258.06/t (US\$1.02/lb); silver: US\$33.48/oz; and gold: US\$2,833.74/oz. Metallurgical recoveries are accounted for in NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average head grades are 89.89% for Zn, 55.62% for Cu, 84.10% for Pb, 68.00% for Ag, and 67.80% for Au. A minimum thickness of 3.0 m was used for stopes shapes. Bulk density varies depending on mineralization domain.

The following table shows our estimates of Attributable Mineral Resources for our other operating mines and zinc projects which do not currently have estimated Mineral Reserves as of December 31, 2025, prepared in accordance with Regulation S-K 1300.

	Ownership (%)	Class	Tonnage ⁽¹⁾ (Mt)	Grade					Contained Metal				
				Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Bonsucesso ⁽³⁾	100	Measured	-	-	-	-	-	-	-	-	-	-	-
		Indicated	9.83	3.78	-	-	0.51	-	371.6	-	-	50.1	-
		Subtotal	9.83	3.78	-	-	0.51	-	371.6	-	-	50.1	-
		Inferred	3.38	4.17	-	-	0.52	-	140.9	-	-	17.6	-
Hilarión ⁽⁴⁾	83.55	Measured	12.15	3.39	-	30.9	0.69	-	412.4	-	12,082	83.5	-
		Indicated	28.43	3.62	-	27.0	0.54	-	1,028.9	-	24,672	153.0	-
		Subtotal	40.58	3.55	-	28.2	0.58	-	1,441.3	-	36,754	236.6	-
		Inferred	35.23	4.06	-	25.0	0.41	-	1,430.9	-	28,297	144.5	-
Florida Canyon Zinc ⁽⁵⁾	50.97	Measured	0.41	11.32	-	15.4	1.39	-	46.7	-	204	5.8	-
		Indicated	0.83	10.28	-	14.9	1.31	-	85.4	-	398	10.9	-
		Subtotal	1.24	10.62	-	15.1	1.34	-	132.2	-	603	16.7	-
		Inferred	7.57	9.64	-	11.3	1.26	-	729.4	-	2,752	95.4	-
Total		Measured	12.56	3.66	-	30.4	0.71	-	459.1	-	12,286	89.3	-
		Indicated	39.09	3.80	-	19.9	0.55	-	1,486.0	-	25,070	214.1	-
		Total	51.66	3.77	-	22.5	0.59	-	1,945.1	-	37,356	303.4	-
		Inferred	46.18	4.98	-	20.9	0.56	-	2,301.1	-	31,048	257.5	-

Notes:

* Numbers may not add due to rounding.

* The estimation of Mineral Resources involves assumptions about future commodity prices and technical mining matters. Mineral Resources are not mineral reserves and do not have demonstrated economic viability.

* The point of reference for Mineral Resources in this table is mill feed materials.

The following table shows our estimates of Mineral Resources (100% ownership basis) for our other operating mines and zinc projects which do not currently have estimated Mineral Reserves as of December 31, 2025, prepared in accordance with Regulation S-K 1300.

	Ownership (%)	Class	Tonnage ⁽²⁾ (Mt)	Grade					Contained Metal				
				Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Bonsucesso ⁽³⁾	100	Measured	-	-	-	-	-	-	-	-	-	-	-
		Indicated	9.83	3.78	-	-	0.51	-	371.6	-	-	50.1	-
		Subtotal	9.83	3.78	-	-	0.51	-	371.6	-	-	50.1	-
		Inferred	3.38	4.17	-	-	0.52	-	140.9	-	-	17.6	-
Hilarión ⁽⁴⁾	83.55	Measured	14.54	3.39	-	30.9	0.69	-	493.6	-	14,460	100.0	-
		Indicated	34.03	3.62	-	27.0	0.54	-	1,231.5	-	29,530	183.2	-
		Subtotal	48.57	3.55	-	28.2	0.58	-	1,725.1	-	43,990	283.2	-
		Inferred	42.17	4.06	-	25.0	0.41	-	1,712.6	-	33,868	173.0	-
Florida Canyon Zinc ⁽⁵⁾	50.97	Measured	0.81	11.32	-	15.4	1.39	-	91.7	-	401	11.3	-
		Indicated	1.63	10.28	-	14.9	1.31	-	167.6	-	781	21.4	-
		Subtotal	2.44	10.62	-	15.1	1.34	-	259.3	-	1,182	32.7	-
		Inferred	14.86	9.64	-	11.3	1.26	-	1,431.0	-	5,399	187.2	-
Total		Measured	15.35	3.81	-	30.1	0.73	-	585.3	-	14,862	111.3	-
		Indicated	45.49	3.89	-	20.7	0.56	-	1,770.8	-	30,311	254.7	-
		Total	60.84	3.87	-	23.1	0.60	-	2,356.0	-	45,172	366.0	-
		Inferred	60.40	5.44	-	20.2	0.63	-	3,284.5	-	39,267	377.8	-

Notes:

* Numbers may not add due to rounding.

* The estimation of Mineral Resources involves assumptions about future commodity prices and technical mining matters. Mineral Resources are not mineral reserves and do not have demonstrated economic viability.

* The point of reference for Mineral Resources in this table is mill feed materials.

(1) The tonnage and content amounts presented in this table represents our attributable ownership basis.

(2) The tonnage and content amounts presented in this table represents 100% of the Mineral Resources estimates for the property. Please refer to our ownership percentage for the amounts attributable to our ownership interest in the property.

(3) The Qualified Person for the Mineral Resources estimate is José Antonio Lopes, B.Geo., FAusIMM(Geo), our employee. Subpart 1300 of Regulation S-K definitions were followed for Mineral Resources, which also are consistent with the CIM (2014) definitions. Mineral Resources are reported within underground mining shapes and the NSR cut-off values are calculated based on the LOM cost of US\$55.83/t. Mineral Resources estimates are based on average long-term metal prices of: zinc: US\$3,218.90/t (US\$1.46/lb) and lead: US\$2,300.33/t (US\$1.04/lb). Metallurgical recoveries are accounted for in NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at the LOM average head grades are 92.5% for Zn and 61.1% for Pb. A minimum thickness of 3.0 m was applied. Density was assigned based on rock type.

- (4) The Qualified Person for the Mineral Resources estimate is Jerry Huaman Abalos, B.Geo., MAusIMM CP(Geo), our employee. Subpart 1300 of Regulation S-K definitions were followed for Mineral Resources, which also are consistent with the CIM (2014) definitions. Mineral Resources are estimated at an NSR cut-off value of US\$45.00/t. Mineral Resources estimates are based on average long-term metal prices of: zinc US\$3,245.91/t (US\$1.47/lb); lead: US\$2,332.46/t (US\$1.06/lb); and silver: US\$22.66/oz. Metallurgical recoveries are accounted for in NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at the LOM average head grades for Hilarion are 90.00% for Zn, 86.00% for Pb, and 72.00% for Ag. A minimum thickness of 4.0 m was applied. Density was assigned based on rock type.
- (5) The Qualified Person for the Mineral Resources estimate is Jerry Huaman Abalos, B.Geo., MAusIMM CP(Geo), our employee. Subpart 1300 of Regulation S-K definitions were followed for Mineral Resources, which also are consistent with the CIM (2014) definitions. Mineral Resources are estimated at an NSR cut-off value of US\$41.40/t NSR for SLS, US\$42.93/t for C&F and US\$40.61/t for Room & Pillar mine areas. Mineral Resources estimates are based on average long-term metal prices of zinc: US\$2,816.35/t (US\$1.27/lb); lead: US\$2,196.50/t (US\$1.00/lb); and silver: US\$19.38/oz. Metallurgical recoveries are accounted for in NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at the LOM average head grades for Florida Canyon are 80.00% for Zn, 74.00% for Pb, and 52.00% for Ag. A minimum thickness of 3.0 m was applied. Density was assigned based on rock type.

The following table shows our estimates of Attributable Mineral Resources for our copper project which does not currently have estimated Mineral Reserves as of December 31, 2025, prepared in accordance with Regulation S-K 1300.

	Ownership (%)	Class	Tonnage (1) (Mt)	Grade					Contained Metal				
				Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Molybdenum (%)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Molybdenum (kt)
Magistral (3)	83.55	Measured	82.46	-	0.52	2.8	-	0.052	-	426.2	7,440	-	42.6
		Indicated	75.77	-	0.43	2.8	-	0.040	-	329.5	6,718	-	30.2
		Subtotal	158.22	-	0.48	2.8	-	0.046	-	755.7	14,158	-	72.8
		Inferred	9.24	-	0.38	3.1	-	0.050	-	35.3	910	-	4.6
Total		Measured	82.46	-	0.52	2.8	-	0.052	-	426.2	7,440	-	42.6
		Indicated	75.77	-	0.43	2.8	-	0.040	-	329.5	6,718	-	30.2
		Total	158.22	-	0.48	2.8	-	0.046	-	755.7	14,158	-	72.8
		Inferred	9.24	-	0.38	3.1	-	0.050	-	35.3	910	-	4.6

Notes:

* Numbers may not add due to rounding.

* The estimation of Mineral Resources involves assumptions about future commodity prices and technical mining matters. Mineral Resources are not mineral reserves and do not have demonstrated economic viability.

* The point of reference for Mineral Resources in this table is mill feed materials.

The following table shows our estimates of Mineral Resources (100% ownership basis) for our copper project which does not currently have estimated Mineral Reserves as of December 31, 2025, prepared in accordance with Regulation S-K 1300.

	Ownership (%)	Class	Tonnage (2) (Mt)	Grade					Contained Metal				
				Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Molybdenum (%)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Molybdenum (kt)
Magistral (3)	83.55	Measured	98.69	-	0.52	2.8	-	0.052	-	510.1	8,905	-	51.0
		Indicated	90.68	-	0.43	2.8	-	0.040	-	394.3	8,041	-	36.1
		Subtotal	189.38	-	0.48	2.8	-	0.046	-	904.5	16,946	-	87.1
		Inferred	11.06	-	0.38	3.1	-	0.050	-	42.2	1,089	-	5.5
Total		Measured	98.69	-	0.52	2.8	-	0.052	-	510.1	8,905	-	51.0
		Indicated	90.68	-	0.43	2.8	-	0.040	-	394.3	8,041	-	36.1
		Total	189.38	-	0.48	2.8	-	0.046	-	904.5	16,946	-	87.1
		Inferred	11.06	-	0.38	3.1	-	0.050	-	42.2	1,089	-	5.5

Notes:

* Numbers may not add due to rounding.

* The estimation of Mineral Resources involves assumptions about future commodity prices and technical mining matters. Mineral Resources are not mineral reserves and do not have demonstrated economic viability.

* The point of reference for Mineral Resources in this table is mill feed materials.

(1) The tonnage and content amounts presented in this table represents our attributable ownership basis.

(2) The tonnage and content amounts presented in this table represents 100% of the Mineral Resources estimates for the property. Please refer to our ownership percentage for the amounts attributable to our ownership interest in the property.

(3) The Qualified Person for the Mineral Resources estimate is Jerry Huaman Abalos, B.Geo., MAusIMM CP(Geo), our employee. Subpart 1300 of Regulation S-K definitions were followed for Mineral Resources, which also are consistent with the CIM (2014) definitions. Mineral Resources are estimated at a pit shell constraint and NSR cut-off value: US\$5.99/t (Porf San Ernesto, Porf. Sara and Porf. H), US\$5.51/t (Mixto), US\$5.48/t (Skarn). Mineral Resources estimates are based on average long-term metal prices of copper: US\$8,272.00/t (US\$3.75/lb); silver: US\$21.34/oz; and molybdenum: US\$21,829.00/t (US\$ 9.90/lb). Metallurgical recoveries are accounted for in the NSR calculations based on metallurgical data and vary from 79.3% in skarn to 92.5% in San Ernesto porphyry for Cu, 51.3% in skarn and 79.2% in San Ernesto porphyry for Mo, and 70.0% for Ag. Density was assigned based on rock type.

Internal Controls Disclosure

We have used well-established quality assurance/quality controls (“QA/QC”) protocols since 2007 for core samples from operating mines and our Brownfield/Greenfield projects. We have used a corporate database (GDMS Fusion) from Datamine since 2017. The current database system has several default laboratory packages for specific Business Units (ore deposit types/countries) with pre-defined preparation and assay methods, reporting units and over-limit methods. All assay dispatches from all mines and projects follows the same protocols for each medium type (core, rock, soil, stream sediment samples). All written protocols are in a corporate internal system that requires revisions and updates every three years.

Nexa Quality Control includes three types of duplicates (pulp, coarse rejects, and half core duplicates), blank controls and certified standards. Inter-laboratory checks are also conducted on an annual basis at certified laboratories. Fusion database has a collection of pre-defined QA/QC charts for each type of control where our parameters for each control are built in. All blanks and certified standards are approved and registered in Fusion by the database administrator. Our protocols for construction and certification of new standards from operating mines and projects include a minimum of ten laboratories and minimum of ten samples per lab in the Round Robin. Laboratories need to be from different continents and only three laboratories from the same group are allowed.

Every mine and advanced project provides a detailed QA/QC report at least once a year, which is appended to the updated mineral resources technical reports prepared by our engineers.

With respect to the verification of analytical procedures, we conduct periodic reviews of the QA/QC programs to ensure that an adequate level of quality is maintained in the process of sampling, preparing and testing drill core samples and that the QA/QC programs are designed and implemented to prevent or detect contamination and allow analytical precision and accuracy to be quantified. Our internal qualified person performed this review and concluded that our QA/QC programs meet or exceed industry standards, and the data are suitable for Mineral Resources and Mineral Reserves purposes.

Internally, regular data verification workflows are conducted to ensure the collection of reliable data. Coordinates, core logging, surveying, and sampling are monitored by exploration, mine geologists, and verified routinely for consistency.

The Mineral Resource and Mineral Reserve estimates are supported by a review of the recent operation results including operating costs, production, metallurgical performance, and reconciliation. The LOM plan supporting the estimates includes consideration of changes to the permits required, capital costs, tailings capacity and other production constraints. The estimates are subject to normal industry risks including metal prices, metallurgical performance and geological modeling. For geological risk we have modeling and estimation procedures following mining industry best practices including drilling, borehole survey, core logging, sampling, and density protocols.

Individual Property Disclosure

We have determined that our material properties are Cerro Lindo, Vazante, Cerro Pasco Complex and Aripuanã. As there has been no material changes in the reported reserves or resources for these mining properties since the last Technical Report Summary filed, we are not including new Technical Report Summaries in connection with this filing. Below is the individual property disclosure for each of these properties.

Cerro Lindo

Location and means of access

The Cerro Lindo mine is an underground, polymetallic mine located in the Chavín District, Chincha Province, Peru, approximately 268 km southeast of Lima and 60 km from the coast. Access from Lima is available via the paved Pan American Highway south to Chincha, and then via an unpaved road up the Topará River valley to the mine site. Internal roadways connect the various mine site components. The approximate coordinates of the mine are 392,780m East and 8,554,165m North, using the Universal Transverse Mercator WGS84 datum and the mine site is located at an average elevation of 2,000 meters above sea level.

History

Several companies have held interests in the Cerro Lindo mine area, including BTX, Phelps Dodge, and Nexa Peru. Exploration work completed to date includes geological mapping, rock chip and soil sampling, trenching, ground geophysical surveys, and exploration, definition, and underground operational core drilling. Feasibility studies were completed in 2002 and 2005, with mine construction commencing in 2006. Formal production started in 2007, and the mine has been operational since that date.

Title, leases and options

All mineral concessions are held in the name of Nexa Peru. The tenure consists of 68 mining concessions totaling approximately 44,171.3 hectares and one beneficiation concession, covering an area of 518.8 hectares.

Nexa Peru currently holds surface rights or easements for the following infrastructure at Cerro Lindo: mine site, access roads, power transmission line and water pipeline for the mine, old and new power transmission lines to Cerro Lindo, desalination plant, water process plant, and the water pipeline from the desalination plant to the mine site. There is sufficient suitable land available within the mineral tenure held by Nexa Peru for tailings disposal, mine waste disposal and installations such as the process plant and related mine infrastructure.

Cerro Lindo is currently subject to payment of royalties. The tax stability agreement expired on December 31, 2021, and the historical applicability thereof is subject to certain disputes with tax authorities. For more information, see “Additional Information—Legal Proceedings—Other legal proceedings.” Nexa Peru is required to pay royalties and special mining tax to the Peruvian government. For more information, see “Information on the Company—Regulatory matters—Peruvian regulatory framework.” As of December 31, 2025, Nexa Peru held a seawater extraction license, granted under Administrative Resolution No. 0033-2012-ANA-ALA MOC, for a total volume of 3,153,600 m³ per year.

Cerro Lindo holds a number of permits in support of the current operations. The permits are Resolutions issued by the Peruvian authorities upon approval of mining environmental impact assessments filed by the mining companies. Nexa Peru maintains an up-to-date record of the legal permits obtained to date.

Mineralization and Exploration

Cerro Lindo is classified as a volcanogenic massive sulfide (“VMS”) deposit. The Cerro Lindo deposit is 1,500 meters long, 1,000 meters wide, and has a current vertical development of 470 meters below the surface. Mineralization consists of at least 10 discrete mineralized zones. The Cerro Lindo deposit comprises lens-shaped massive bodies, composed of pyrite (50.0% to 90.0%), yellow sphalerite, brown sphalerite, chalcopyrite, and minor galena. Significant barite is present mainly in the upper portions of the deposit. A secondary-enrichment zone, composed of chalcocite and covellite, has formed near the surface where massive sulfides have oxidized. Silver-rich powdery barite remains at the surface as a relic of sulfide oxidation and leaching.

In 2025, mineral exploration focused on expanding known orebodies southeast of Cerro Lindo, with particular emphasis on confirming the continuity and extensions of mineralization in Orebodies 8B and 8C. During 2025, we completed approximately 5.9 km of diamond drilling in 9 drill holes, divided between surface and underground exploration drillings.

During 2026, we will focus our efforts on geological activities intended to extend the life of the Cerro Lindo mine.

In 2025, we spent US\$3.5 million in exploration expenses for Cerro Lindo. In 2026 we do not expect further mineral exploration activities and have not budgeted for any further activities.

Operations and infrastructure

The Cerro Lindo mine is substantially mechanized, using rubber-tired equipment for all development and production operations. The treatment plant current capacity is approximately 7.3 Mtpy. Production drilling operations have been performed by our personnel using a variety of drilling machines throughout the history of the Cerro Lindo mine. There is no shaft; all access is through 15 portals servicing adits, drifts and declines. Ore is extracted from nine separate ore bodies and delivered to the process plant via a series of conveyors. All ore is commingled during transport to the concentrator stockpile; ore from different ore bodies is not segregated.

We have completed construction of all key infrastructure required for mining and processing operations, including the underground mine, access roads, power lines, water pipelines, the desalination plant, offices and warehouses, accommodations, the process plant/concentrator, conveyor systems, waste rock facilities, temporary ore stockpiles, the paste-fill plant and the dry-stack tailings storage facilities and a fresh seawater pump and pipeline from the desalination plant on the coast to the mine. The national grid supplies electrical power for the mine site.

In 2025, we spent US\$57.3 million on sustaining capital expenditures for Cerro Lindo, primarily associated with mine development.

Production

The Cerro Lindo mine is in the production stage and has a treatment plant capacity of 20,000 tonnes of ore per day. The table below summarizes the Cerro Lindo mine's concentrate production, metal contained in concentrates produced, average grades, cash costs and non-expansion capital expenditures for the periods indicated. Production in 2025 was higher than 2024 primarily as a result of higher treated ore volumes combined with improved metal recovery rates.

	For the Year Ended December 31,		
	2025	2024	2023
Treatment ore (in tonnes)	6,213,172	6,080,038	5,991,156
Average ore grade			
Zinc (%)	1.57	1.62	1.51
Copper (%)	0.51	0.58	0.57
Lead (%)	0.23	0.31	0.31
Silver (ounces per tonne)	0.85	0.93	0.80
Gold (ounces per tonne)	0.002	0.003	0.002
Metal contained in concentrates production			
Zinc (in tonnes)	87,141	86,207	78,209
Copper (in tonnes)	27,081	29,888	28,588
Lead (in tonnes)	10,252	13,891	13,042
Silver (in oz)	3,953,241	4,268,043	3,540,975
Gold (in oz)	4,067	4,904	3,418
Cash Cost, net of by-product credits (in US\$/t)	(1,816.7)	(1,010.6)	(138.6)
Cash Cost, net of by-product credits (in US\$/lb)	(0.82)	(0.46)	(0.06)
Non-Expansion Capital Expenditures (in millions of US\$)	59.6	49.0	43.3

Mineral Reserves and Mineral Resources

The Cerro Lindo Mineral Reserves and Mineral Resources estimates are based on the definitions for Mineral Reserves and Mineral Resources in SK-1300 and the tables below are based on costs and modifying factors from the Cerro Lindo mine.

Cerro Lindo - Year End Mineral Reserves as of December 31, 2025 (on an 83.55% attributable ownership basis) ⁽¹⁾⁽²⁾⁽³⁾

Class	Tonnage ⁽⁴⁾ (Mt)	Grade ⁽⁴⁾					Contained Metal ⁽⁴⁾				
		Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Proven	18.47	1.52	0.50	20.3	0.20	-	280.7	93.1	12,036	36.3	-
Probable	14.67	0.99	0.41	22.4	0.19	-	144.8	59.9	10,556	27.4	-
Total	33.14	1.28	0.46	21.2	0.19	-	425.5	153.0	22,592	63.7	-

Notes:

1. Subpart 1300 of Regulation S-K definitions were followed for Mineral Reserves, which also are consistent with the CIM (2014) definitions.
2. The Qualified Person for the Mineral Reserves estimate is Cesar Moreno, B.Eng., MAusIMM, our employee.
3. The point of reference for Mineral Reserves in this table is mill feed materials.
4. Numbers may not add due to rounding.

Cerro Lindo - Year End Mineral Reserves as of December 31, 2025 (on a 100% ownership basis) (1)(2)(3)

Class	Tonnage ⁽⁴⁾ (Mt)	Grade ⁽⁴⁾					Contained Metal ⁽⁴⁾				
		Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Proven	22.11	1.52	0.50	20.3	0.20	-	336.0	111.4	14,406	43.4	-
Probable	17.56	0.99	0.41	22.4	0.19	-	173.3	71.7	12,634	32.8	-
Total	39.67	1.28	0.46	21.2	0.19	-	509.3	183.1	27,040	76.2	-

Notes:

1. Subpart 1300 of Regulation S-K definitions were followed for Mineral Reserves, which also are consistent with the CIM (2014) definitions.
2. The Qualified Person for the Mineral Reserves estimate is Cesar Moreno, B.Eng., MAusIMM, our employee.
3. The point of reference for Mineral Reserves in this table is mill feed materials.
4. Numbers may not add due to rounding.

The Cerro Lindo Mineral Reserves are estimated at an NSR cut-off value of US\$45.66/t processed. A number of incremental material (with values between US\$45.66/t and US\$30.44/t) was included. A minimum mining width of 5.0 m was used, inclusive of extraction factors and dilution are applied based on stope type and location. The net smelter return ("NSR") cut-off value is determined using the mineral reserve metal prices, metal recoveries, concentrate transport, treatment, and refining costs, as well as mine operating costs. Metal prices used for Mineral Reserves are based on consensus, long-term forecasts from banks, financial institutions, and other sources. Mineral Reserves estimates are based on average long-term metal prices of zinc: US\$2,999.30/t (US\$1.36/lb); copper: US\$9,398.60/t (US\$4.26/lb); lead: US\$1,963.53/t (US\$0.89/lb); and silver: US\$29.11/oz. Metallurgical recoveries are accounted for in NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average head grades are 87.40% for Zn, 82.67% for Cu, 65.22% for Pb, and 68.78% for Ag. The current LOM production plan continues to 2032.

Cerro Lindo - Net Difference in Mineral Reserves between December 31, 2025, versus December 31, 2024 (on an 83.55% attributable ownership basis)

Class	Tonnage		Zinc		Copper		Silver		Lead		Gold	
	(Mt)	%	(kt)	%	(kt)	%	(koz)	%	(kt)	%	(koz)	%
Proven	(2.32)	(11.1)	(42.9)	(13.2)	(25.0)	(21.1)	(1,147)	(8.7)	(2.6)	(6.7)	-	-
Probable	2.81	23.7	17.7	13.9	9.4	18.6	1,317	14.3	1.1	4.0	-	-
Total	0.50	1.5	(25.5)	(5.6)	(15.6)	(9.2)	171	0.8	(1.5)	(2.4)	-	-

Cerro Lindo - Net Difference in Mineral Reserves between December 31, 2025, versus December 31, 2024 (on a 100% ownership basis)

Class	Tonnage		Zinc		Copper		Silver		Lead		Gold	
	(Mt)	%	(kt)	%	(kt)	%	(koz)	%	(kt)	%	(koz)	%
Proven	(2.77)	(11.1)	(51.3)	(13.2)	(29.9)	(21.1)	(1,373)	(8.7)	(3.1)	(6.7)	-	-
Probable	3.37	23.7	21.1	13.9	11.2	18.6	1,577	14.3	1.3	4.0	-	-
Total	0.60	1.5	(30.2)	(5.6)	(18.6)	(9.2)	204	0.8	(1.8)	(2.4)	-	-

In comparison to 2024, Cerro Lindo's Mineral Reserves increased by 1.5% in mass to total 39.7Mt from 39.1Mt mainly due to mineral resource conversion, reflecting our drilling campaign and decreased by 5.6% in zinc content (kt), mainly due to mine reserve depletion replaced by lower grade material. Mineral Reserve depletion during 2025 represented 6.3Mt containing 95.9kt of zinc.

Cerro Lindo - Year End Mineral Resources as of December 31, 2025 (on an 83.55% attributable ownership basis) (1)(2)(3)(4)

Class	Tonnage ⁽⁵⁾ (Mt)	Grade ⁽⁵⁾					Contained Metal ⁽⁵⁾				
		Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Measured	1.87	2.28	0.73	23.4	0.26	-	42.5	13.7	1,405	4.9	-
Indicated	2.44	1.22	0.37	24.1	0.29	-	29.9	9.0	1,897	7.0	-
Total	4.31	1.68	0.53	23.8	0.28	-	72.4	22.7	3,301	11.9	-
Inferred	7.19	1.29	0.25	25.3	0.32	-	93.0	18.3	5,846	22.9	-

Notes:

1. Subpart 1300 of Regulation S-K definitions were followed for Mineral Resources, which also are consistent with the CIM (2014) definitions.
2. Mineral Resources are reported exclusive of those Mineral Resources that were converted to Mineral Reserves, and Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
3. The Qualified Person for the Mineral Resources estimate is Jerry Huaman Abalos, B.Geo., MAusIMM CP(Geo), our employee.
4. The point of reference for Mineral Resources in this table is mill feed materials.
5. Numbers may not add due to rounding.

Cerro Lindo - Year End Mineral Resources as of December 31, 2025 (on a 100% ownership basis) (1)(2)(3)(4)

Class	Tonnage ⁽⁵⁾ (Mt)	Grade ⁽⁵⁾					Contained Metal ⁽⁵⁾				
		Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Measured	2.23	2.28	0.73	23.4	0.26	-	50.9	16.4	1,681	5.8	-
Indicated	2.93	1.22	0.37	24.1	0.29	-	35.8	10.8	2,270	8.4	-
Total	5.16	1.68	0.53	23.8	0.28	-	86.7	27.2	3,951	14.2	-
Inferred	8.60	1.29	0.25	25.3	0.32	-	111.3	21.8	6,997	27.4	-

Notes:

1. Subpart 1300 of Regulation S-K definitions were followed for Mineral Resources, which also are consistent with the CIM (2014) definitions.
2. Mineral Resources are reported exclusive of those Mineral Resources that were converted to Mineral Reserves, and Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
3. The Qualified Person for the Mineral Resources estimate is Jerry Huaman Abalos, B.Geo., MAusIMM CP(Geo), our employee.
4. The point of reference for Mineral Resources in this table is mill feed materials.
5. Numbers may not add due to rounding.

The Cerro Lindo Mineral Resources estimates in the table above were completed using Datamine Studio RM ("Datamine") and Seequent's Leapfrog Geo ("Leapfrog") software. Wireframes for geology and mineralization were constructed in Leapfrog based on geology sections, assay results, lithological information, underground mapping and structural data. Assays were capped to various levels based on exploratory data analysis and then composited to 2.5 m lengths. Wireframes were filled with blocks sub-celled at wireframe boundaries. Blocks were interpolated with grade using the Ordinary Krig ("OK") and Inverse Distance to the cube ("ID³") interpolation algorithms. Block estimates were validated using industry standard validation techniques. Classification of blocks used distance-based and other criteria. Mineral Resources estimates were reported using all the material within resource shapes generated in Deswik Stope Optimizer ("DSO") software. The estimate satisfied the minimum mining width of 4.0 m for resource shapes and used NSR cut-off value of US\$45.66/t. Mineral Resources estimates are based on average long-term metal prices of zinc: US\$3,449.20/t (US\$1.56/lb); copper: US\$10,808.39/t (US\$4.90/lb); lead: US\$2,258.06/t (US\$1.02/lb); and silver: US\$33.48/oz. Metallurgical recoveries are accounted for in NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average head grades are 87.40% for Zn, 82.67% for Cu, 65.22% for Pb, and 68.78% for Ag.

Cerro Lindo - Net Difference in Mineral Resources between December 31, 2025, versus December 31, 2024 (on an 83.55% attributable ownership basis)

Class	Tonnage		Zinc		Copper		Contained Metal Silver		Lead		Gold	
	(Mt)	%	(kt)	%	(kt)	%	(koz)	%	(kt)	%	(koz)	%
Measured	(1.14)	(38.0)	(18.8)	(30.6)	(8.1)	(37.2)	(820)	(36.8)	(2.1)	(30.4)	-	-
Indicated	0.04	1.6	6.2	26.2	(3.1)	(0.3)	172	9.9	2.4	51.1	-	-
Total	(1.11)	(20.4)	(12.6)	(14.8)	(11.2)	(0.3)	(648)	(16.4)	0.2	2.1	-	-
Inferred	(1.20)	(14.3)	(35.1)	(27.4)	(4.3)	(0.2)	(1,016)	(14.8)	(10.0)	(30.4)	-	-

Cerro Lindo - Net Difference in Mineral Resources between December 31, 2025, versus December 31, 2024 (on a 100% ownership basis)

Class	Tonnage		Zinc		Copper		Contained Metal Silver		Lead		Gold	
	(Mt)	%	(kt)	%	(kt)	%	(koz)	%	(kt)	%	(koz)	%
Measured	(1.37)	(38.0)	(22.5)	(30.6)	(9.7)	(37.2)	(981)	(36.8)	(2.5)	(30.4)	-	-
Indicated	0.05	1.6	7.4	26.2	(3.7)	(0.3)	205	9.9	2.8	51.1	-	-
Total	(1.32)	(20.4)	(15.1)	(14.8)	(13.4)	(0.3)	(776)	(16.4)	0.3	2.1	-	-
Inferred	(1.43)	(14.3)	(42.0)	(27.4)	(5.1)	(0.2)	(1,216)	(14.8)	(12.0)	(30.4)	-	-

In comparison to 2024, Cerro Lindo's Inferred Mineral Resources decreased by 14.3% in mass and by 27.4% in zinc content (kt), mainly due to the conversion to Mineral Reserves. In comparison to 2024, Cerro Lindo's Measured and Indicated Mineral Resources decreased by 20.4% in mass and by 14.8% in zinc content (kt), mainly due to conversion to Mineral Reserves.

For additional information, see the "Technical Report Summary on the Cerro Lindo Mine," incorporated by reference as Exhibit 15.1 to this annual report.

Vazante

Location and means of access

The Vazante mine is an underground and open pit, polymetallic mine located about 8.5 km from the municipality of Vazante, in the state of Minas Gerais, Brazil. The approximate coordinates of the mine are 17° 57' 33" S and a longitude of approximately 46° 49' 42" W, within Zone 23S of the Universal Transverse Mercator coordinate system (Corrego Alegre Datum) at approximately 306,000m E and 8,016,000m N and the mine area has elevations ranging from 690 to 970 meters above sea level. Access from Brasilia is via federal highway BR-040 toward Paracatu. Internal roadways connect the various mine-site components. Concentrates are trucked about 250 km to the Três Marias smelter. The closest commercial airport is located in Brasilia. The Vazante municipal airport for light aircraft is adjacent to the mine site.

History

Mineralization was initially exploited by artisanal miners during the 1950s. Mechanized open pit mining and underground mining commenced in 1969 and 1983, respectively. The current primary ore types are hydrothermal zinc silicates and willemite. Initial mining operations exploited supergene calamine ores and a mixture of the zinc secondary minerals hemimorphite and smithsonite, which are derived from the weathering of silicate ore.

Title, leases and options

Nexa Brazil owns 100.0% of the Vazante mine. Mineral concessions are divided into core tenements, where the known mineral deposits are located and where we have active mining operations and the surrounding exploration concessions. Nexa Brazil holds three mining concession applications, nine mining concessions, including one group of mining concessions in the core area, totaling 2,339.6 hectares. The group of mining concessions comprises six mining concessions, totaling an area of 742.6 hectares. The Mineral Reserves and Resources are located within the limits of three mining concession applications, two exploration authorizations and four mining concessions with a total area of 1,595.7 hectares, which host the active mining operations. One mining concession (tenement # 14,840/1967), which is part of the group of mining concessions, has the potential to host zinc and lead mineralization, however it does not yet have associated mineral reserves and resources.

Nearby the main area, Nexa Brazil also holds, 23 exploration authorizations totaling 10,769.3 hectares and one right to apply for mining concession totaling 344.5 hectares, in addition to the core tenements. Nexa Brazil holds surface rights sufficient to support the current operations. Some surface rights agreements require annual payments to the owners. Two easements have been granted in support of the mining activities. Sufficient suitable land is available within the mineral tenure held by Nexa Brazil for tailings disposal, mine waste disposal, and installations such as the process plant and related mine infrastructure.

Brazilian companies that hold mining concessions are subject to a royalty payment imposed by the Federal Government. For more information, see “Information on the Company—Regulatory matters—Brazilian regulatory framework—Royalties and other taxes on mining activities.”

Nexa Brazil holds all required licenses for water management and water use in the operations. Nexa Brazil has lodged renewal applications, before the required deadline where applicable, for the water management and use.

The Vazante Operation holds several permits in support of the current operations. The main instrument to regulate the Vazante Operation is a set of operating licenses issued by the COPAM from the state of Minas Gerais. The licenses are active, some of them are under renewal process.

Mineralization and Exploration

The Vazante and Extremo Norte zinc deposits are epigenetic zinc silicate deposits, and Vazante is one of the largest deposits of its type worldwide. Mineralization exists within a sequence of pelitic carbonate rocks belonging to the Serra do Poço Verde formation of the Vazante group. The major structural control is the Vazante fault.

Mineral exploration activities in 2025 were focused on expanding mineralized zones near the existing operation, with the objective of extending the unit’s life of mine. Approximately 14.5 km of diamond drilling were completed across 23 drill holes, with two additional holes currently in progress and expected to be finalized in 2026. The drilling program combined exploratory drilling and extensions of known orebodies, such as Varginha, Lumiadeira, and Vazante Sul, while also advancing the conversion of inferred resources to indicated resources in the *Conexão Sucuri Norte* area.

In 2025, we invested US\$4.8 million in the Vazante exploration program for LOM extension, which included a drilling program and geological activities. For 2026, we have allocated a budget of US\$4.8 million for brownfield drilling and expect to drill 13.2 km.

Operations and infrastructure

The Vazante operation consists of two mechanized underground mines, the Vazante mine and Extremo Norte Mine. The treatment plant current capacity is approximately 1.8 Mtpy, including tailings retreatment. Production drilling operations have been performed by company personnel using a variety of drilling machines throughout the history of the Vazante mine.

The Vazante underground mine has been in operation since 1983 and is a fully mechanized mine using rubber-tired diesel equipment for development and production activities. Access is through two portals for Vazante and one portal for Extremo Norte. As development progresses at Extremo Norte, a connecting drift will be established from Vazante to Extremo Norte.

All infrastructure required for the current mining and processing operations has been constructed and is operational. This includes the underground mines, access roads, power lines, water pipelines, offices and warehouses, a process plant/concentrator, conveyor systems, waste rock facilities, temporary ore stockpiles, and tailings storage facilities.

The power supply to the Vazante operation is provided by one independent 138 kV transmission line that feeds the site and that can provide up to 59 MW. There are two 30/40 MVA and one 18/23 MVA transformers in the surface substation at the Vazante Operation and power is distributed to other areas of the mine at 13.8 kV and 440 V via secondary transformers to power mine equipment. There are two 700 kVA diesel generators on site to provide backup power to pump water out of the Extremo Norte mine zone in case of main line interruption.

In 2025, we spent US\$23.3 million on sustaining capital expenditures for this property, primarily associated with mine development. In addition, we invested US\$0.9 million in capital expenditures related to the LOM extension at Vazante, including US\$0.6 million for the Vazante mine deepening project. For more information, see “Information on the Company—Mining Operations—Growth Projects—Vazante mine deepening project and other Vazante initiatives.”

Production

The Vazante mine is in the production stage and has a treatment plant with a nominal design processing capacity of approximately 5,000 tonnes of ore per day. The table below summarizes the Vazante mine’s concentrate production, metal contained in concentrates produced, average grades, cash costs and non-expansion capital expenditures for the periods indicated. Production in 2025 was lower than 2024 due to a decline in average zinc grades resulting from the operational challenges experienced during the first half of the year.

	For the Year Ended December 31,		
	2025	2024	2023
Treatment ore (in tonnes)	1,753,327	1,769,646	1,633,357
Average ore grade			
Zinc (%)	8.64	9.22	10.19
Lead (%)	0.29	0.28	0.33
Silver (ounces per tonne)	0.60	0.63	0.67
Metal contained in concentrate production			
Zinc (in tonnes)	128,402	140,740	145,662
Lead (in tonnes)	864	947	1,449
Silver (in oz)	414,483	470,090	575,636
Cash cost, net of by-product credits (in US\$/t)	992.8	1,079.2	1,315.8
Cash cost, net of by-product credits (in US\$/lb)	0.45	0.49	0.60
Non-Expansion Capital Expenditures (in millions of US\$)	25.0	25.4	29.1

Mineral Reserves and Mineral Resources

The Vazante Mineral Reserves and Mineral Resources estimates are based on the definitions for Mineral Reserves and Mineral Resources in SK-1300 and the tables below are based on costs and modifying factors from the Vazante mine and Vazante Aroeira Tailings.

Vazante - Year End Mineral Reserves as of December 31, 2025 (on a 100% ownership basis) ⁽¹⁾

Class	Tonnage ⁽²⁾ (Mt)	Grade					Contained Metal				
		Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Proven	6.59	7.45	-	10.5	0.20	-	490.8	-	2,219	13.0	-
Probable	8.94	7.26	-	8.2	0.21	-	648.8	-	2,344	19.2	-
Total	15.53	7.34	-	9.1	0.21	-	1,139.6	-	4,563	32.2	-

Notes:

1. Subpart 1300 of Regulation S-K definitions were followed for Mineral Reserves, which also are consistent with the CIM (2014) definitions.
2. Mineral Reserves data presented in this table represents 100% of the Mineral Reserves estimates for the property. we own 100%.
3. The Qualified Person for the Mineral Reserves estimate is Mateus Gomes Ribeiro, B.Eng., MAusIMM, our employee.
4. Numbers may not add due to rounding.
5. The point of reference for Mineral Reserves in this table is mill feed materials.
6. Mineral Reserves presented in this table include Mineral Reserves from Vazante mine and Vazante Aroeira Tailings.

The Vazante Mineral Reserves estimates in the table above consider actual costs and modifying factors from the Vazante mine and Vazante Aroeira tailings, as well as operational level mine planning and budgeting. The dilution that has been applied is related to the selected mining method. The NSR cut-off value was determined using the mineral reserve metal prices, metal recoveries, transport, treatment, and refining costs, as well as mine operating costs. The Vazante mine Mineral Reserves are estimated at a NSR cut-off value of US\$62.42/t processed. A number of incremental material (with values between US\$41.32/t and US\$62.42/t) was included. A minimum mining width of 2.0 m. Recoveries for the Vazante mine at average head grades are 84.36% for Zn, 21.08% for Pb, and 42.00% for Ag. The Vazante Aroeira Tailings Mineral Reserves estimates in the table above consider actual costs and modifying factors from the Vazante Aroeira tailings, as well as operational level TSF reclaiming plan and budgeting. The Vazante Aroeira Tailings Mineral Reserves are estimated at a NSR cut-off value of US\$25.73/t processed. A minimum mining unit of 10m x 10m x 2m was applied. Recoveries for Vazante Aroeira Tailings at average head grades are 67.39% for Zn, 33.63% for Pb, and 42.00% for Ag. Metallurgical recoveries are accounted for in NSR calculations based on historical processing data and are variable as a function of head grade. Long-term metal prices used for Mineral Reserves are based on consensus and long-term forecasts from banks, financial institutions, and other sources. Mineral Reserves estimates are based on average long-term metal prices of zinc: US\$2,999.30/t (US\$1.36/lb); lead: US\$1,963.53/t (US\$0.89/lb); and silver: US\$29.11/oz. The current LOM production plan continues to 2034.

Vazante - Net Difference in Mineral Reserves between December 31, 2025, versus December 31, 2024 (on a 100% ownership basis)

Class	Tonnage		Contained Metal									
	(Mt)	%	Zinc		Copper		Silver		Lead		Gold	
			(kt)	%	(kt)	%	(koz)	%	(kt)	%	(koz)	%
Proven	1.14	20.9	14.0	2.9	-	-	(291)	(11.6)	(1.0)	(7.0)	-	-
Probable	0.64	7.7	(5.5)	(0.8)	-	-	(232)	(9.0)	(1.0)	(4.7)	-	-
Total	1.78	12.9	8.6	0.8	-	-	(523)	(10.3)	(1.9)	(5.6)	-	-

In comparison to 2024, Vazante's Mineral Reserves increased by 12.9% in mass, mainly due to mineral resource conversion, cut of value reduction and higher operational dilution and increased by 0.8% in zinc content (kt), mainly due to mineral resource conversion and cut-off value reduction. Mineral Reserve depletion during 2025 accounted for 1.8Mt containing 154.1kt of zinc.

Vazante - Year End Mineral Resources as of December 31, 2025 (on an 100% ownership basis) ⁽¹⁾

Class	Tonnage ⁽²⁾ (Mt)	Grade					Contained Metal				
		Zinc	Copper	Silver	Lead	Gold	Zinc	Copper	Silver	Lead	Gold
		(%)	(%)	(g/t)	(%)	(g/t)	(kt)	(kt)	(koz)	(kt)	(koz)
Measured	0.51	8.51	-	14.3	0.26	-	43.3	-	235	1.3	-
Indicated	1.95	9.39	-	6.1	0.11	-	183.1	-	380	2.2	-
Total	2.46	9.21	-	7.8	0.14	-	226.4	-	615	3.5	-
Inferred	12.92	8.47	-	11.9	0.20	-	1,094.3	-	4,935	26.2	-

Notes:

1. Subpart 1300 of Regulation S-K definitions were followed for Mineral Resources, which also are consistent with the CIM (2014) definitions.
2. Mineral Resources data presented in this table represents 100% of the Mineral Resources estimates for the property. We own 100% of property.
3. Mineral Resources are reported exclusive of those Mineral Resources that were converted to Mineral Reserves, and Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
4. The Qualified Person for the Mineral Resources estimate is José Antonio Lopes, B.Geol., FAusIMM(Geo), our employee.
5. Numbers may not add due to rounding.
6. The point of reference for Mineral Resources in this table is mill feed materials.
7. Mineral Resources presented in this table include Mineral Resources from the Vazante mine and Vazante Aroeira Tailings.

The Vazante Mineral Resources estimates in the table above were completed using Datamine and Leapfrog software. The Mineral Resources at Vazante comprise three styles of mineralization. The first style of mineralization is represented by the hypogene (willemite) mineralized zones that are found in the underground portions of the Vazante and Extremo Norte deposits. The second style of mineralization is represented by the supergene (calamine) mineralized zones found in the Cava 3A, Matas dos Paulistas, and Braquiara areas of the Extremo Norte and Vazante deposits. This supergene (calamine) mineralization is referred to at the Vazante Operation as calamine mineralization and comprises a mixture of smithsonite and hemimorphite minerals. The third type of mineralization comprises tailings that are contained within the Aroeira TSF. The material found in the Aroeira tailings comprise a mixture of hypogene (willemite) and supergene (calamine) minerals. Mineral Resources estimates for the underground hypogene (willemite) mineralization are prepared within reporting panels using the native functions and workflows available through the DSO software package considering spatial continuity, a minimum width of 3.0 m and a NSR cut-off value of US\$62.42/t for Hypogene Mineralization (willemite). The Mineral Resources estimates for the supergene (calamine) mineralization are prepared using an open pit shell that considers appropriate metal prices, mining costs, metallurgical recoveries and geotechnical considerations with NSR cut-off value of US\$29.25/t for soil and US\$31.16/t for fresh rock and transition material. The Mineral Resources estimates for the tailings at Vazante are reported considering the material with a NSR value of greater than US\$25.73/t which lies above the original topographic surface. Mineral Resources estimates are based on average long-term metal prices for willemite and Aroeira TSF of zinc: US\$3,449.20/t (US\$1.56/lb); lead: US\$2,258.06/t (US\$1.02/lb); and silver: US\$33.48/oz, and for calamine of zinc: US\$3,250.30/t (US\$1.47/lb). Metallurgical recoveries are accounted for in NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average: hypogene head grades are 84.36% for Zn, 21.08% for Pb, and 42.00% for Ag, supergene (calamine) is 55.0% for Zn, and tailings are 67.39% for Zn, 33.63% for Pb, and 42.00% for Ag.

Vazante - Net Difference in Mineral Resources between December 31, 2025, versus December 31, 2024 (on an 100% ownership basis)

Class	Tonnage		Zinc		Copper		Contained Metal Silver		Lead		Gold	
	(Mt)	%	(kt)	%	(kt)	%	(koz)	%	(kt)	%	(koz)	%
Measured	0.05	10.5	1.9	4.5	-	-	(06)	(2.5)	(0.1)	(6.5)	-	-
Indicated	0.52	36.4	38.1	26.2	-	-	155	69.1	0.9	71.4	-	-
Total	0.57	30.1	39.9	21.4	-	-	149	32.1	0.8	31.0	-	-
Inferred	(0.44)	(3.3)	(220.0)	(16.7)	-	-	(133)	(2.6)	(1.2)	(4.2)	-	-

In comparison to 2024, Vazante's Inferred Mineral Resources decreased by 3.3% in mass and by 16.7% in zinc content (kt), mainly due to conversion to Mineral Reserves. In comparison to 2024, Vazante's Measured and Indicated Mineral Resources increased by 30.1% in mass and by 21.4% in zinc content (kt), mainly due to metal prices update.

For additional information, see the “Technical Report Summary on the Vazante Polymetallic Operations,” incorporated by reference as Exhibit 15.3 to this annual report.

Cerro Pasco Complex

The Cerro Pasco Complex consists of the El Porvenir underground mine, which produces zinc, copper, lead, silver and gold; the Atacocha San Gerardo open pit mine, producing zinc, lead, silver and gold; and the Atacocha underground mine, which has been suspended since 2020 and remains under care and maintenance due to our efforts to reduce costs and improve our operational efficiency, through the Cerro Pasco Integration Project which is currently under execution.

The Atacocha and El Porvenir mines are located in Peru, specifically in the province of Pasco, which is a region recognized for its intensive mineral economic activities, where many polymetallic mines have been operating for several decades.

El Porvenir is an underground mine with multiple accesses and a shaft where the mined ore is extracted and where workers and inputs are also transported. There are multiple accesses to the Atacocha underground mine from the surface and the mine is currently connected to the El Porvenir mine through two active tunnels located at 4070 and 3300 levels. These tunnels are used by operators of heavy mine equipment and conventional trucks, as well as for transporting mining crews between the Atacocha surface and the El Porvenir mine.

Currently, production from the Atacocha San Gerardo open pit mine feeds the Atacocha processing plant with a nominal throughput capacity of 4,600 tonnes of ore per day, while production from the El Porvenir underground mine feeds the El Porvenir processing plant with a nominal throughput capacity of 6,700 tonnes of ore per day. The Atacocha processing plant is expected to be decommissioned by 2028, when the Atacocha San Gerardo pit reaches the end of its mine life based on our current depletion schedule.

Integration Project

The Cerro Pasco Complex integration project (the “Integration Project”) involves the continued integration of the El Porvenir and Atacocha underground mines. The Cerro Pasco Complex is a material property for the purposes of S-K 1300 comprising the two mines, El Porvenir and Atacocha. The Integration Project is intended to continue to capture synergies between the two mining operations, as a result of their proximity and operational similarities, with ore from both the underground mines being processed at the El Porvenir processing plant. The goal of the Integration Project is to achieve cost and investment savings, thereby reducing the environmental footprint and extending the combined LOM of the two mines.

The Integration Project has been developed over the past few years, with the first, second, third and fourth stages finishing completion in 2014, 2015, 2016 and 2019, respectively. In 2022, we advanced the Integration Project with an optimization study to evaluate the increase in capacity of our tailings and El Porvenir shaft, in addition to enhancing the El Porvenir processing plant to potentially increase production and extend the LOM of both mines.

In 2023, we continued to advance the technical studies of the Integration Project, aiming to develop a robust organic growth option for the company. The technical studies for the Integration Project covered several areas, from mine planning to projects to sustain and expand production, such as studies for underground interconnection, shaft upgrade, engineering assessments, and key routes to increase capacity to provide a long-term solution for tailings disposal. A Front-End Loading 3 (“FEL3”) study to increase the El Porvenir hoisting was completed in the first quarter of 2023 and a FEL3 tailings pumping system study was also completed in the second quarter of 2023.

In 2024, our Board of Directors, through the Finance Committee, approved the first phase of the Integration Project - the tailings pumping and piping system, following a recommendation from the SCP Committee. We developed an investment plan consisting of two phases that includes constructing a tailings treatment plant and its auxiliary structures at El Porvenir, and the second involves installing a 6 km pipeline (mostly underground) to connect El Porvenir to Atacocha’s tailings storage facility. This initiative will enable the Cerro Pasco Complex to operate for over a decade and is designed to provide a long-term tailings disposal solution for the complex.

In 2025, construction of the tailings pumping and piping system began in July and progressed throughout the year. The first phase timeline remains on track, with commissioning expected in 2026. As part of the Integration Project's first phase, investments to raise the El Porvenir tailings dam and expand Atacocha's tailings storage capacity are still in progress up to elevation 4131, with a new capacity expansion planned to reach elevation 4142 in 2027. In parallel, Phase II preparatory work continued, which includes technical assessments of the Picasso shaft and underground integration to determine the most efficient long-term operational configuration. We also submitted in December 2025 the two major environmental filings required by SENACE, and approvals are expected in the first quarter of 2027.

The total capital expenditures for the project are estimated to be US\$148.8 million, encompassing the capital expenditures for Phase I, which are estimated to be US\$117.1 million. Of this amount, US\$45.2 million has already been invested in 2024 and 2025, and US\$31.4 million is planned to be invested in 2026. The remaining investments will be executed progressively until 2029. Capital expenditures for Phase II, are estimated to be US\$31.7 million, with investments planned from 2027 to 2032, and the highest level of expenditures expected in 2031. During the first phase, we intend to upgrade the tailings facilities at both El Porvenir and Atacocha, as well as improve water and effluent treatment systems, with construction planned for 2027-2028 following the completion of environmental impact assessments. In the second phase, we aim to build an additional 2.3 kilometers underground tunnel at a deeper level to connect the El Porvenir and Atacocha mines and upgrade the El Porvenir shaft, which is expected to unlock access to high-grade mineral resources. Support activities, such as technical reviews, environmental studies, and community engagement, are also progressing as planned. We are confident in the long-term value this project will generate for us and remain focused on its successful execution.

Overall, the Integration Project plan includes several key initiatives, including: (i) the construction of a new tailings pumping and pipeline system, establishing a long-term tailings disposal solution by transporting the tailings from the El Porvenir processing plant to the Atacocha tailings storage facility, extending the operational life of the combined mines; (ii) the development of an additional 2.3 km long connection tunnel (Tunnel 2900), which will connect the Atacocha underground mine to the base of the El Porvenir (Picasso) shaft, allowing ore hoisting and processing at the El Porvenir plant; (iii) the restart and rehabilitation of the Atacocha underground mine, revitalizing operations to improve production capacity; (iv) the closure of the Atacocha processing plant, following the depletion of Atacocha's open pit Mineral Reserves in 2027, resulting in operations being consolidated at El Porvenir; and (v) the expansion of the Picasso shaft capacity to support production and ore extraction from both underground mines. Additional initiatives related to the Integration Project encompass the advancement of the environmental studies and the regulatory permitting process required to support the project's execution.

For further information about our operations, infrastructure, production, and Mineral Reserves and Mineral Resources at the El Porvenir and Atacocha mines, see the "Technical Report Summary on the Cerro Pasco Complex Integration," incorporated by reference as Exhibit 15.2 to this annual report. For additional information on the increase of Mineral Reserves, see "Information on the Company—Mining Operations—El Porvenir—Mineral Reserves and Resources" and "Information on the Company—Mining operations—Atacocha—Mineral Reserves and Resources."

El Porvenir

Location and means of access

The El Porvenir mine is an underground, polymetallic mine (located in the Cerro Pasco Complex) in the central Andes mountains region of Peru, specifically in the district of San Francisco de Asís de Yarusyacán, in the province of Pasco, Peru. The approximate coordinates of the mine are 367600m E, 8826850m N, using the Universal Transverse Mercator WGS84 datum, Z18S and the mine site is located at an average elevation of 4,200 meters above sea level. The mine is situated at kilometer 340 of the Carretera Central Highway (Lima—Huánuco route), 13 km from the city of Cerro de Pasco. The mine is located in the Central Cordillera zone, which contains the communities of Parán, Lacsanga and Santo Domingo de Apache.

History

The El Porvenir mine began its operation as small-scale artisanal mine in 1949. We have been investing in the mine since then, with a current treatment plant capacity of 6,700 tonnes of ore per day. In 2014, we commenced the integration process with the Atacocha mine, as described above in "Information on the Company—Mining Operations—Cerro Pasco Complex—Integration Project."

Title, leases and options

The El Porvenir mine is operated by Nexa Resources El Porvenir S.A.C., a wholly owned subsidiary of Nexa Peru.

The El Porvenir mine has a total of 25 concessions covering approximately 4,846.7 hectares, as well as a beneficiation concession, “Acumulacion Aquiles 101.” With respect to the surface property at El Porvenir mine, there is a mining site of 450.8 hectares, where the mining concession is located, as well as additional surface property where tailings dams/ponds, camps sites and other ancillary infrastructure are located.

Mining operations at the El Porvenir mine are subject to certain royalties payable by Nexa Resources El Porvenir S.A.C. For more information, see “Information on the Company—Regulatory Matters—Peruvian regulatory framework—Royalties and other taxes on mining activities.”

The El Porvenir Mine holds several permits in support of the current operations. The permits are Directorial Resolutions issued by the Peruvian authorities upon approval of mining environmental management instruments filed by the mining companies. Nexa Peru maintains an up-to-date record of the legal permits obtained to date.

Mineralization and Exploration

The El Porvenir mine is a typical skarn deposit. The mineralization occurs within the contact of the upper Triassic limestone (*i.e.*, exoskarn) and the granodioritic-dacitic intrusive rocks (*i.e.*, endoskarn). There are also recognized veins and replacement manto type, minor disseminated mineralization may occur within the intrusive units. West of the Milpo-Atacocha fault within the Goyllarisquizga Group, mineralization is characterized as veins and disseminations. Most of the exploration is generally conducted simultaneously with underground development, which involves diamond core drilling and channel sampling following underground drifting.

Four groups of vein/mineralized structures are reported. Structurally controlled veins are sub-vertical up to 150 meters long, with a vertical extent of 350 meters. Economic mineralogy is mostly comprised of galena, sphalerite, and tetrahedrite, as well as variable and lesser pyrite, quartz and rhodochrosite.

Throughout 2025, the exploration program at El Porvenir was focused on drilling mineralized zones in the Integration Project, seeking to evaluate the mineralization continuity in strike and at depth, with the goal of increasing mineral resources to expand the life of the El Porvenir and Atacocha mines, supporting the long-term sustainability and operational efficiency of the mining complex. In 2025, we drilled 17 drill holes totaling 11.8 km of exploration drilling. In 2026, the exploration drilling strategy will continue to focus on expanding mineral resources and mineral reserves in Integration Project.

We spent approximately US\$3.0 million on the El Porvenir exploration program in 2025, including the drilling program and geological activities. We have budgeted US\$4.2 million for 2026 activities, and we expect to drill 18.5 km in 2026.

Operations and infrastructure

The El Porvenir mine site consists of an underground mine, tailings pond, waste rock stockpiles, a process facility with associated laboratory and maintenance facilities and maintenance buildings for underground and surface equipment. The treatment plant current capacity is approximately 2.4 Mtpy. Facilities and structures include a warehouse, office, change house facilities, main shaft, ventilation shaft, backfill plant, explosives storage area, hydroelectric power generation, power lines and substation, fuel storage tanks, a warehouse and laydown area and a permanent accommodation camp.

El Porvenir is connected to the SEIN, and the power supply to the operation is provided by a 50 kV transmission line that comes from the Milpo Substation, which is connected to the Paragsha II Substation through a 138 kV line (this transmission line provides energy to the entire Cerro Pasco Complex). These power lines are used to deliver power to various locations to support activities during operation of the mine. Additionally, there are three groups of diesel generators (1.25 MW each) as back-up in place.

Site roads include main roads suitable for use by mining trucks that transport concentrates to Lima and service roads for use by smaller vehicles. The site roads are used by authorized mine personnel and equipment, with access controlled by Nexa Peru. An approximately 15-to-20-kilometer network of service roads was constructed to provide access to the underground mine, processing plant, tailings facility, waste rock stockpile, mine offices, workshops, mine camps and other surface infrastructure.

In 2025, we spent US\$87.1 million on sustaining capital expenditures for this property, primarily associated with mine development, TSF (Phase I of the integration project partially included), equipment replacement and other major infrastructure.

Production

The El Porvenir mine is in the production stage and has a treatment plant capacity of 6,700 tonnes of ore per day. The table below summarizes the El Porvenir mine's concentrate production, metal contained in concentrates produced, average grades, cash costs and non-expansion capital expenditures for the periods indicated. for the periods indicated. Production in 2025 was higher than 2024 mainly due to improved average grades.

	For the Year Ended December 31,		
	2025	2024	2023
Treatment ore (in tonnes)	2,157,549	2,205,478	2,220,011
Average ore grade			
Zinc (%)	2.79	2.61	2.86
Copper (%)	0.17	0.14	0.16
Lead (%)	1.37	1.44	1.37
Silver (ounces per tonne)	2.40	2.50	2.34
Gold (ounces per tonne)	0.009	0.010	0.011
Metal contained in concentrate production			
Zinc (in tonnes)	53,064	50,637	55,825
Copper (in tonnes)	372	292	355
Lead (in tonnes)	25,248	26,805	24,937
Silver (in oz)	4,404,451	4,641,676	4,270,463
Gold (in oz)	7,693	7,974	8,696
Cash Cost, net of by-product credits (in US\$/t)	(1,080.4)	185.4	630.6
Cash Cost, net of by-product credits (in US\$/lb)	(0.49)	0.08	0.29
Non-Expansion Capital Expenditures (in millions of US\$)	87.5	77.3	68.6

Mineral Reserves and Mineral Resources

The El Porvenir Mineral Reserves and Mineral Resources estimates are based on the definitions for Mineral Reserves and Mineral Resources in SK-1300 and the tables below are based on costs and modifying factors from the El Porvenir mine.

El Porvenir - Year End Mineral Reserves as of December 31, 2025 (on an 83.55% attributable ownership basis) (1)(2)(3)

Class	Tonnage ⁽⁴⁾ (Mt)	Grade ⁽⁴⁾					Contained Metal ⁽⁴⁾				
		Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Proven	3.61	4.35	0.27	69.3	1.06	0.16	157.1	9.8	8,039	38.4	18.7
Probable	9.92	4.16	0.26	64.8	0.96	0.20	412.7	25.3	20,666	95.3	64.2
Total	13.52	4.21	0.26	66.0	0.99	0.19	569.8	35.1	28,704	133.7	83.0

Notes:

- Subpart 1300 of Regulation S-K definitions were followed for Mineral Reserves, which also are consistent with the CIM (2014) definitions.
- The Qualified Person for the Mineral Reserves estimate is Renzo Suarez, B.Eng., MAusIMM, our employee.
- The point of reference for Mineral Reserves in this table is mill feed materials.
- Numbers may not add due to rounding.

El Porvenir - Year End Mineral Reserves as of December 31, 2025 (on a 100% ownership basis) (1) (2)(3)

Class	Tonnage ⁽⁴⁾ (Mt)	Grade ⁽⁴⁾					Contained Metal ⁽⁴⁾				
		Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Proven	4.32	4.35	0.27	69.3	1.06	0.16	188.0	11.8	9,622	45.9	22.4
Probable	11.87	4.16	0.26	64.8	0.96	0.20	494.0	30.3	24,734	114.0	76.9
Total	16.19	4.21	0.26	66.0	0.99	0.19	682.0	42.1	34,356	160.0	99.3

Notes:

1. Subpart 1300 of Regulation S-K definitions were followed for Mineral Reserves, which also are consistent with the CIM (2014) definitions.
2. The Qualified Person for the Mineral Reserves estimate is Renzo Suarez, B.Eng., MAusIMM, our employee.
3. The point of reference for Mineral Reserves in this table is mill feed materials.
4. Numbers may not add due to rounding.

The El Porvenir Mineral Reserves estimates in the table above were prepared using DSO software, mine design and scheduling software. Mining methods used are Cut-and-Fill (“C&F”) mining, using unconsolidated rock fill and hydraulic backfill, and Sublevel Stope (“SLS”) using unconsolidated rock fill. NSR values were calculated using mineral reserve metal prices, metallurgical recovery, and consideration of smelter terms, including revenue from payable metals, price participation, penalties, smelter losses, transportation, treatment, refining, and sales charges. A minimum mining width of 5.0 m for C&F mining and 4.0 m for SLS mining were used for reserves shapes and development design and are reported to be inclusive of extraction losses and dilution. Mineral Reserves were estimated at a NSR cut-off values ranging from US\$72.91/t to US\$74.76/t for SLS areas, and US\$74.04/t to US\$75.89/t for C&F areas depending on the zone. A number of incremental material (with values between US\$46.22/t and US\$48.07/t for SLS and values between US\$47.35/t and US\$49.20/t for C&F mining) was included in the estimates. Mineral Reserves estimates are based on average long-term metal prices of zinc: US\$2,999.30/t (US\$1.36/lb); copper: US\$9,398.60/t (US\$4.26/lb); lead: US\$1,963.53/t (US\$0.89/lb); and silver: US\$29.11/oz; and gold: US\$2,464.12/oz. Metallurgical recoveries are accounted for in NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average head grades are 89.26% for Zn, 15.62% for Cu, 79.36% for Pb, 62.92% for Ag, and 30.19% for Au. The current LOM production plan continues to 2036.

El Porvenir - Net Difference in Mineral Reserves between December 31, 2025, versus December 31, 2024 (on an 83.55% attributable ownership basis)

Class	Tonnage		Zinc		Copper		Contained Metal Silver		Lead		Gold	
	(Mt)	%	(kt)	%	(kt)	%	(koz)	%	(kt)	%	(koz)	%
Proven	0.19	5.5	16.6	11.8	1.3	15.7	(345)	(4.1)	(5.8)	(13.2)	-	-
Probable	0.61	6.6	25.6	6.6	3.5	16.0	(545)	(2.6)	(10.9)	(10.3)	-	-
Total	0.80	6.3	42.2	8.0	4.8	15.9	(891)	(3.0)	(16.8)	(11.2)	-	-

El Porvenir - Net Difference in Mineral Reserves between December 31, 2025, versus December 31, 2024 (on a 100% ownership basis)

Class	Tonnage		Zinc		Copper		Contained Metal Silver		Lead		Gold	
	(Mt)	%	(kt)	%	(kt)	%	(koz)	%	(kt)	%	(koz)	%
Proven	0.22	5.5	19.8	11.8	1.6	15.7	(414)	(4.1)	(7.0)	(13.2)	-	-
Probable	0.73	6.6	30.6	6.6	4.2	16.0	(653)	(2.6)	(13.1)	(10.3)	-	-
Total	0.96	6.3	50.5	8.0	5.8	15.9	(1,066)	(3.0)	(20.1)	(11.2)	-	-

In comparison to 2024, El Porvenir's Mineral Reserves increased by 6.3% in mass and increased by 8.0% in zinc content (kt). The increase in mass was mainly due to mineral resources conversion drilling. Mineral Reserve depletion during 2025 accounted for 2.2Mt containing 61.9kt of zinc.

El Porvenir - Year End Mineral Resources as of December 31, 2025 (on an 83.55% Attributable ownership basis) (1)(2)(3)(4)

Class	Tonnage ⁽⁵⁾ (Mt)	Grade ⁽⁵⁾					Contained Metal ⁽⁵⁾				
		Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Measured	0.54	3.17	0.28	43.9	0.63	0.12	17.1	1.5	764	3.4	2.1
Indicated	2.42	3.21	0.24	51.8	0.77	0.15	77.6	5.9	4,023	18.5	11.7
Total	2.96	3.20	0.25	50.3	0.74	0.15	94.7	7.4	4,787	21.9	13.9
Inferred	17.12	3.69	0.22	83.8	1.24	0.30	632.0	37.5	46,141	211.9	167.5

Notes:

- Subpart 1300 of Regulation S-K definitions were followed for Mineral Resources, which also are consistent with the CIM (2014) definitions.
- Mineral Resources are reported exclusive of those Mineral Resources that were converted to Mineral Reserves, and Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
- The Qualified Person for the Mineral Resources estimate is Jerry Huaman Abalos, B.Geo., MAusIMM CP(Geo), our employee.
- The point of reference for Mineral Resources in this table is mill feed materials.
- Numbers may not add due to rounding.

El Porvenir - Year End Mineral Resources as of December 31, 2025 (on a 100% ownership basis) (1)(2)(3)(4)

Class	Tonnage ⁽⁵⁾ (Mt)	Grade ⁽⁵⁾					Contained Metal ⁽⁵⁾				
		Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Measured	0.65	3.17	0.28	43.9	0.63	0.12	20.5	1.8	914	4.1	2.5
Indicated	2.89	3.21	0.24	51.8	0.77	0.15	92.9	7.1	4,815	22.1	14.1
Total	3.54	3.20	0.25	50.3	0.74	0.15	113.4	8.9	5,729	26.2	16.6
Inferred	20.49	3.69	0.22	83.8	1.24	0.30	756.5	44.9	55,225	253.6	200.4

Notes:

- Subpart 1300 of Regulation S-K definitions were followed for Mineral Resources, which also are consistent with the CIM (2014) definitions.
- Mineral Resources are reported exclusive of those Mineral Resources that were converted to Mineral Reserves, and Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
- The Qualified Person for the Mineral Resources estimate is Jerry Huaman Abalos, B.Geo., MAusIMM CP(Geo), our employee.
- Numbers may not add due to rounding.
- The point of reference for Mineral Resources in this table is mill feed materials.

The El Porvenir Mineral Resources estimates in the table above were completed using Datamine and Leapfrog software. Wireframes for geology and mineralization were constructed in Leapfrog based on geology sections, assay results, lithological information, underground mapping and structural data. Assays were capped to various levels based on exploratory data analysis and then composited to 1.0 m lengths. Wireframes were filled with blocks and sub-celling at wireframe boundaries. Blocks were interpolated with grade using the OK and ID³ interpolation algorithms. Block estimates were validated using industry standard validation techniques. Classification of blocks used distance-based and mineralization continuity criteria. Mineral Resources are reported using all the material within resource shapes generated in DSO software, satisfying minimum mining width of 4.0 m in areas with C&F stopes shapes and 3.0 m for SLS stopes. The Mineral Resources are estimated at a NSR cut-off grade values ranging from US\$72.91/t to US\$74.76/t for SLS areas and US\$74.04/t to US\$75.89/t for C&F areas depending on the zone. Mineral Resources estimates are based on average long-term metal prices of zinc: US\$3,449.20/t (US\$1.56 /lb); copper: US\$10,808.39/t (US\$4.90/lb); lead: US\$2,258.06/t (US\$1.02/lb); silver: US\$33.48/oz; and gold: US\$ 2,833.74/oz. Metallurgical recoveries are accounted for in NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average head grades are 89.26% for Zn, 15.62% for Cu, 79.36% for Pb, 62.92% for Ag, and 30.19% for Au.

El Porvenir - Net Difference in Mineral Resources between December 31, 2025, versus December 31, 2024 (on an 83.55% attributable ownership basis)

Class	Tonnage		Zinc		Copper		Contained Metal Silver		Lead		Gold	
	(Mt)	%	(kt)	%	(kt)	%	(koz)	%	(kt)	%	(koz)	%
Measured	(0.14)	(20.7)	(4.2)	(19.6)	(0.1)	(8.3)	(457)	(37.4)	(3.2)	(48.2)	2.1	100.0
Indicated	(0.96)	(28.5)	(30.2)	(28.0)	(0.7)	(0.1)	(2,458)	(37.9)	(12.6)	(40.5)	11.7	100.0
Total	(1.10)	(27.2)	(34.4)	(26.6)	(0.8)	(0.1)	(2,914)	(37.8)	(15.8)	(41.9)	13.9	100.0
Inferred	4.20	32.5	158.1	33.4	8.6	0.3	12,262	36.2	40.2	23.4	167.5	100.0

El Porvenir - Net Difference in Mineral Resources between December 31, 2025, versus December 31, 2024 (on a 100% ownership basis)

Class	Tonnage		Zinc		Copper		Contained Metal Silver		Lead		Gold	
	(Mt)	%	(kt)	%	(kt)	%	(koz)	%	(kt)	%	(koz)	%
Measured	(0.17)	(20.7)	(5.0)	(19.6)	(0.2)	(8.3)	(547)	(37.4)	(3.8)	(48.2)	2.5	100.0
Indicated	(1.15)	(28.5)	(36.2)	(28.0)	(0.8)	(0.1)	(2,942)	(37.9)	(15.1)	(40.5)	14.1	100.0
Total	(1.32)	(27.2)	(41.2)	(26.6)	(1.0)	(0.1)	(3,488)	(37.8)	(18.9)	(41.9)	16.6	100.0
Inferred	5.02	32.5	189.2	33.4	10.2	0.3	14,676	36.2	48.1	23.4	200.4	100.0

In comparison to 2024, El Porvenir's Inferred Mineral Resources increased by 32.5% in mass and increased by 33.4% in zinc content (kt), mainly due to exploration brownfield drilling. In comparison to 2024, El Porvenir's Measured and Indicated Mineral Resources decreased by 27.2% in mass and by 26.6% in zinc content (kt), mainly due to conversion to Mineral Reserves.

For additional information, see the "Technical Report Summary on the Cerro Pasco Complex Integration," incorporated by reference as Exhibit 15.2 to this annual report.

Atacocha

Location and means of access

Atacocha is a polymetallic underground and open pit mine (located in the Cerro Paso Complex) in the district of San Francisco de Asís de Yarusyacán, in the province of Pasco, Peru. The property is located at approximate coordinates of 367160m E, 8,830,400m N, using the UTM WGS84 datum, Z18S and approximately 4,050 meters above sea level.

History

The Atacocha mine began its operation as small-scale artisanal mine in 1936. We have been investing in the mine since then and, in 2012, production reached its current capacity of 4,600 tonnes per day. In 2014, we commenced the Integration Project with the El Porvenir mine, as described above in “Information on the Company—Mining operations—Cerro Pasco Complex—Integration Project.” Atacocha’s underground operations have been suspended since 2020 and remain under care and maintenance. In the fourth quarter of 2024, our Board of Directors, through the Finance Committee approved the first phase of the Integration Project – the tailings pumping and piping system, following the recommendation from the SCP Committee. Constructions began in 2025, and the timeline remains on track, with commissioning expected by the end of 2026.

Title, leases and options

The Atacocha mine is operated by Nexa Resources Atacocha S.A.A., a subsidiary of Nexa Peru.

The Atacocha mine has a total of 147 concessions covering approximately 2,872.5 hectares, as well as a beneficiation concession, “Chicrin N° 2.” With respect to the surface property at the Atacocha mine, there is a mining site of 1,343.0 hectares, where the mining concession is located, as well as additional surface property where tailings dams/ponds, camps sites and other ancillary infrastructure are located. There are royalties payable in respect of mining operations at the Atacocha mine for the mining concessions held by Nexa Resources Atacocha S.A.A. For more information, see “Information on the Company—Regulatory matters—Peruvian regulatory framework—Royalties and other taxes on mining activities.”

The Atacocha mine holds a number of permits in support of the current operations. The permits are Directorial Resolutions issued by the Peruvian authorities upon approval of mining environmental management instruments filed by the mining companies. Nexa Peru maintains an up-to-date record of the legal permits obtained to date.

Mineralization and Exploration

The Atacocha deposit contains skarn, replacement, or hydrothermal vein/breccia type of mineralization. Skarn mineralization, generally associated with the Santa Bárbara stock or San Gerardo stock, formed first, and was followed by the hydrothermal mineralization. Skarn zones developed within the Pucara Group sediments around the Santa Bárbara stock are associated with Zn, Pb, Ag, and Bi. Replacement mineralization, together with hydrothermal veins and polymictic breccias containing Ag, Pb, Zn mineral assemblages, occurs between the San Gerardo stock and Fault 1.

In 2025, we spent approximately US\$0.3 million on the Atacocha brownfield program for exploration maintenance. We have budgeted US\$0.3 million for maintenance in 2026.

Operations and infrastructure

Atacocha operates two mines: the Atacocha underground mine and the San Gerardo open pit mine. The underground mine is currently suspended due to our efforts to reduce costs and improve our operational efficiency and remains under care and maintenance. However, mining continues in the San Gerardo open pit mine. Both mining operations feed the Atacocha processing plant. The treatment plant current capacity is approximately 1.6 Mtpy.

As part of the Pasco Complex, the electrical power supply for the Atacocha mine is also provided by a 138 kV line that comes from the Paragsha II Substation, which later connects to the Chicrin Substation and a 50 kV transmission line. This structure is used to deliver power to various locations to support activities during operation of the mine.

In 2025, we spent US\$15.5 million on sustaining capital expenditures for this property, primarily associated with TSF (Phase I of the integration project included), equipment replacement and other major infrastructure.

Production

The Atacocha mine has a treatment plant capacity of 4,600 tonnes of ore per day. The table below summarizes the Atacocha mine's concentrate production, metal contained in concentrates produced, average grades, cash costs and non-expansion capital expenditures for the periods indicated. Production in 2025 was higher than in 2024 due to higher average grades and improved metal recoveries.

	For the Year Ended December 31,		
	2025	2024	2023
Treatment ore (in tonnes)	1,452,855	1,511,875	1,397,192
Average ore grade			
Zinc (%)	1.00	0.90	0.77
Lead (%)	1.09	0.95	0.93
Silver (ounces per tonne)	0.97	1.03	1.21
Gold (ounces per tonne)	0.012	0.011	0.010
Metal contained in concentrate production			
Zinc (in tonnes)	11,877	10,404	8,193
Lead (in tonnes)	13,734	12,295	11,116
Silver (in oz)	1,176,084	1,212,952	1,399,681
Gold (in oz)	10,250	9,113	7,559
Cash cost, net of by-product credits (in US\$/t)	(4,167.5)	(1,431.2)	(959.7)
Cash cost, net of by-product credits (in US\$/lb)	(1.89)	(0.65)	(0.44)
Non-Expansion Capital Expenditures (in millions of US\$)	15.7	13.1	16.2

Mineral Reserves and Mineral Resources (Atacocha Underground)

The Atacocha Underground Mineral Reserves and Mineral Resources estimates are based on the definitions for Mineral Reserves and Mineral Resources in SK-1300 and the tables below are based on costs and modifying factors from the Atacocha Underground mine.

Atacocha Underground - Year End Mineral Reserves as of December 31, 2025 (on an 83.01% attributable ownership basis) (1)(2)(3)

Class	Tonnage ⁽⁴⁾ (Mt)	Grade ⁽⁴⁾					Contained Metal ⁽⁴⁾				
		Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Proven	1.65	3.70	0.33	81.2	1.44	-	60.9	5.4	4,297	23.7	-
Probable	3.89	4.24	0.45	75.6	1.24	-	164.7	17.5	9,441	48.2	-
Total	5.53	4.08	0.41	77.2	1.30	-	225.7	22.9	13,738	71.9	-

Notes:

1. Subpart 1300 of Regulation S-K definitions were followed for Mineral Reserves, which also are consistent with the CIM (2014) definitions.
2. The Qualified Person for the Mineral Reserves estimate is Renzo Suarez, B.Eng., MAusIMM, our employee.
3. The point of reference for Mineral Reserves in this table is mill feed materials.
4. Numbers may not add due to rounding.

Atacocha Underground - Year End Mineral Reserves as of December 31, 2025 (on a 100% ownership basis)(1) (2)(3)

Class	Tonnage ⁽⁴⁾ (Mt)	Grade ⁽⁴⁾					Contained Metal ⁽⁴⁾				
		Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Proven	1.98	3.70	0.33	81.2	1.44	-	73.4	6.5	5,176	28.6	-
Probable	4.68	4.24	0.45	75.6	1.24	-	198.5	21.1	11,374	58.0	-
Total	6.66	4.08	0.41	77.2	1.30	-	271.8	27.6	16,550	86.6	-

Notes:

1. Subpart 1300 of Regulation S-K definitions were followed for Mineral Reserves, which also are consistent with the CIM (2014) definitions.
2. The Qualified Person for the Mineral Reserves estimate is Renzo Suarez, B.Eng., MAusIMM, our employee.
3. The point of reference for Mineral Reserves in this table is mill feed materials.
4. Numbers may not add due to rounding.

The Atacocha Underground Mineral Reserves estimates in the table above were prepared using DSO software, mine design and scheduling software. Mining methods used are C&F mining, using unconsolidated rock fill and hydraulic backfill, and SLS using unconsolidated rock fill. NSR values were calculated using mineral reserve metal prices, metallurgical recovery, and consideration of smelter terms, including revenue from payable metals, price participation, penalties, smelter losses, transportation, treatment, refining, and sales charges. A minimum mining width of 5.0m for C&F mining and 4.0 m for SLS mining were used for reserves shapes and development design and are reported inclusive of extraction losses and dilution. The Mineral Reserves were estimated at a NSR cut-off of US\$77.60/t for SLS areas, and US\$78.77/t for C&F areas depending on the zone. A number of incremental material (with values between US\$50.91/t and US\$77.60/t for SLS and values between US\$52.08/t and US\$78.77/t for C&F mining) was included in the estimate. Mineral Reserves estimates are based on average long-term metal prices of zinc: US\$2,999.30/t (US\$1.36/lb); copper: US\$9,398.60/t (US\$4.26/lb); lead: US\$1,963.53/t (US\$0.89/lb); and silver: US\$29.11/oz. Metallurgical recoveries are accounted for in NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average head grades are 89.20% for Zn, 15.73% for Cu, 80.02% for Pb, and 62.92% for Ag. The current LOM production plan begins in 2029 and continues to 2036.

Atacocha Underground - Net Difference in Mineral Reserves between December 31, 2025 (on an 83.01% attributable ownership basis), versus December 31, 2024 (on an 81.78% attributable ownership basis)

Class	Tonnage		Zinc		Copper		Contained Metal Silver		Lead		Gold	
	(Mt)	%	(kt)	%	(kt)	%	(koz)	%	(kt)	%	(koz)	%
Proven	0.18	12.5	3.2	5.6	0.6	12.7	243	6.0	0.9	4.1	-	-
Probable	0.55	16.4	13.4	8.8	3.3	23.0	1,225	14.9	5.7	13.5	-	-
Total	0.73	15.2	16.6	7.9	3.9	20.4	1,469	12.0	6.7	10.2	-	-

Atacocha Underground - Net Difference in Mineral Reserves between December 31, 2025, versus December 31, 2024 (on a 100% ownership basis)

Class	Tonnage		Zinc		Copper		Contained Metal Silver		Lead		Gold	
	(Mt)	%	(kt)	%	(kt)	%	(koz)	%	(kt)	%	(koz)	%
Proven	0.19	10.9	2.8	4.0	0.6	11.0	220	4.4	0.7	2.5	-	-
Probable	0.60	14.7	13.4	7.2	3.7	21.1	1,327	13.2	6.1	11.8	-	-
Total	0.79	13.5	16.2	6.3	4.3	18.6	1,547	10.3	6.9	8.6	-	-

In comparison to 2024, Atacocha's Underground Mineral Reserves increased by 13.5% and increased by 6.3% in zinc content (kt), mainly due to the metal price update.

Atacocha Underground - Year End Mineral Resources as of December 31, 2025 (on an 83.01% attributable ownership basis) (1)(2)(3)(4)

Class	Tonnage ⁽⁵⁾ (Mt)	Grade ⁽⁵⁾					Contained Metal ⁽⁵⁾				
		Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Measured	0.75	2.99	0.27	48.3	0.78	-	22.5	2.0	1,165	5.8	-
Indicated	1.82	3.25	0.33	51.6	0.90	-	59.1	6.0	3,016	16.3	-
Total	2.57	3.17	0.31	50.6	0.86	-	81.6	8.0	4,181	22.1	-
Inferred	7.10	4.12	0.58	79.8	1.21	-	292.3	41.2	18,201	85.8	-

Notes:

- Subpart 1300 of Regulation S-K definitions were followed for Mineral Resources, which also are consistent with the CIM (2014) definitions.
- Mineral Resources are reported exclusive of those Mineral Resources that were converted to Mineral Reserves, and Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
- The Qualified Person for the Mineral Resources estimate is Jerry Huaman Abalos, B.Geo., MAusIMM CP(Geo), our employee.
- Numbers may not add due to rounding.
- The point of reference for Mineral Resources in this table is mill feed materials.

Atacocha Underground - Year End Mineral Resources as of December 31, 2025 (on a 100% ownership basis)(1)(2)(3)(4)

Class	Tonnage ⁽⁵⁾ (Mt)	Grade ⁽⁵⁾					Contained Metal ⁽⁵⁾				
		Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Measured	0.90	2.99	0.27	48.3	0.78	-	27.0	2.4	1,404	7.0	-
Indicated	2.19	3.25	0.33	51.6	0.90	-	71.2	7.3	3,633	19.6	-
Total	3.10	3.17	0.31	50.6	0.86	-	98.2	9.7	5,037	26.7	-
Inferred	8.55	4.12	0.58	79.8	1.21	-	352.2	49.6	21,926	103.3	-

Notes:

- Subpart 1300 of Regulation S-K definitions were followed for Mineral Resources, which also are consistent with the CIM (2014) definitions.
- Mineral Resources are reported exclusive of those Mineral Resources that were converted to Mineral Reserves, and Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
- The Qualified Person for the Mineral Resources estimate is Jerry Huaman Abalos, B.Geo., MAusIMM CP(Geo), our employee.
- The point of reference for Mineral Resources in this table is mill feed materials.
- Numbers may not add due to rounding.

The Atacocha Underground Mineral Resources estimates in the table above were completed using Datamine and Leapfrog software. Wireframes for geology and mineralization were constructed in Leapfrog based on geology sections, assay results, lithological information, underground mapping, and structural data. Assays were capped to various levels based on exploratory data analysis and then composited to 2.0 m lengths. Wireframes were filled with blocks and sub-celling at wireframe boundaries. Blocks were interpolated with grade using the OK and ID³ interpolation algorithms. Block estimates were validated using industry standard validation techniques. Classification of blocks used distance-based and mineralization continuity criteria. Mineral Resources are reported using all the material within resource shapes generated in DSO software, satisfying minimum mining width of 4.0 m in areas with C&F stopes shapes and 3.0 m for SLS stopes. The Mineral Resources are estimated at a NSR cut-off grade values of US\$77.60/t for SLS areas and US\$78.77/t for C&F areas depending on the zone. Mineral Resources estimates are based on average long-term metal prices of zinc: US\$3,449.20/t (US\$1.56/lb); copper: US\$10,808.39/t (US\$4.90/lb); lead: US\$2,258.06/t (US\$1.02/lb); and silver: US\$33.48/oz. Metallurgical recoveries are accounted for in NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average head grades are 89.20% for Zn, 15.73% for Cu, 80.02% for Pb, and 62.92% for Ag.

Atacocha Underground - Net Difference in Mineral Resources between December 31, 2025 (on an 83.01% attributable ownership basis), versus December 31, 2024 (on an 81.78% attributable ownership basis)

Class	Tonnage		Zinc		Copper		Contained Metal Silver		Lead		Gold	
	(Mt)	%	(kt)	%	(kt)	%	(koz)	%	(kt)	%	(koz)	%
Measured	(0.16)	(18.0)	(8.1)	(26.6)	(0.5)	(19.8)	(466)	(28.6)	(3.1)	(34.7)	-	-
Indicated	(0.31)	(14.4)	(8.4)	(12.5)	(1.9)	(0.2)	(761)	(20.1)	(3.3)	(16.8)	-	-
Total	(0.47)	(15.5)	(16.6)	(16.9)	(2.3)	(0.2)	(1,227)	(22.7)	(6.4)	(22.4)	-	-
Inferred	0.34	5.0	20.6	7.6	4.0	0.1	1,546	9.3	4.9	6.1	-	-

Atacocha Underground - Net Difference in Mineral Resources between December 31, 2025, versus December 31, 2024 (on a 100% ownership basis)

Class	Tonnage		Zinc		Copper		Contained Metal Silver		Lead		Gold	
	(Mt)	%	(kt)	%	(kt)	%	(koz)	%	(kt)	%	(koz)	%
Measured	(0.22)	(19.2)	(10.3)	(27.6)	(0.6)	(21.0)	(591)	(29.6)	(3.9)	(35.7)	-	-
Indicated	(0.41)	(15.6)	(11.4)	(13.8)	(2.4)	(0.2)	(985)	(21.3)	(4.3)	(18.0)	-	-
Total	(0.62)	(16.7)	(21.7)	(18.1)	(3.0)	(0.2)	(1,576)	(23.8)	(8.2)	(23.6)	-	-
Inferred	0.28	3.4	20.0	6.0	4.1	0.1	1,561	7.7	4.5	4.5	-	-

In comparison to 2024 based on a 100% ownership basis, Atacocha's Underground Inferred Mineral Resources increased by 3.4% in mass and by 6.0% in zinc content (kt), mainly due to metal prices update. In comparison to 2024 based on a 100% ownership basis, Atacocha's Underground Measured and Indicated Mineral Resources decreased by 16.7% in mass and by 18.1% in zinc content (kt), mainly due to conversion to Mineral Reserves.

For additional information, see the "Technical Report Summary on the Cerro Pasco Complex Integration," incorporated by reference as Exhibit 15.2 to this annual report.

Mineral Reserves and Mineral Resources (Atacocha Open Pit)

The Atacocha Open Pit Mineral Reserves and Mineral Resources estimates are based on the definitions for Mineral Reserves and Mineral Resources in SK-1300 and the tables below are based on costs and modifying factors from the Atacocha Open Pit mine.

Atacocha Open Pit - Year End Mineral Reserves as of December 31, 2025 (on an 83.01% attributable ownership basis) (1)(2)(3)

Class	Tonnage ⁽⁴⁾ (Mt)	Grade ⁽⁴⁾					Contained Metal ⁽⁴⁾				
		Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Proven	1.10	1.17	-	37.4	1.21	0.17	12.9	-	1,330	13.4	6.1
Probable	1.35	1.19	-	33.0	1.21	0.22	16.1	-	1,426	16.3	9.4
Total	2.45	1.18	-	35.0	1.21	0.20	29.0	-	2,756	29.7	15.5

Notes:

1. Subpart 1300 of Regulation S-K definitions were followed for Mineral Reserves, which also are consistent with the CIM (2014) definitions.
2. The Qualified Person for the Mineral Reserves estimate is Renzo Suarez, B.Eng., MAusIMM, our employee.
3. The point of reference for Mineral Reserves in this table is mill feed materials.
4. Numbers may not add due to rounding.

Atacocha Open Pit - Year End Mineral Reserves as of December 31, 2025 (on a 100% ownership basis) (1) (2)(3)

Class	Tonnage ⁽⁴⁾ (Mt)	Grade ⁽⁴⁾					Contained Metal ⁽⁴⁾				
		Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Proven	1.33	1.17	-	37.4	1.21	0.17	15.6	-	1,602	16.2	7.3
Probable	1.62	1.19	-	33.0	1.21	0.22	19.4	-	1,718	19.6	11.3
Total	2.95	1.18	-	35.0	1.21	0.20	34.9	-	3,320	35.7	18.7

Notes:

1. Subpart 1300 of Regulation S-K definitions were followed for Mineral Reserves, which also are consistent with the CIM (2014) definitions.
2. The Qualified Person for the Mineral Reserves estimate is Renzo Suarez, B.Eng., MAusIMM, our employee.
3. The point of reference for Mineral Reserves in this table is mill feed materials.
4. Numbers may not add due to rounding.

The Atacocha Open Pit Mineral Reserves estimates in the table above were prepared using DSO software, mine design and scheduling software. NSR values were calculated using mineral reserve metal prices, metallurgical recovery, and consideration of smelter terms, including revenue from payable metals, price participation, penalties, smelter losses, transportation, treatment, refining, and sales charges. The Mineral Reserves were estimated at a NSR cut-off values of US\$22.91/t. A number of incremental material (with values between US\$16.54/t and US\$22.91/t was included in the estimates. Mineral Reserves estimates are based on average long-term metal prices of zinc: US\$2,999.30/t (US\$1.36/lb); lead: US\$1,963.53/t (US\$0.89/lb); and silver: US\$29.11/oz; and gold: US\$2,464.12/oz. Metallurgical recoveries are accounted for in NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average head grade are 70.44% for Zn, 84.03% for Pb, 75.76% for Ag, and 65.46% for gold. The current LOM production plan continues to 2028.

Atacocha Open Pit - Net Difference in Mineral Reserves between December 31, 2025 (on an 83.01% attributable ownership basis) versus December 31, 2024 (on an 81.78% attributable ownership basis)

Class	Tonnage		Zinc		Copper		Silver		Lead		Gold	
	(Mt)	%	(kt)	%	(kt)	%	(koz)	%	(kt)	%	(koz)	%
Proven	(0.07)	(6.1)	0.3	2.1	-	-	(140)	(9.5)	(0.3)	(2.5)	(0.6)	(9.4)
Probable	(0.47)	(25.8)	(1.5)	(8.7)	-	-	(517)	(26.6)	(4.7)	(22.3)	(3.6)	(27.6)
Total	(0.54)	(18.1)	(1.3)	(4.2)	-	-	(657)	(19.3)	(5.0)	(14.4)	(4.2)	(21.4)

Atacocha Open Pit - Net Difference in Mineral Reserves between December 31, 2025, versus December 31, 2024 (on a 100% ownership basis)

Class	Tonnage		Zinc		Copper		Silver		Lead		Gold	
	(Mt)	%	(kt)	%	(kt)	%	(koz)	%	(kt)	%	(koz)	%
Proven	(0.11)	(7.5)	0.1	0.6	-	-	(195)	(10.8)	(0.7)	(3.9)	(0.9)	(10.8)
Probable	(0.60)	(26.9)	(2.2)	(10.1)	-	-	(658)	(27.7)	(6.0)	(23.4)	(4.6)	(28.7)
Total	(0.71)	(19.3)	(2.1)	(5.6)	-	-	(853)	(20.4)	(6.7)	(15.7)	(5.4)	(22.6)

In comparison to 2024, Atacocha's Open Pit Mineral Reserves decreased by 19.3% in mass and decreased by 5.6% in zinc content (kt), mainly due to mine depletion. Mineral Reserve depletion during 2025 accounted for 1.5Mt containing 14.4kt of zinc.

Atacocha Open Pit - Year End Mineral Resources as of December 31, 2025 (on an 83.01% Attributable ownership basis) (1)(2)(3)(4)

Class	Tonnage ⁽⁵⁾ (Mt)	Grade ⁽⁵⁾					Contained Metal ⁽⁵⁾				
		Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Measured	1.66	1.11	-	28.8	0.78	0.16	18.5	-	1,542	13.0	8.8
Indicated	3.57	0.96	-	27.8	0.87	0.20	34.2	-	3,185	31.0	22.5
Total	5.23	1.01	-	28.1	0.84	0.19	52.7	-	4,727	44.0	31.3
Inferred	1.24	1.07	-	25.0	0.89	0.18	13.3	-	994	11.1	7.2

Notes:

- Subpart 1300 of Regulation S-K definitions were followed for Mineral Resources, which also are consistent with the CIM (2014) definitions.
- Mineral Resources are reported exclusive of those Mineral Resources that were converted to Mineral Reserves, and Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
- The Qualified Person for the Mineral Resources estimate is Jerry Huaman Abalos, B.Geo., MAusIMM CP(Geo), our employee.
- The point of reference for Mineral Resources in this table is mill feed materials.
- Numbers may not add due to rounding.

Atacocha Open Pit - Year End Mineral Resources as of December 31, 2025 (on a 100% ownership basis) (1) (2)(3)(4)

Class	Tonnage ⁽⁵⁾ (Mt)	Grade ⁽⁵⁾					Contained Metal ⁽⁵⁾				
		Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Measured	2.00	1.11	-	28.8	0.78	0.16	22.3	-	1,857	15.6	10.6
Indicated	4.30	0.96	-	27.8	0.87	0.20	41.1	-	3,837	37.4	27.1
Total	6.30	1.01	-	28.1	0.84	0.19	63.5	-	5,694	53.0	37.7
Inferred	1.49	1.07	-	25.0	0.89	0.18	16.0	-	1,197	13.3	8.7

Notes:

- Subpart 1300 of Regulation S-K definitions were followed for Mineral Resources, which also are consistent with the CIM (2014) definitions.
- Mineral Resources are reported exclusive of those Mineral Resources that were converted to Mineral Reserves, and Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
- The Qualified Person for the Mineral Resources estimate is Jerry Huaman Abalos, B.Geo., MAusIMM CP(Geo), our employee.
- The point of reference for Mineral Resources in this table is mill feed materials.
- Numbers may not add due to rounding.

The Atacocha Open Pit Mineral Resources estimates in the table above were completed using Datamine and Leapfrog software. Wireframes for geology and mineralization were constructed in Leapfrog based on geology sections, assay results, lithological information, underground and open pit mapping, and structural data. Assays were capped to various levels based on exploratory data analysis and then composited to 2.0 m lengths. Wireframes were filled with blocks and sub-celling at wireframe boundaries. Blocks were interpolated with grade using the OK and ID³ interpolation algorithms. Block estimates were validated using industry standard validation techniques. Classification of blocks used distance-based and mineralization continuity criteria. Mineral Resources are reported within resources open pit shell. The Mineral Resources are estimated at a NSR cut-off grade values of US\$22.91/t. Mineral Resources estimates are based on average long-term metal prices of zinc: US\$3,449.20/t (US\$1.56/lb); lead: US\$2,258.06/t (US\$1.02/lb); gold: US\$2,833.74/oz and silver: US\$33.48/oz. Metallurgical recoveries are accounted for in NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average head grades are 70.44% for Zn, 84.03% for Pb, 75.76% for Ag, and 65.46% for Au.

Atacocha Open Pit - Net Difference in Mineral Resources between December 31, 2025 (on an 83.01% attributable ownership basis), versus December 31, 2024 (on an 81.78% attributable ownership basis)

Class	Tonnage		Zinc		Copper		Contained Metal Silver		Lead		Gold	
	(Mt)	%	(kt)	%	(kt)	%	(koz)	%	(kt)	%	(koz)	%
Measured	0.06	3.5	(0.9)	(4.5)	-	-	20	1.3	(0.3)	(2.1)	(0.3)	(3.6)
Indicated	0.07	1.9	(0.6)	(1.7)	-	-	(19)	(0.6)	0.6	2.1	(3.3)	(12.7)
Total	0.12	2.4	(1.5)	(2.7)	-	-	1	0.0	0.4	0.8	(3.6)	(10.3)
Inferred	(0.27)	(17.8)	(6.7)	(33.5)	-	-	(520)	(34.3)	(5.7)	(34.1)	(2.6)	(26.3)

Atacocha Open Pit - Net Difference in Mineral Resources between December 31, 2025, versus December 31, 2024 (on a 100% ownership basis)

Class	Tonnage		Zinc		Copper		Contained Metal Silver		Lead		Gold	
	(Mt)	%	(kt)	%	(kt)	%	(koz)	%	(kt)	%	(koz)	%
Measured	0.04	1.9	(1.4)	(6.0)	-	-	(03)	(0.2)	(0.6)	(3.6)	(0.6)	(5.0)
Indicated	0.02	0.4	(1.3)	(3.1)	-	-	(81)	(2.1)	0.2	0.6	(4.4)	(14.0)
Total	0.05	0.9	(2.7)	(4.2)	-	-	(84)	(1.5)	(0.4)	(0.7)	(5.0)	(11.7)
Inferred	(0.35)	(19.1)	(8.4)	(34.5)	-	-	(654)	(35.3)	(7.2)	(35.1)	(3.3)	(27.4)

In comparison to 2024 based on a 100% ownership basis, Atacocha's Open Pit Inferred Mineral Resources decreased by 19.1% in mass and decreased by 34.5% in zinc content (kt), mainly due to conversion to Mineral Reserves. In comparison to 2024 based on a 100% ownership basis, Atacocha's Open Pit Measured and Indicated Mineral Resources increased by 0.9% in mass and decreased by 4.2% in zinc content (kt), mainly due to the metal price update.

For additional information, see the "Technical Report Summary on the Cerro Pasco Complex Integration," incorporated by reference as Exhibit 15.2 to this annual report.

Aripuanã

Location and means of access

The Aripuanã mine is located in the northwest corner of the Mato Grosso State in western Brazil, approximately 2,529 km by railroad and road to the Três Marias smelter, 2,831 km to the Juiz de Fora smelter or 2,660 km to the port of Santos. The approximate coordinates of the mine are 226,000m E and 8,888,000m N UTM 21L zone (South American 1969 datum) and the mine is located at an average elevation of 250 meters above sea level. The mine is accessible from the town of Aripuanã via a 25 km unpaved road, which is well maintained in the dry season. Aripuanã can be accessed from the state capital, Cuiabá, via a 16-hour drive (935 km) on paved and unpaved roads. The final 250 km between Cuiabá and Aripuanã are on unpaved roads.

The town of Aripuanã is also serviced by a paved airstrip suitable for light aircraft. There are daily commercial flights connecting Cuiabá and Aripuanã, with an approximate flight time of three hours, which is the primary mode of air access to the site. Chartered flights are rarely used, given the availability and reliability of regular commercial service.

History

Aripuanã is an underground polymetallic mine containing zinc, lead, copper, silver and gold, located in the state of Mato Grosso, Brazil. The project originated in 2000 as a joint venture, with Nexa Brazil joining in 2004 and subsequently, through a series of transactions between 2007 and 2019, becoming the sole owner of the Aripuanã mine.

Since 2020, we have taken several strategic actions to support the mine's development and operations. We reached an agreement with artisanal miners and government authorities to designate a specific area for artisanal mining activities, though non-compliance could adversely affect our operations. Between 2021 and 2022, we acquired approximately 2,017 hectares of land adjacent to the mine to meet Rural Environmental Registration (CAR) requirements for native vegetation preservation, with the CAR approval still pending as of this filing.

In January 2022, we entered into a five-year offtake agreement to sell 100% of Aripuanã's copper concentrate production (up to 30,810 tonnes) during the offtake period to an international third party, the offtaker, which was amended in September 2023 to provide flexibility on delivery schedules. The offtake agreement was structured to completely extinguish a previous existing future royalty obligation that we had with the offtaker. Additionally, we opted to designate the entire offtake agreement voluntarily and irrevocably at fair value through profit and loss within the scope of IFRS 9 rather than separate the value of the embedded derivative associated with the price cap, recognizing a non-cash accumulated loss of US\$49.3 million in the income statement for the period ended on December 31, 2025. For further details on the offtake agreement, see Note 16(v) to our consolidated financial statements.

Ramp-up activities at the Aripuanã mine started in July 2022 and were completed in June 2024. For further information, see below "Project implementation."

Titles, leases and options

The mine holds one mining concession in the core area that has a total area of 3,639.9 hectares, two mining concession applications totaling 1,368.5 hectares, one right to apply for mining concession with 1,000.0 hectares and eight exploration authorizations totaling 30,845.7 hectares.

The Aripuanã mine holds surface rights sufficient to support the future operations. There is sufficient suitable land available within the mineral rights held by us for tailings disposal, mine waste disposal, and installations such as the process plant and related mine infrastructure.

The Aripuanã mine holds several permits and licenses supporting its current operations. The operating license is valid until December 20, 2027.

Mineralization and Exploration

The Aripuanã region contains polymetallic VMS deposits with zinc, lead and copper, as well as small amounts of silver and gold, present in the form of massive mantles and veins, located in volcano sedimentary sequences belonging to the Roosevelt Group of Proterozoic age.

Four main elongated mineralized zones have been defined in the central portion of the mine: (1) Arex, (2) Link, (3) Ambrex and (4) Babaçu. Limited exploration has identified possible additional mineralized bodies including Massaranduba, Boroça, and Mocotó to the south and Arpa to the north.

The Aripuanã polymetallic deposits are typical VMS deposits associated with felsic bimodal volcanism. The individual mineralized bodies have complex shapes due to intense tectonic activity. Stratabound mineralized bodies tend to follow the local folds, however, local-scale, tight isoclinal folds are frequently observed, usually with axes parallel to major reverse faults, causing rapid variations in the dips.

Massive, stratabound sulphide mineralization as well as vein and stockwork-type discordant mineralization have been described on the property. The stratabound bodies, consisting of disseminated to massive pyrite and pyrrhotite, with well-developed sphalerite and galena mineralization, are commonly associated with the contact between the middle volcanic and the upper sedimentary units. Discordant stringer bodies of pyrrhotite-pyrite-chalcopyrite mineralization are generally located in the underlying volcanic units or intersect the massive sulphide lenses and have been interpreted as representing feeder zones.

The Mineral Exploration brownfield program in 2025 was focused on Massaranduba, aiming to identify new mineralized zones in Aripuanã geological district.

In 2025, we spent a total of US\$3.8 million on the Aripuanã exploration program, including exploratory drilling, program, geological activities and geochemistry. In 2025, we drilled in Massaranduba 9.3 km of diamond drilling in 27 drill holes. For 2026, we expect to invest US\$2.3 million in Aripuanã brownfield program, including TITAN geophysical survey to support target definition for future exploration programs.

Project implementation

Completion of the Aripuanã beneficiation plant was achieved in the first quarter of 2022, with commissioning finalized in the second quarter. Ramp-up activities commenced in July 2022, and milling capacity utilization reached 53% by the end of the fourth quarter. The first market-specification concentrate sales occurred in the fourth quarter of 2022, with ramp-up continuing through 2023.

Throughout 2023, ramp-up activities continued, with the plant utilization capacity averaging between 56-66% of nameplate capacity, per quarter, impacted by design limitations in the flotation pumping system, tailings filtration constraints, and heavy rainfall. Initial mine backfill tests were conducted between January and February. Underground activities were focused on developing and preparing new mining areas. In March 2023, the plant was temporarily halted for upgrades and improvements, including resizing the pumping system, upgrading processing and water treatment facilities, and enhancing resilience during the rainy season, with operational focus on stability, metallurgical recovery, and concentrate quality.

The ramp-up phase was concluded in June 2024, marking Aripuanã's transition to a fully operational mine. In the fourth quarter of 2024, average capacity utilization reached 67%, reflecting the impact of maintenance activities, tailings filter constraints, and rainfall levels 20% higher than the previous year. Despite significant capacity increases since production start-up, challenges persisted due to current tailings filtration limitations. To address these bottlenecks, a fourth tailings filter was acquired.

In 2025, Aripuanã consolidated its operational performance, achieving 76% of average utilization capacity in the fourth quarter, showing consistent improvement in key indicators. The first half of the year was marked by above-average rainfall, impacting operational stability and tailings filtration capacity. Gradual recovery was observed beginning on the second quarter, with increased throughput and operational reliability, achieving its record quarterly zinc production by the end of the year, reflecting greater stability and process efficiency, as well as progress on the installation of the fourth tailings filter, which arrived at the mine site in November and its installation is expected to be concluded in April 2026, remaining on track for commissioning in the first half of 2026.

Once the 4th tailings filter is up-and-running, we expect it to enhance utilization capacity, ensuring optimal performance, in line with our commitment to operational excellence. During this period, the operational focus remained on reaching full tailings filtration circuit capacity, cost reductions, and maximizing metallurgical recovery, with further capacity and resilience gains expected following the commissioning of the new tailings filter. While capacity significantly increased since production startup, challenges persist due to current constraints, as we continue to focus on improving operational performance, with a particular focus on the tailings filter circuit. We expect to achieve full operational capacity in the second half of 2026. Aripuanã is expected to be one of the primary drivers of the anticipated 6.1% increase in consolidated zinc production in 2026.

Operations and infrastructure

The Aripuanã operation consists of two fully mechanized underground mines, the Arex Mine and Link Mine, which have been in operation since 2019. These mines use rubber-tired diesel equipment for development and production activities. The treatment plant current capacity is approximately 2.2 Mtpy. Access to the mine is through one portal for Arex and one portal for Link. Production drilling operations have been conducted by company personnel using various drilling machines throughout the history of the Aripuanã mine.

All infrastructure required for the current mining and processing operations has been constructed and is operational. This includes the underground mines, access roads, power lines, water pipelines, offices and warehouses, a processing plant/concentrator, conveyor systems, waste rock facilities, temporary ore stockpiles, paste-fill plants, and tailings storage facilities.

The Aripuanã mine is connected to the main grid at 230 kV, with energy measurement and billing conducted at SE Dardanelos, 20 km away, using a 69 kV line to the unit. Power distribution occurs at 13.8 kV, and the unit is equipped with a 25/31 MW transformer. Currently, the contracted power demand with Energisa S.A. is 18.3 MW during peak hours and 23 MW during off-peak hours. Additionally, there are five 750 kVA diesel generators in place.

In 2025, we spent US\$68.8 million on sustaining capital expenditures for this property, primarily associated with mine development, equipment replacement, and other major infrastructure projects (including investments related to the fourth tailings filter).

Production

The Aripuanã mine concluded its ramp-up phase by the end of the first half of 2024 and has a treatment plant with a nominal design processing capacity of approximately 6,300 tonnes of ore per day. The table below summarizes the Aripuanã mine's concentrate production, metal contained in concentrates produced, average grades, cash costs and non-expansion capital expenditures for the periods indicated. Production in 2025 was higher than in 2024 mainly due to improved metal recoveries.

	For the Year Ended December 31,		
	2025	2024	2023
Treatment ore (in tonnes)	1,447,607	1,475,566	1,311,430
Average ore grade			
Zinc (%)	3.23	3.23	3.31
Copper (%)	0.58	0.56	0.68
Lead (%)	1.09	1.12	1.05
Silver (ounces per tonne)	1.00	1.17	0.96
Gold (ounces per tonne)	0.016	0.017	0.015
Metal contained in concentrate production			
Zinc (in tonnes)	35,165	31,613	22,099
Copper (in tonnes)	5,943	5,519	4,443
Lead (in tonnes)	12,988	13,062	6,331
Silver (in oz)	957,709	1,101,313	513,916
Gold (in oz)	16,237	14,037	7,954
Cash Cost, net of by-product credits (in US\$/t)	207	-	-
Cash Cost, net of by-product credits (in US\$/lb)	0.09	-	-
Non-Expansion Capital Expenditures (in millions of US\$)	69.0	42.7	60.1

Mineral Reserves and Mineral Resources

The Aripuanã Mineral Reserves and Mineral Resources estimates are based on the definitions for Mineral Reserves and Mineral Resources in SK-1300 and the tables below are based on costs and modifying factors from the Aripuanã mine.

Aripuanã - Year End Mineral Reserves as of December 31, 2025 (on a 100% ownership basis) (1)(2)(3)

Class	Tonnage ⁽⁴⁾ (Mt)	Grade ⁽⁴⁾					Contained Metal ⁽⁴⁾				
		Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Proven	5.67	3.59	0.16	31.1	1.28	0.23	203.5	9.3	5,672	72.8	41.0
Probable	28.41	4.24	0.10	38.5	1.63	0.18	1,205.4	29.1	35,166	463.2	163.4
Total	34.08	4.13	0.11	37.3	1.57	0.19	1,408.9	38.4	40,838	536.1	204.4

Notes:

1. Subpart 1300 of Regulation S-K definitions were followed for Mineral Reserves, which also are consistent with the CIM (2014) definitions.
2. The Qualified Person for the Mineral Reserves estimate is Cristovao Teofilo dos Santos, B.Eng., FAusIMM, our employee.
3. The point of reference for Mineral Reserves in this table is mill feed materials.
4. Numbers may not add due to rounding.

The Aripuanã Mineral Reserves estimates are based on four main orebodies: Arex, Link and Ambrex and the two main types of mineralization in the deposit are stratabound and stringer. The main commodities produced are zinc, copper, lead, silver and gold. The dilution that has been applied is related to the selected mining method. The two main mining methods used at Aripuanã are longitudinal longhole retreat (“bench stoping”) and transverse longhole mining (vertical retreat mining, or “VRM”) with primary and secondary stope extraction. Dilution is applied on a percentage basis, with no grade applied to the diluting material. The NSR factors were determined using long-term metal price forecasts, metallurgical recoveries, transport, treatment, and refining costs. A break-even NSR cut-off value is US\$63.86/t processed was estimated from forecasted operating costs and some incremental material between US\$49.56/t and US\$63.86/t was included. A minimum mining width of 4.0 m was used for bench stoping and 15.0 m for VRM. The long-term prices derived are in line with the consensus forecasts from banks and independent institutions. Mineral Reserves estimates are based on average long-term metal prices of zinc: US\$2,999.30/t (US\$1.36/lb); copper: US\$9,398.60/t (US\$4.26/lb); lead: US\$1,963.53/t (US\$0.89/lb); and silver: US\$29.11/oz; and gold: US\$2,464.12/oz. Recoveries at LOM average head grades are 89.89% for Zn, 84.10% for Pb, 55.62% for Cu, 68.00% for Ag, and 67.80% for Au. The current LOM production plan continues to 2041.

Aripuanã - Net Difference in Mineral Reserves between December 31, 2025, versus December 31, 2024 (on a 100% ownership basis)

Class	Tonnage		Zinc		Copper		Silver		Lead		Gold	
	(Mt)	%	(kt)	%	(kt)	%	(koz)	%	(kt)	%	(koz)	%
Proven	(0.19)	(3.3)	(18.5)	(8.3)	(2.6)	(21.6)	(558)	(9.0)	(7.5)	(9.3)	(3.6)	(8.1)
Probable	1.60	5.9	(52.8)	(4.2)	(0.6)	(2.0)	(1,553)	(4.2)	(22.0)	(4.5)	(0.3)	(0.2)
Total	1.40	4.3	(71.3)	(4.8)	(3.2)	(7.6)	(2,111)	(4.9)	(29.5)	(5.2)	(3.9)	(1.9)

In comparison to 2024, Aripuanã’s Mineral Reserves increased by 4.3% in mass mainly due to metal price update and decreased by 4.8% in zinc content (kt), mainly due mine reserves depletion replaced by lower grade material and a review in geotechnical parameters. Mineral Reserve depletion during 2025 accounted for 1.5Mt containing 43.9kt of zinc.

Aripuanã - Year End Mineral Resources as of December 31, 2025 (on a 100% ownership basis) (1)(2)(3)(4)

Class	Tonnage ⁽⁵⁾ (Mt)	Grade ⁽⁵⁾					Contained Metal ⁽⁵⁾				
		Zinc (%)	Copper (%)	Silver (g/t)	Lead (%)	Gold (g/t)	Zinc (kt)	Copper (kt)	Silver (koz)	Lead (kt)	Gold (koz)
Measured	0.39	2.59	0.29	21.1	0.83	0.37	10.1	1.1	263	3.2	4.6
Indicated	4.27	3.88	0.18	36.2	1.44	0.28	165.6	7.7	4,975	61.5	38.6
Total	4.66	3.77	0.19	34.9	1.39	0.29	175.7	8.8	5,238	64.8	43.2
Inferred	43.78	3.02	0.30	39.5	1.16	0.40	1,320.4	130.3	55,611	507.6	560.4

Notes:

1. Subpart 1300 of Regulation S-K definitions were followed for Mineral Resources, which also are consistent with the CIM (2014) definitions.
2. Mineral Resources are reported exclusive of those Mineral Resources that were converted to Mineral Reserves, and Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
3. The Qualified Person for the Mineral Resources estimate is José Antonio Lopes, B.Geo., FAusIMM(Geo), our employee.
4. The point of reference for Mineral Resources in this table is mill feed materials.
5. Numbers may not add due to rounding.

The Mineral Resources estimates for the Aripuanã mine were completed for Babaçu, Arex, Ambrex and Link. The block models were created using Datamine and Leapfrog software. Wireframes for geology and mineralization were constructed in Leapfrog based on geology sections, assay results, lithological information, and structural data. Assays were capped to various levels based on exploratory data analysis and then composited to one-meter lengths. Blocks were interpolated with grade using the OK and ID³. Blocks estimates were validated using industry standard validation techniques. Classification of blocks was based on distance-based criteria. Potentially mineable shapes of underground mineral resources are generated using DSO software. The Mineral Resources of the Aripuanã mine are reported using a cut-off value of US\$63.86/t. Mineral Resources estimates are based on average long-term metal prices of zinc: US\$3,449.20/t (US\$1.56/lb); copper: US\$10,808.39/t (US\$4.90/lb); lead: US\$2,258.06/t (US\$1.02/lb); silver: US\$33.48/oz and gold: US\$2,833.74/oz. Metallurgical recoveries are accounted for in NSR calculations based on metallurgical test work and are variable as a function of head grade and ore type. Recoveries at the LOM average head grades material are 89.89% for Zn, 84.10% for Pb, 55.62% for Cu, 68.00% for Ag, and 67.80 % for Au.

Aripuanã - Net Difference in Mineral Resources between December 31, 2025, versus December 31, 2024 (on a 100% ownership basis)

Class	Tonnage		Zinc		Copper		Contained Metal Silver		Lead		Gold	
	(Mt)	%	(kt)	%	(kt)	%	(koz)	%	(kt)	%	(koz)	%
Measured	(0.09)	(19.6)	(0.6)	(5.4)	(0.7)	(39.5)	(29)	(10.0)	(0.2)	(7.1)	(3.4)	(42.4)
Indicated	(0.63)	(12.8)	(1.5)	(0.9)	(1.8)	(0.2)	(311)	(5.9)	(0.0)	(0.1)	(5.9)	(13.2)
Total	(0.72)	(13.4)	(2.1)	(1.2)	(2.6)	(0.2)	(340)	(6.1)	(0.3)	(0.4)	(9.2)	(17.6)
Inferred	(0.40)	(0.9)	(75.6)	(5.4)	(7.3)	(0.1)	(2,909)	(5.0)	(26.2)	(4.9)	15.5	2.8

In comparison to 2024, Aripuanã's Inferred Mineral Resources decreased by 0.9% in mass and by 5.4% in zinc content (kt) in 2025, mainly due to metal prices update. In comparison to 2024, Aripuanã's Measured and Indicated Mineral Resources decreased by 13.4% in mass and by 1.2% in zinc content (kt) in 2025, mainly due to conversion to Mineral Reserves.

For additional information, see the "Technical Report Summary on the Aripuanã Zinc Project," incorporated by reference as Exhibit 15.4 to this annual report.

Growth projects

In addition to our operating mines and smelters, a component of our business focuses on growth and exploration, which are activities associated with ascertaining the existence, location, extent, or quality of a mineral deposit. Our exploration activities encompass brownfield and greenfield projects. Brownfield projects are exploration or development projects near or within our existing operations, which can share infrastructure and management. Greenfield projects are located outside the area of influence of our existing mine operations and are independently developed and managed.

Mining brownfield projects***Vazante mine deepening project and other Vazante initiatives***

One of our main brownfield projects is the Vazante mine deepening project, which involves extending the mine life of Vazante. The capital expenditures related to this project in 2025 totaled US\$0.6 million, and an additional US\$0.3 million towards other expansion projects, focusing on the LOM extension. We expect to invest an additional US\$5.3 million in 2026 for the deepening project. The Vazante mine deepening project began in 2013 and the completion of this project, which was postponed due to our capital allocation strategy and the focus on other Vazante initiatives, is now expected to be conducted in two stages, with the first stage expected to be completed in 2027 and the second in 2032.

In addition, we are conducting exploration activities below the mine's current operating level and alongside the orebody. As part of this project, we are investing in ongoing exploration activities and infrastructure, including expansion of an underground pumping station, an increase in the capacity of the ventilation system, emergency paths, access ramps, electrical networks and substations. In 2023, we prepared the area to receive such equipment in accordance with the project's specifications and in 2024 we completed activities in accordance with the updated project schedule. We had originally planned to conduct the civil works in 2026, however, due to the Vazante unit's capital allocation plan, these activities were rescheduled to 2027 and are expected to be executed in parallel with the electromechanical work. These changes are not expected to impact the project's expected completion in 2028.

Cerro Pasco Complex Integration Project

The Cerro Pasco Complex Integration Project is one of our main brownfield projects, which involves the continued integration of the El Porvenir and Atacocha underground mines. The Cerro Pasco Complex Integration Project continued to advance in 2025. In 2024, our Board of Directors, through the Finance Committee approved the first phase of the project, the tailings pumping and piping system, following a recommendation from the SCP committee. Construction of Phase I began in July 2025 and continued to progress as planned. The project implemented critical technical optimizations, including adjustments in slope configurations, a redesign of tailings pipeline supports, and adoption of a modular strategy for the electrical room. On-site works achieved significant milestones, such as completing micro-pile installation for the tailings thickener, advancing slope stabilization, and initiating earthworks and civil works for the pump house and main substation. The timeline remains on track, with commissioning expected in 2026. In parallel, Phase II preparatory work continued, including technical assessments of the Picasso shaft and underground integration alternatives to determine the complex's optimal long-term operational configuration. We submitted by year-end the two major environmental filings required by SENACE, the second modified environmental impact assessment ("MEIA") for the El Porvenir Mining Unit and the third MEIA for the Atacocha Mining Unit, with approvals expected in the first quarter of 2027. Total capital expenditures for the Integration Project are estimated at US\$148.8 million, including US\$45.2 million invested through 2024 and 2025, and US\$31.4 million planned for 2026 and remaining investments to be executed progressively until 2029 for Phase I and for Phase II from 2027 until 2032. For a description of the project's scope and detailed phasing, see "Information on the Company—Mining Operations—Cerro Pasco Complex—Integration Project."

Bonsucesso

The Bonsucesso project is a greenfield underground mine project that was formerly part of the Morro Agudo complex (Ambrósia Trend). The Bonsucesso project was not included in the 2024 sale of the Morro Agudo complex. The project is located 8 km north of the Ambrósia Sul mine and approximately 60 km north of the Morro Agudo mine.

In 2025, we had no exploration activities in the Bonsucesso project, and no activities are expected for 2026.

The feasibility study was concluded in 2022 with no amount invested since. The total investments related to this project, as of December 31, 2025, totaled US\$12.7 million, which includes all project studies (from the scoping study to the feasibility study) and incurred expenses related to construction and operating infrastructure.

Bonsucesso is currently inactive, with no exploration activities conducted in 2025 and none planned for 2026. We continue to evaluate the project's risk-return profile in the context of our portfolio optimization strategy and capital allocation priorities.

Mining greenfield projects

Project Name	Current Project Status
Magistral	Under Review
Hilarión	Exploration phase
Florida Canyon Zinc	Exploration phase

We summarize below certain information, including the outlook, for each of our greenfield projects. As of the date of this annual report, none of our greenfield projects have Mineral Reserves under S-K 1300.

Magistral

The Magistral mining project is an open-pit copper-molybdenum project located in the Ancash region of Peru, approximately 450 km northeast of the capital of Lima and approximately 140 km east of the port city of Trujillo. The project comprises 36 concessions totaling 16,416.0 hectares. Nexa Peru holds a 100% interest in 15 of the 36 concessions, and the additional 21 concessions by a lease agreement with Compañía Magistral S.A.C., a company also controlled by Nexa Peru. The project is currently under review following the rejection by SENACE of a MEIA in May 2024, which resulted in a US\$58.4 million impairment charge recorded in that year.

In 2025, the Peruvian government formally acknowledged the MEIA rejection as a force majeure event, leading to the suspension of Nexa Peru's obligation to fulfill its accreditable investment commitment under a contract with the Peruvian government. As of the date of this report, the deadline to fulfill its commitment remains suspended, as does the potential application of the related penalty. The unexecuted minimum investment commitment was US\$323.0 million as of December 31, 2025, with a penalty exposure of US\$97.0 million if the commitment is not completed by August 2028. We are currently engaged in direct negotiations with the Peruvian government to assess the impact of the force majeure event on the execution of the project and spent a total amount of approximately US\$2.2 million on the project in 2025, mainly related to project maintenance, legal expenses and mineral rights.

Exploration developments

The Magistral property is near the northeastern end of the Cordillera Blanca, a region that is underlain predominantly by Cretaceous carbonate and clastic sequences. These units strike north to northwest and are folded into a series of anticlines and synclines with northwest-trending axes.

Since acquiring the Magistral project in 2011, we have initiated a comprehensive exploration program consisting of geological mapping, prospecting, and sampling, ground geophysical surveying, and diamond drilling. Geological mapping at a scale of 1:2,000 was completed in the Ancapata area and the area north-northeast of Magistral. The objective was to verify and supplement the information available from Ancash Cobre's exploration.

No exploration drilling program was conducted since then and no exploration drilling program is scheduled for 2026.

Hilarión

The Hilarión project is located in the Ancash region of Peru, approximately 230 km north of Lima, the capital of Peru, and approximately 80 km south of the city of Huaraz and is accessible by paved road from Lima. It consists of 48 mineral concessions covering an area of approximately 9,374.0 hectares. Hilarión is a skarn mineral deposit made of vertical tabular ore bodies containing sulfide zinc, lead, silver, and copper deposits. Hilarión and El Padrino and other occurrences in proximity to them (Mia, Eureka and others) constitute a large mineralized system, open in several directions for a potential increase in resources, extended mine life and increased production capacity in the future. The conceptual plan for the project includes the development of an underground mine that could either use its own processing plant or use one of the several existing plants in the area, such as Pachapaqui, Huanzala and Atalaya plants.

In 2025, we spent approximately US\$1.3 million on the Hilarión project, including project maintenance, geology review works and environmental obligations. We had no drilling activities at the project in 2025. In 2026, we have budgeted US\$2.5 million for the Hilarión project maintenance, and we have planned approximately 4.0 km of drilling activities.

Florida Canyon Zinc

The Florida Canyon Zinc project is located in the Eastern Cordillera of Peru at the sub-Andean front in the upper Amazon River Basin, 680 km north-northeast of Lima and 245 km northeast of Chiclayo and is accessible by paved road from Lima. It is comprised of 11 contiguous mining concessions, covering approximately 8,700.0 hectares, is owned by Minera Bongará S.A. and operated by Nexa Peru, a joint venture between Nexa Peru, Solitario Exploration and Royalty Corp. and Minera Solitario Peru S.A.C. (collectively, Solitario) in existence since 2006. As of December 31, 2025, Nexa Peru owns a 61.00% interest in this joint venture, which may increase up to 70.00% upon Nexa Peru's satisfaction of certain conditions.

Although a Preliminary Economic Assessment relating to the Florida Canyon Zinc was released in 2017, the project continues to be treated as an early-stage project.

In 2023, drilling at the Florida Canyon began in the third quarter due to a delay in the drilling program caused by lack of transportation for drilling materials. In September 2023, construction and maintenance of the motorized trail, which aims to reach La Florida Annex, commenced and was completed in 2024. In 2024, we focused on maintenance of local infrastructure, such as opening access to receive future drilling campaigns.

In 2025, we spent approximately US\$1.4 million on this project, and we have budgeted US\$1.0 million for Florida Canyon project in 2026, including road maintenance, geological review, and social programs. No drilling activities are planned for 2026.

Other Greenfield exploration projects

Projects in Namibia

On May 15, 2025, we announced the sale of the Otavi Project in Namibia for a total consideration of US\$3.0 million upfront and up to US\$7.0 million in contingent payments, while retaining royalty rights. The closing of the transaction occurred on December 22, 2025, and the joint venture with JOGMEC was terminated. Prior to the sale, the 2025 drilling campaign at the Otavi Project completed 0.7 km of exploration drilling at the Leeulaagte target.

Namibia remains a strategic region for Nexa, with ongoing exploration in the Kalahari Copper Belt. The Kalahari Project is 100% owned by Nexa Resources and targets Cu-Ag mineralization hosted in sediments associated with the Neoproterozoic Ghanzi-Chobe Basin system. Current activities include airborne geophysical surveys, surface work, geological mapping, and target generation. We currently hold 16 Exclusive Prospective Licenses totaling 672,832.2 hectares, of which 621,083.6 hectares are in the Kalahari Copper Belt and 51,748.7 hectares in the Otavi Mountainland region.

Permits & authorizations for greenfield projects

The following table summarizes the status of the main permits and authorizations for our greenfield projects.

Project	Status
Magistral	An amendment to the EIA was rejected in 2024. All other permits are valid.
Hilarión	The most recent environmental study for the Hilarión project is the fifth modification to the Environmental Impact Statement (“EIS”), which consisted of obtaining approval for new exploration platforms and reviewing the drilling program. The project’s EIS study is valid until 2028. The most recent environmental study for the El Padrino project is the fourth modification to the project’s EIS, which consisted of obtaining approval for new exploration platforms and reviewing the drilling program. The project’s EIS study is valid until 2029. The most recent environmental study for the Azulmina project is the modification of the EIS, which consisted of obtaining approval for new exploration platforms and revising the drilling program. The study is valid until 2028.
Florida Canyon Zinc	The most recent environmental study is the fifth modification to the Florida Canyon Project’s EIS, which consisted of obtaining approval for new exploration platforms and reviewing the drilling program. It was approved in 2023 and is valid until 2034.

SMELTING OPERATIONS

The table below provides an overview of our smelting facilities:

Smelting Unit	Location	Smelting Process	Principal Refined Zinc Products	Plant Capacity ⁽¹⁾	Metallic Zinc Production in 2025 ⁽²⁾	Zinc Oxide Production in 2025 ⁽³⁾	Other Products
Cajamarquilla	Peru	RLE ⁽⁴⁾	Metallic zinc (SHG, CGG jumbos and alloys ⁽⁵⁾)	344,436	345,281	0	Sulfuric acid, silver concentrate, copper cement and cadmium sticks
Três Marias	Brazil	RLE	Metallic zinc (SHG, CGG jumbos, alloys and Zamac ⁽⁶⁾) and zinc oxide	192,199	122,731	34,566	Cadmium and cobalt cement
Juiz de Fora	Brazil	Waelz Furnace and RLE	Metallic zinc (SHG, alloys and Zamac)	96,923	61,827	0	Sulfuric acid, sulfur dioxide, silver concentrate, copper sulfate and zinc ash
Total				633,558	529,839	34,566	

Notes:

- (1) In tonnes of refined zinc per year.
- (2) In tonnes of zinc metal available for sale, includes alloys.
- (3) In tonnes of zinc oxide.
- (4) Roast-Leach-Electrowinning.
- (5) Alloys are zinc-based products with the addition of up to 1.0% of a specified metal, which are primarily used in the galvanizing market. Special alloys are zinc-based products with addition of specified metals, which are primarily used in galvanizing market.
- (6) Zamac is a zinc-based product with the addition of specified metals, which are primarily used in the die casting market.

Smelter sales

We produce various types of refined zinc products. In 2025, we sold a total of 532.5 thousand tonnes of our metallic zinc line of products (including SHG, CGG, jumbos, alloys, and Zamac). In addition, we commercialized 34.5 thousand tonnes of zinc oxide at 80% standard zinc content in 2025, totaling 567.0 thousand tonnes of zinc products sold.

Cajamarquilla

The Cajamarquilla smelter is located in the district of Lurigancho/Chosica in Lima, Peru, and is accessible by road.

The Cajamarquilla smelter is currently the largest zinc smelter in Latin America (excluding Mexico) and the only zinc smelter in Latin America outside Mexico and Brazil, according to Wood Mackenzie. It uses the RLE process to produce metallic zinc. With an annual production capacity of 344.4 thousand tonnes of refined metal per year, the Cajamarquilla smelter produced 345.3 thousand tonnes of zinc metal available for sale in 2025. In recent years, Cajamarquilla developed operational efficiencies, including debottlenecking projects, which increased the production of calcine from concentrates obtained from Nexa Peru, and the use of calcine and waelz oxide processed by third parties. See “Risk factors—Operational risks—Inadequate supply of zinc secondary feed materials and zinc calcine could affect the results of our smelters.”

The Cajamarquilla smelter produces zinc primarily from zinc contained in concentrates and, to a lesser extent, recycled zinc secondary feeds (also referred to as pre-treated concentrate). In 2025, the Cajamarquilla smelter consumed 369.2 thousand tonnes of zinc contained in concentrates, and secondary raw material, which consumed 37.9% of zinc contained in concentrates from our mines, 61.7% of zinc contained in concentrates from third parties and 0.4% from secondary raw material.

In 2025, we spent US\$46.4 million on sustaining capital expenditures for Cajamarquilla, primarily associated with efforts on continuity of operations, including replacement and overhaul of critical equipment.

The following table shows Cajamarquilla’s processed zinc contained in concentrates, zinc recovery rate, production, sales, cash costs, and non-expansion capital expenditures for the periods indicated:

	For the Year Ended December 31,		
	2025	2024	2023
Inputs (in tonnes)			
Zinc Contained in Concentrate from Our Mines	140,057	110,983	92,827
Zinc Contained in Concentrate from Third Parties	227,730	237,953	233,425
Secondary Raw Material	1,399	7,370	14,745
Total Inputs	369,185	356,306	340,997
Zinc Recovery (%)	94.0	94.4	93.8
Zinc Production (in tonnes)			
Metallic Zinc	345,281	334,078	323,059
Zinc Oxide	-	-	-
Total Zinc Production	345,281	334,078	323,059
Zinc Sales (in tonnes)			
Metallic Zinc	346,418	326,980	326,386
Zinc Oxide	-	-	-
Total Zinc Sales	346,418	326,980	326,386
Cash Cost, net of by-product credits (in US\$/t)	2,510.5	2,465.8	2,281.7
Cash Cost, net of by-product credits (in US\$/lb)	1.14	1.12	1.03
Non-Expansion Capital Expenditures (in millions of US\$)	49.1	45.6	34.5

Três Marias

The Três Marias smelter is located in the municipality of Três Marias in the state of Minas Gerais, Brazil, 253 km from the Vazante mine and is accessible by road.

The Três Marias smelter was built to treat the zinc silicate concentrates from the Vazante mine (willemite and calamine) and sulfide concentrates from Aripuanã mine, from Nexa Peru and from third-party concentrates. Currently, this smelter is integrated with the operation of the Vazante mine and it uses the RLE process to produce metallic zinc and zinc oxide. The annual production capacity of our Três Marias smelter is 192.2 thousand tonnes of refined metal per year. Production in 2025 totaled 157.3 thousand tonnes of zinc metal and oxide available for sale.

The Três Marias smelter produces zinc primarily from zinc contained in concentrates and, to a lesser extent, recycled zinc secondary feeds. In 2025, the Três Marias smelter consumed 170.7 thousand tonnes of zinc contained in concentrates and secondary raw material, which consumed 81.8% of zinc contained in concentrates from our mines and 18.2% of zinc contained in concentrates from third parties.

The Três Marias smelter contains a zinc oxide production plant intended for the chemical, pneumatic, ceramic, animal feed, and fertilizer industries. In 2025, the production of zinc oxide was approximately 34.6 thousand tonnes. In zinc content, approximately 72.2% of the raw material was electrolytic zinc that originated from the melting stage. In addition, we purchased 27.8% of raw material from third parties, in the form of dross and skims, to produce zinc oxide as well as the generation of by-products.

In 2023, we advanced with the waste dry disposal system on an industrial scale, which consists of filtering the waste pulp for subsequent disposal through the dry stacking process, as waste disposal in this unit was going directly to its tailings deposit. The initiative achieved excellent results, in December 2025, filtration reached 98.7% achieving an average of 74.6% for the full-year 2025. Due to this advancement, we began the licensing process for government approval of the dry stacking disposal facility. For more information, see “Mining Operations—Tailings Disposals—Regulatory framework.” See also “Risk factors—Operational risks—The failure of a tailings dam could negatively impact our business, reputation and results of operations, and the implementation of associated regulations and decommissioning processes may be expensive.”

In 2025, we spent US\$19.6 million on sustaining capital expenditures for Três Marias, primarily associated with TSF expenses and replacement and overhaul of critical equipment.

The following table shows Três Marias’s processed zinc contained in concentrates, zinc recovery rate, production, sales, cash costs, and non-expansion capital expenditures for the periods indicated:

	For the Year Ended December 31,		
	2025	2024	2023
Inputs (in tonnes)			
Zinc Contained in Concentrate from Our Mines	139,538	169,901	167,726
Zinc Contained in Concentrate from Third Parties	31,038	21,680	22,430
Secondary Raw Material	82	325	1,976
Total Inputs	170,658	191,906	192,132
Zinc Recovery (%)	88.5	89.2	90.1
Zinc Production (in tonnes)			
Metallic Zinc	122,731	144,096	148,354
Zinc Oxide	34,566	34,569	33,963
Total Zinc Production	157,297	178,664	182,317
Zinc Sales (in tonnes)			
Metallic Zinc	122,027	146,810	147,102
Zinc Oxide	34,531	34,512	33,885
Total Zinc Sales	156,558	181,322	180,987
Cash Cost, net of by-product credits (in US\$/t)	3,326.0	2,584.6	2,546.9
Cash Cost, net of by-product credits (in US\$/lb)	1.51	1.17	1.16
Non-Expansion Capital Expenditures (in millions of US\$)	27.0	17.6	22.2

Juiz de Fora

The Juiz de Fora smelter is located in the municipality of Juiz de Fora in the state of Minas Gerais, Brazil, and is accessible by road.

The Juiz de Fora smelter produces zinc from sulfide concentrates and secondary sources such as EAF dust, batteries, and brass oxide, and uses the RLE process to produce metallic zinc. The annual production capacity of our Juiz de Fora smelter is 96.9 thousand tonnes of refined metal per year. In 2025, Juiz de Fora produced 61.8 thousand tonnes of zinc metal available for sale. In recent years, Juiz de Fora used calcine processed by third parties in its production process.

The Juiz de Fora smelter produces zinc primarily from zinc contained in concentrates and, to a lesser extent, recycled zinc secondary feeds. In 2025, the Juiz de Fora smelter consumed 69.9 thousand tonnes of zinc contained in concentrates, and secondary raw material, which consumed 37.2% of zinc contained in concentrates from our mines, 52.6% of zinc contained in concentrates from third parties and 10.1% from secondary raw material.

In December 2024, a fire occurred in the electrostatic precipitators in the roasting plant at Juiz de Fora. The incident was promptly contained but required an emergency shutdown of the roasting circuit that constrained production throughout the first three quarters of 2025. The unit resumed planned production capacity in September 2025.

In 2025, we spent US\$15.7 million on sustaining capital expenditures for Juiz de Fora, primarily associated with environmental and operational infrastructure, replacement and major overhauls of critical equipment, and automation initiatives, a portion of which is currently under reimbursement process by our insurance providers.

The following table shows Juiz de Fora's processed zinc contained in concentrates, zinc recovery rate, production, sales, cash costs, and non-expansion capital expenditures for the periods indicated:

	For the Year Ended December 31,		
	2025	2024	2023
Inputs (in tonnes)			
Zinc Contained in Concentrate from Our Mines	26,028	46,341	36,460
Zinc Contained in Concentrate from Third Parties	36,804	23,428	36,515
Secondary Raw Material	7,098	12,726	14,419
Total Inputs	69,930	82,495	87,394
Zinc Recovery (%)	93.2	93.9	94.0
Zinc Production (in tonnes)			
Metallic Zinc	61,827	81,989	82,147
Zinc Oxide	-	-	-
Total Zinc Production	61,827	81,989	82,147
Zinc Sales (in tonnes)			
Metallic Zinc	64,043	83,005	82,470
Zinc Oxide	-	-	-
Total Zinc Sales	64,043	83,005	82,470
Cash Cost, net of by-product credits (in US\$/t)	3,443.5	2,701.1	2,666.3
Cash Cost, net of by-product credits (in US\$/lb)	1.56	1.23	1.21
Non-Expansion Capital Expenditures (in millions of US\$)	16.9	12.4	14.5

Smelting by-products

Our smelting operations generate several by-products, primarily sulfuric acid, silver concentrate, and copper cement. Sulfuric acid, the main by-product by volume, is generated from sulfur dioxide released during zinc concentrate roasting. While part of this acid is used internally, most is available for external sale. As the Três Marias smelter consumes more sulfuric acid than it produces, the Juiz de Fora smelter transfers part of its production to Três Marias. Silver concentrate is recovered at the Cajamarquilla and Juiz de Fora smelters from intermediate process streams and is sold to international traders and local customers. Copper cement is produced at the Cajamarquilla smelter during the purification stage and is sold to international traders and local customers.

The following table shows our by-products produced and sold by our smelting operations, in tonnes (except indicated otherwise), for the periods indicated:

	For the Year Ended December 31,		
	2025	2024	2023
Sulfuric Acid - Production			
Cajamarquilla	594,124	590,063	556,297
Três Marias	75,856	90,178	83,365
Juiz de Fora	105,832	104,672	115,914
Total Production	775,812	784,914	755,576
Sulfuric Acid - Sales ⁽¹⁾			
Cajamarquilla	566,279	553,428	525,445
Três Marias	877	296	0
Juiz de Fora ⁽²⁾	50,170	41,363	41,586
Total Sales	617,326	595,087	567,032
Silver Concentrate - Sales (Metal Contained in Concentrate)			
Cajamarquilla	1,666,203	1,583,419	1,524,130
Três Marias	-	-	-
Juiz de Fora	37,269	155,229	173,917
Total Sales (in ounces)	1,703,472	1,738,648	1,698,047
Copper Cement - Sales			
Cajamarquilla	7,439	5,988	5,949
Três Marias	-	-	-
Juiz de Fora	108	0	143
Total Sales	7,547	5,988	6,091

(1) Sales are net of internal consumption, transfers between smelters, third-party purchases, and changes in inventories.

(2) Excluding the sulfuric acid transferred to the Três Marias smelter totaling 35,294 tonnes in 2025, and 40,610 tonnes and 50,634 tonnes in 2024 and 2023, respectively.

TAILINGS DISPOSAL

Regulatory framework

In Brazil, tailings dams' failures have triggered the issuance of new regulations. On January 25, 2019, there was a tragic failure of a tailings dam in the city of Brumadinho, in the state of Minas Gerais, Brazil. The Brumadinho dam, which belongs to Vale S.A., was originally built using the upstream method. A report by a panel of technical experts commissioned by Vale S.A. found that the tailings dam failure was the result of flow liquefaction within the tailings in the dam. Another upstream-method tailings dam in Brazil, the Fundão tailings dam owned by Samarco Mineração S.A., failed in November 2015. Each of these failures released muddy tailings downstream, flooded certain communities, caused fatalities, and resulted in extensive environmental damage to the surrounding area.

In response to tailings dam failures in Brazil, the state of Minas Gerais enacted regulations in February 2019 mandating the decommissioning of all upstream tailings dams and prohibiting construction of new dams using the upstream method, with the ANM requiring inactive upstream dams to be decommissioned by 2021 and active upstream dams by 2023, and also prohibiting construction or expansion of dams if communities are established within the self-rescue zone where timely evacuation in emergencies is not possible. Due to licensing difficulties for new dams in Minas Gerais, in February 2023 we began industrial-scale testing of dry stacking disposal technology at the Três Marias unit, achieving excellent results in 2025 by successfully filtering an average of 74.6% of the operation's material throughout the year steadily increasing from the 92.4% in 2024, with remaining residue disposed in the west 1 module of the Murici Deposit, and we began the licensing process for government approval of the dry stacking disposal facility. In 2020, Brazilian mining authorities enacted new dam-related procedures through Resolutions ANM 32/2020 and 51/2020 and Federal Law No. 14,066/2020, which established requirements for dam break studies and Emergency Action Plan ("EAP") certification, mandated EAPs for all mining dams storing tailings, and limited construction of new tailings dams if communities are in the self-rescue zone unless residents are removed or dam structures are reinforced per ANM-approved technical solutions, followed by Resolution No. 95/2022 (as amended by Resolution No. 130/2023) in 2022, which consolidated all dam safety standards and introduced the Risk Management Process for Mining Dams ("RMPMD") for high Associated Potential Damage ("APD") dams, with implementation of these requirements beginning in 2021.

In 2025, the ANM issued Resolution No. 220/2025, which establishes a new, consolidated regulatory framework for the safety of mining tailings dams, consolidating multiple prior regulatory instruments and replacing previous ANM resolutions on the subject. The regulation introduces a risk-based approach to dam oversight, including revised classification criteria, mandatory hypothetical dam break studies, enhanced reporting and monitoring obligations, independent periodic safety reviews, and reinforced emergency preparedness requirements. The regulation maintains the nationwide prohibition of the upstream dam construction method and imposes restrictions on the installation and operation of dams affecting designated self-rescue zones. Most provisions will become effective in August 2027 following a phased implementation period. Compliance with this regulation may require additional technical studies, operational adjustments, and ongoing regulatory compliance efforts, which could increase administrative and operating costs.

In 2022, we revised the EAP for all of our mining dams to comply with the new Brazilian regulations and the updated Terms of Reference issued in 2021. We submitted the EAPs to the relevant public authorities and published the documents on our website. In 2024, we also conducted the legally required Compliance and Operational Evaluation (COA), which verifies whether the EAPs meet regulatory requirements and are operationally feasible in an actual emergency. An external firm assessed the plans and issued the Compliance and Operability Report (COR) and the Declaration of Conformity and Operability (DCO).

On December 30, 2023, the State of Minas Gerais published State Decree No. 48,747/2023, regulating the environmental recovery policies that companies are required to have in place in the event of an accident or deactivation of a dam, pursuant to a prior state law passed in 2019. Under State Decree No. 48,747/2023, any dams that meet the requirements established under the 2019 Dam Safety Policy law must have an environmental guarantee policy in place. During the second quarter of 2024, the Decree was amended to modify, among other provisions, the deadline for mining companies to indicate the type(s) of guarantee method(s) they would use. We complied with this requirement in September 2024. The amendment also established that mining companies must have presented 50% of the chosen guarantees by the end of 2024. The guarantee can be made by one of the following methods: (i) cash deposit; (ii) CDB; (iii) bank guarantee; or (iv) guarantee insurance. On December 27, 2024, we filed the environmental recovery proposal, contracting for 50% of the guarantee. As of December 31, 2025, we estimated that US\$22.3 million would be required to cover the applicable dams under this policy. We have provided US\$11.1 million in bank guarantees covering all of our structures in Minas Gerais, representing 50% of the total required guarantee. A new State Decree, enacted on December 31, 2024, established that the timeline for the remaining installments will only begin after the approval of the proposal by the environmental agency. Nexa is still awaiting this approval before proceeding with the remaining obligations.

In 2024, a new resolution was published by the State of Minas Gerais (GMG Resolution No. 83, of the Civil Defense), in Brazil, which establishes the minimum requirements for the preparation, analysis and approval of the second section of the Dam Emergency Action Plan (*PAE*), following the powers of the Civil Defense of Minas Gerais, according to State Decree No. 48,078, of November 2020. This resolution aims to standardize and ensure the effectiveness of emergency measures in dams. Among the main new requirements are the implementation of geotechnical monitoring rooms, which operate 24 hours a day, 7 days a week, in addition to changes in the sounding of alert sirens.

In 2025, we implemented geotechnical monitoring rooms at the Três Marias, Juiz de Fora and Vazante units, in compliance with the new regulatory requirements. These measures reflect both industry expectations and our continued efforts to enhance dam safety, monitoring structures, and the effectiveness of emergency prevention and response actions. In Peru, the upstream method has long been an abandoned practice due to seismic concerns in the region. As of 1995, compulsory guidelines were passed prohibiting the use of such method. Subsequently, in 2014 environmental regulators, and later technical regulators, in 2015, adopted the same guidelines prohibiting construction and operation under the upstream method, allowing only the use and construction under the centerline and downstream methods. A specialized governmental agency conducts periodically inspections of tailings dam and mining infrastructure, ensuring technical and environmental regulations are complied with. In addition, mining operations must submit biannual stability studies, to which they are held liable. We follow these guidelines, and all operative tailings dams use the downstream and centerline lift methods.

In December 2023, the Peruvian government issued Supreme Decree No. 034-2023-EM which amended the Occupational Health and Safety in Mining regulation by adding a chapter on management and safety requirements for waste and tailings disposal facilities. The main requirements of the Decree can be summarized as new needs for studies to be conducted, updating the emergency response plan, contemplating a dam break scenario, implementation of alarm systems, among other devices. Most of the items were already or have been implemented. The alarm system is in the implementation phase.

In June 2024, the Peruvian government issued Resolution No. 122-2024-OS/CD, which introduced new reporting requirements for tailings disposal facilities. The resolution requires companies to submit monthly reports on the condition of these facilities, along with reports containing geotechnical monitoring interpretations. Additionally, the resolution mandates the use of specific reporting formats to ensure that the submitted information is sufficient for safety analysis conducted by the relevant authority.

Atacocha's tailing dam is currently supported by an authorization for operation up to an altitude of 4,128 meters above sea level ("masl"), which was granted by the Ministry of Energy and Mines in June 2025, the previous authorization was for 4,126 masl. Activities to expand the Atacocha's tailings dam to an elevation up to 4,131 masl are underway and the authorization for this new elevation is expected to be obtained by September of 2026.

El Porvenir's tailings dam is currently supported by an authorization for operation up to an altitude of 4,070 masl, which was granted by means of an automatic authorization due to the Ministry of Energy and Mines' unfulfillment of the legal term to complete its evaluation. The previous authorization was for 4,064 masl and no further elevations are currently planned.

Cerro Lindo has two dry filtered tailings facilities, Pahuaypite 1 and Pahuaypite 2. Pahuaypite 1 is supported by an authorization for operation up to an altitude of 2,110 masl, which was granted by the Ministry of Energy and Mines in July 2025, and activities for expansion to 2,185 masl are underway and projected for August 2026. Pahuaypite 2 is supported by an authorization for operation up to an altitude of 2,156 masl, which was granted by the Ministry of Energy and Mines in May 2025, and plans for further expansions are underway and projected for the third quarter of 2027.

For more information, see “Risk factors—Operational risks—The failure of a tailings dam could negatively impact our business, reputation and results of operations, and the implementation of associated regulations and decommissioning processes may be expensive.”

Our practices

We monitor tailings and waste dams in accordance with international best practice guidelines for management and project design based on criteria set by the International Commission on Large Dams (“ICOLD”) and the Canadian Dam Association (“CDA”) dam safety guidelines. In 2025, all of our tailings dams in Brazil received Stability Condition Declarations (“DCEs”), certifying that these facilities are safe and stable. In Brazil, these certifications are conducted twice a year for mining and smelting dams. In Peru, they occur once a year. As of the date of this annual report, all tailings dams in Peru and Brazil have undergone the audit process, and we concluded a technical report for these dams in 2025. In addition, all our dams and dry stacking structures are monitored under a system known as the *Sistema de Gestão de Barragens e Pilhas*. Tailing Dam Management System (“SIGBAR/SIGDEP”), which consists of procedures, tools and key performance indicators, monthly reports and monitoring and analysis by an independent Geotechnical Engineer. The monitoring procedures include regular inspections, as well as internal and external audits.

In addition to the above-mentioned policies and procedures, our SCP committee assists and advises our Board in supporting safe and sustainable business practices in our conduct and activities, as well as in reviewing technical, economic and social matters with respect to our projects.

In 2024, we began the process of implementing standards delineated by the Global Industry Standard Tailings Management (“GISTM”) at the Vazante unit. This is an important step in our tailings management process, as we are focused on incorporating global standards for tailing management into our operations. At the same time, we underwent a review process conducted by our first Independent Tailings Review Board (“ITRB”), a process prescribed by GISTM. The main objective of the ITRB is to provide technical and strategic recommendations to ensure the safety and compliance of dams with the international best practices, reducing environmental, social, and financial risks. The scope of the ITRB assessment varies depending on the applicable company and local legislation but generally includes the assessment of design and construction; operation and maintenance; risk and safety management; regulatory compliance; closure and rehabilitation plan; among others. The ITRB’s function helps increase the transparency and credibility of dam management, and increase satisfaction of the expectations of regulators, investors, and local communities. No critical items were found in the ITRB assessment of our tailings management process in Vazante. The main recommendations observed were on tailings governance. We plan to continue implementing the standards delineated by GISTM at other units in 2025.

In 2023, we began conducting engineering studies to evaluate the stability and confirm the construction method of old inactive industrial waste containment structures. These structures, since they became inactive more than 20 years ago, have been subject to decommissioning as monitored by the environmental agency of the State of Minas Gerais as part of the environmental licensing process for the unit. None of these structures contain mining tailings, water, or liquid waste. In 2024, we presented the progress of the studies to the respective state environmental foundation, and we plan to resume discussions in the first half of 2025 to present the results of the studies conducted and define next steps to classify these structures. In December 2025, following the presentation of the technical studies to the state environmental authority, we received a final decision stating that the structures are no longer characterized as dams and are currently classified as waste piles. As a result, we are no longer subject to the dam-related regulatory requirements applicable to those structures. In March 2025, we inaugurated the Geotechnical Monitoring Center (“GMC”) at our Três Marias unit. The GCM enables continuous real-time monitoring of tailings dams and structural stability, strengthening our commitment to safe and responsible operations. For more information about our SCP committee and ESG initiatives, see “Information on the Company—Environmental, Social and Governance (ESG).”

We use four disposal options for tailings. Our preferred option is to convert part or all of the tailings’ material into a commercially viable product. When the conversion method is not available, we prefer to use the backfill method for our underground mines. This technique involves removing moisture from tailings, creating a mixture with cement, and filling open spaces in the mines with this combination. We believe this method reduces safety risks related to tailings disposal given that it provides greater geotechnical stability and does not involve the building of a dam or dry stacking structure.

If neither the conversion nor the backfill method is available, we prioritize the dry stacking method, which consists of removing moisture from tailings and stacking them in layers to form an engineered mount that can be covered with soil and vegetation, allowing it to blend into the surrounding landscape. We have used both dry stacking and backfill at our Cerro Lindo mine in Peru since its startup. With the dry stacking facility at the Vazante unit, we achieved 90.9% of our tailings' disposal through dry stacking and 6.3% through backfill in 2025, reducing our exposure to tailings dams. In 2023, we began developing backfill and dry stacking methods at our Aripuanã unit, which entered the ramp-up phase in 2022. In 2025, 53.9% of our tailings at Aripuanã were disposed of through dry stacking and 46.0% through backfill. In February 2023, we initiated industrial-scale testing for dry stacking at the Três Marias unit. In 2024, the tests produced strong results, successfully filtering the residue, and we continued advancing the project throughout the pilot stages of industrial-scale operations, achieving an average filtration rate of 92.4% for the year. In 2025, we achieved an average of 74.6%, reaching 98.7% in December 2025. In 2024 we also began the environmental licensing process for a new dry stacking facility at Três Marias. In 2025, we continued to advance this process and are awaiting the decision of the environmental authority regarding the issuance of the preliminary and installation licenses.

When neither of these three methods is possible, we use tailings dams. The dam acts as a solid barrier engineered to prevent the tailings material from escaping to the environment around the mine. We use this method in Peru at our Cerro Pasco Complex (El Porvenir and Atacocha mines), and at our Cajamarquilla smelter, and in Brazil at our Vazante mine, and Juiz de Fora and Três Marias smelters. We also use a combination of the backfill method and tailings dams at our El Porvenir and Atacocha mines in Peru. At the Aripuanã mine, we have built a water dam to supply water to our operation. This dam is engineered with borrowed material and uses the technical control of compaction of the soil.

We currently raise our tailings dams using the following two methods: (i) the downstream method, where the building material is disposed downstream of the crest of the dam body; and (ii) the center-line method, where the building material is disposed partially downstream and partially upstream of the crest of the dam body, while maintaining the same centerline of the crest. Historically, we have also used the upstream method – where the building material is disposed upstream of the crest of the dam body – in certain instances – however, none of these tailings' dams are now active.

In addition, we also use effluent dams, which are dams used to treat water that contains tailings particles or other solid particles. The effluent dams separate the tailings particles or other solid particles from the water by retaining the particles and releasing the clean water downstream.

We currently have 40 disposal facilities, 22 of which are active and 18 inactive (including 13 industrial waste dams, 8 tailings dams, 6 waste piles, 5 dry stacking facilities, 5 effluent dams, 2 sediment dams and one water storage dam), 18 located in Peru and 22 in Brazil. We continue to implement responsible tailings management strategies, including backfill methods and dry stacking, to minimize our environmental impact. Additionally, decommissioning efforts are ongoing for non-operational dams, in line with our commitment to sustainable mining practices. The following is an overview of the dams we have in place at our principal mining and smelting facilities:

Peru

- At Cerro Lindo, we have no tailings dams, and tailings are disposed of using a combination of the backfill and dry stacking methods; there are two dry stacking facilities and two effluent dams.
- At the Cerro Pasco Complex (El Porvenir and Atacocha), tailings are disposed of using a combination of the backfill method and tailings dams; there are two tailings dams in active use and four non-operational tailings dams, which are in the process of being decommissioned.
- At Cajamarquilla, there are three industrial waste dams in active use and four non-operational industrial waste dams, which are in the process of being decommissioned.
- At the Sinaycocha property, which is part of our Atacocha mine property, there is one non-operational tailings dam.

Brazil

- At Vazante, tailings are disposed of using a combination of tailings dams, backfill and dry stacking methods; there is one dry stacking facility, one tailings dam and two sediment dams in active use.
- At Aripuanã, we have no tailings dams, and tailings are disposed of using a combination of the backfill and dry stacking methods; there is one dry stacking facility and one water storage dam in active use.
- At Juiz de Fora, there is one industrial waste dam and three effluent dams in active use, and six non-operational waste piles.
- At Três Marias, there are two industrial waste dams and one dry stacking facility in active use and three non-operational industrial waste dams, which are in the process of being decommissioned.

COMMERCIAL AND LOGISTICS

Commercial

Our commercial operations encompass the sale of zinc concentrates, copper, and lead concentrates, metallic zinc, zinc oxide and by-products across global markets. In our mining segment, zinc concentrates are sold to our own smelters on arm's length terms and, in the case of copper and lead, to third-party offtakers and international traders. In our smelting segment, refined products are sold predominantly through one-to-three-year supply contracts to end users in the galvanizing, die casting, alloy, and transformer sectors, as well as to international traders. We maintain commercial offices in São Paulo, Lima, Houston, and Luxembourg, and hold an estimated market share of 82.3% in Latin America (excluding Mexico) for refined zinc products. Our integrated mining-to-smelting model, combined with the geographic proximity of our operations to key customers in South America, provides logistical advantages and supports long-term customer relationships.

Concentrate sales

All the metal produced by our mines is processed into concentrates. Our mining operations sell the concentrates that they produce to third parties and to our own smelters pursuant to arm's length transactions. Each mine bears the cost of transporting the concentrate to the point of sale where the smelter or trader purchases the concentrate. The smelter or trader pays the mine for the percentage of metals contained in the concentrate, net of charges for treating the concentrate and refining the metals. The typical payable percentage is 85.0% for zinc contained in concentrate, 96.5% for copper contained in concentrate and 95.0% for lead contained in concentrate, minus treatment charges ("TC").

In 2025, 100% of our zinc concentrate production was directed to our smelting operations in Peru and Brazil. Sales prices are established mainly by reference to prices quoted on the LME less a discount based on either the treatment charge or smelter charge. The LME price quotes are based on prevailing LME average prices for the period set forth in our sale agreements and generally refer to either the month following the shipment or the period near the execution date of the relevant agreement. Internal transfer prices between our mining and smelting segments are calculated on an arm's length basis using market pricing, allowing for independent performance evaluation of each segment.

We also purchase zinc contained in concentrate from third-party suppliers to meet our raw material requirements. In 2025, 50.1% of the total zinc raw material consumption in our smelters was produced by our mines and 49.9% was purchased from third parties or obtained from secondary raw materials (excluding zinc oxide).

Mining and Smelting Integration

We operate an integrated mining and smelting business model designed to enhance efficiency, resilience, and value capture across the zinc value chain. This integration secures raw material supply for our smelters, mitigates commodity cycle volatility, and enables margin capture through operational synergies. Additionally, the geographic proximity between our mines and smelters reduces logistics costs and lead times, improving sustainability and overall operational performance.

Owning and operating both mining and smelting assets provides protection against commodity cycle fluctuations: during periods of high treatment charges, and refining charges ("RC"), smelting operations benefit from wider processing margins, while in low-charge environments, mining operations retains more value from concentrate sales. This structure stabilizes profitability, ensures supply security, and supports long-term investment. Historically, this integrated model has reduced earnings volatility, delivering more consistent returns over time, albeit with lower peaks compared to pure mining operations.

Sales

We sell most of our products through supply contracts with terms between one and three years. Only a small portion of our products are sold on the spot market. The agreements with our customers include customary international commercial terms, such as CIF, FOB and other delivery terms based on Incoterms 2010/2020. Our ability to deliver significant volumes across several regions worldwide makes us a significant supplier to a client base of end users and global traders. As a result, we can obtain competitive commercial terms for our products in the long-term.

In 2025, our top 10 metallic zinc customers represented approximately 52.9% of the total sales volume for such products, with our top 10 zinc oxide customers representing 63.1% of the total sales volume for that product, and our top five concentrate customers represented approximately 72.4% of the total sales volume for such products, in each case excluding intercompany sales.

Refined Metal Sales

Our metallic zinc and zinc oxide are sold worldwide through our commercial offices located in:

- São Paulo, Brazil;
- Lima, Peru;
- Houston, United States; and
- Luxembourg, Grand Duchy of Luxembourg.

We hold a leadership position in our home market, Latin America (excluding Mexico), with an estimated market share of 82.3% in 2025, according to our sales volume, import databases and demand forecasts sourced from specialized consultancy groups and customs websites. In other regions, we hold a strategic position, with estimated market share of 26.0% in Africa, 0.1% in North America, 3.1% in Europe and 0.3% in Asia, according to our sales volumes, import databases and demand forecasts sourced from specialized consultancy groups and customs websites.

In 2025, 81.9% of our total sales of refined metals were to customers in the continuous galvanizing, general galvanizing, die casting, transformers, and alloy segments and 18.1% of our total sales were to international traders. Our products are sold to end users in the transport, construction, infrastructure, consumer goods, and industrial machinery industries. Of our volume of metallic zinc and zinc oxide sales in 2025, 54.6% were to Latin America (including Mexico), 10.7% to Europe, 12.8% to the United States, 5.8% to Africa and 5.3% to Asia, with the remaining 10.8% to international traders. Sales prices are mainly established by reference to prices quoted on the LME plus a negotiable premium. Pricing is based on prevailing LME average prices for a period set forth in our sale agreements, which generally refer to the month or month prior to shipment.

The Cajamarquilla smelter sold approximately 346.4 thousand tonnes of metallic zinc, of which 35.3% of the volume was sold to Latin America (including Mexico), 16.8% to Europe, 21.0% to the United States, 2.2% to Africa, 8.7% to Asia and 16.0% to international traders. The Cajamarquilla smelter also produces sulfuric acid, silver concentrate, copper cement, manganese dioxide, oxides (ashes) and cadmium sticks. In 2025, Cajamarquilla produced 594,124 tonnes of sulfuric acid, of which 566,279 tonnes were sold. These products are sold primarily to international traders and local customers, with sulfuric acid delivered in bulk to customers in Chile through the ports of Mejillones and Barquito.

The Três Marias smelter sold approximately 122.0 thousand tonnes of metallic zinc and 34.5 thousand tonnes of zinc oxide, of which 83.7% of the volume was sold to Latin America (including Mexico), 3.2% to international traders, 11.6 % to Africa, and 1.4% to Europe. The Três Marias smelter also produces sulfuric acid, substantially all of which is consumed internally in the leach plant, with the remaining 877 tonnes sold, as well as copper/cobalt cement, oxides (ashes) and cadmium briquettes. These products are sold to local customers.

The Juiz de Fora smelter sold approximately 64.0 thousand tonnes of metallic zinc, of which 87.3% of the volume was sold to Latin America (including Mexico), 11.1% to Africa and 1.6% to international traders outside of Latin America. This Juiz de Fora smelter also produces sulfuric acid, sulfur dioxide, silver concentrate, copper sulfate, and zinc ash. In 2025, Juiz de Fora produced 105,832 tonnes of sulfuric acid, of which 50,170 tonnes were sold. These products are sold primarily to international traders and local customers.

By-products

We sell a wide variety of chemical and metallurgic by-products generated during the production processes in our smelters and mines to a broad customer base. Our sales include more than 30 different by-products, most of which are sold based on the characteristics of each market or region.

Marketing

Our marketing strategy is designed to strengthen brand presence and increase customer engagement across the markets and regions in which we operate. In addition to material excellence, we are committed to delivering enhanced customer experience, providing added value through technical support and an optimized supply chain that improves our customers' working capital efficiency.

Our principal objectives include brand recognition, lead generation and customer retention, supported by the use of digital tools and platforms such as social media, CRM systems and data analytics to deliver impactful and personalized campaigns. We continuously monitor key performance indicators, including ROI, conversion rates and customer satisfaction, to ensure alignment with our business goals and prevailing market trends.

We serve a diverse range of segments, including continuous and general galvanizing, die casting, transformers and alloys, as well as transport, construction, infrastructure, consumer goods and industrial machinery industries. In 2025, 81.9% of our total refined metals sales were to customers in these segments, while 18.1% were to international traders. Our solutions and services are tailored to the specific needs of each sector and region, reinforcing proximity and customer support.

Our commitment to customer experience is further reflected in our operational and logistical flexibility, supported by integrated management systems such as Enterprise Resource Planning platforms ("SAP"), which ensure speed, safety and efficiency from production to delivery. Efficient domestic and cross-border logistics and long-term contracts with transportation and storage partners enable us to respond promptly to customer needs, ensuring reliable and continuous supply of products and by-products.

Logistics

Logistics activities support the efficient transportation and export of mineral concentrates and refined products to domestic and international markets. Concentrates produced at mining operations are transported to the port of Callao primarily by truck and, in certain cases, by rail, where they are delivered to customers. Refinery operations coordinate the export logistics of products such as zinc metal, silver concentrate, copper cement, and sulfuric acid through warehouses and port facilities at Callao, using containerized cargo and specialized chemical vessels depending on product characteristics. The logistics framework relies on contracted transportation providers, third-party storage facilities, and port terminal operators, enabling operational flexibility and efficient cargo handling. These activities are supported by integrated management systems, including SAP, and are carried out in compliance with applicable regulatory, safety, and environmental standards.

Transportation and shipping

Mining Operations – Concentrates

Our Cerro Lindo operation transports 100.0% of its concentrates by road. The concentrates are trucked in a dedicated fleet through the Panamericana Sur road to the port of Callao, or to the Cajamarquilla smelter. This transportation is covered by long-term contracts entered with two trucking companies.

Our Atacocha and El Porvenir operations use both road and rail transportation. The concentrates are trucked through the Carretera Central and Canta Road to the warehouses of Callao, or to the Cajamarquilla smelter. We also use railway transportation to secure logistic availability and maintain high environmental standards. Our use of railway transportation is covered by a long-term contract.

The zinc concentrate produced in the Cerro Lindo, Atacocha and El Porvenir mines supply our Peruvian smelters, as well as third-party customers, while the lead and copper concentrates produced by these mines are transported to third-party customers to the warehouses of Callao. Our smelters use zinc concentrate supplied from our mines and from third-party suppliers to meet the blending needs of each smelter.

The third-party zinc concentrate supplied to the Brazilian smelters is loaded in bulk and sent to the Port of Rio de Janeiro, where it is cleared through customs and then loaded into railcars to the Juiz de Fora smelter or into trucks and railcars to the Três Marias smelter.

All the zinc concentrates produced at our Vazante mine is transported by road to the Três Marias smelter using three trucking companies. These mines also produce lead concentrates with contained silver, which are loaded into containers at the mine and are transported using trucks and trains to the port terminals in Itaguaí, Rio de Janeiro, Brazil, or Santos, São Paulo, Brazil. These concentrates are then exported in accordance with our annual contracts with container shipping lines.

All the zinc concentrate produced at our Aripuanã mine is transported by road to the Três Marias and Juiz de Fora smelters. The mine also produces lead and copper concentrates, which are either loaded into containers at the mine or transported by road to the external warehouse in Rondonópolis, Mato Grosso, Brazil, for subsequent container stuffing. They are then transported using trucks and trains to the port terminals in Santos, São Paulo, Brazil. All lead and copper concentrates are shipped to foreign customers.

Smelting Operations – Refined Metal

The metallic zinc produced in the Cajamarquilla smelter is transported by train or truck to the terminals. The material intended for the Peruvian domestic market is distributed by truck from the refinery, while exports to foreign markets are loaded into containers and transported by truck from these terminals to the port of Callao.

The metallic zinc produced in the Juiz de Fora and Três Marias smelters is transported by truck for either local customers or exports. In the case of exports, the material is transported to terminals near the ports of Rio de Janeiro or Itaguaí, both in the state of Rio de Janeiro, or the port of Santos, in the state of São Paulo. The material is then loaded into containers at the terminal and transported to the ports by truck, where it is shipped to customers abroad.

The metallic zinc and zinc oxide production process in our smelters also generates by-products. The most relevant by-products are sulfuric acid, silver concentrate and copper cement. Sulfuric acid produced in the Cajamarquilla smelter is loaded into dedicated tank railcars and transported to be stored. The sulfuric acid is then loaded in bulk into chemical ship-tanks destined to our customers and discharged at the Chilean ports of Mejillones and Barquito. The silver concentrate and the copper cement produced at Cajamarquilla is loaded into containers and are dispatched to the port of Callao in Peru. In Juiz de Fora, sulfuric acid is transported by truck to local and regional customers. The silver concentrate produced is loaded into containers and dispatched to the port of Itaguaí, while copper sulfate is dispatched to the local market.

We ship all our refined zinc exports in containers. Transportation of this material is covered by annual agreements with the liner shipping providers, which are responsible for approximately 90.0% of these shipments.

ENERGY

Power and energy supply

Energy supply is a critical component for our operational strategy, ensuring efficiency and sustainability across all business activities. Our operations primarily rely on hydroelectric energy, in Brazil sourced through a joint venture with Auren Energia S.A. ("Auren"), which owns shares of hydroelectric plants that have entered into long term contracts with us, but also through contracts that offer renewable energy certificates (such as I-RECs (International Renewable Energy Certificates)), and in Peru through long-term contracts with renewable energy certificates, which results in a low carbon-intensity profile for the company's electricity consumption. We are committed to reducing carbon footprint and improving energy efficiency, in line with global standards and regulatory requirements. Additionally, we employ technologies that help us with energy management, such as energy monitoring systems, and use AI to optimize consumption and costs and minimize environmental impact.

Peru

We contracted for 97.4% (1,963.2 GWh) of energy for our operations in our Peruvian operating units from the SEIN and consumed 100% (1,963.2 GWh) of this energy. The other 2.6% (52.0 GWh) of the energy for our Peruvian operating units was obtained from our own hydroelectric power plants and the Cajamarquilla cogeneration power plant. We own three hydroelectric power plants, two at Atacocha and one at El Porvenir, with a total installed gross rated capacity of 9,726 kilowatts, or kW.

We currently have contracts with Electroperú S.A., a well-known Peruvian state-owned company, which cover 100% (290.9 GWh), 100% (150.1 GWh) and 51.1% (33.9 GWh) of the energy requirements for our Cerro Lindo, El Porvenir and Atacocha units, respectively. In Cajamarquilla, Electroperú S.A. is responsible for 94.8% (1,429.8 GWh) of the energy supply. In 2025, we consumed 100% of the energy acquired through these contracts.

We currently also have a spot contract with Engie S.A. for the supply of energy to the Cajamarquilla unit. In 2025, 3.9% (58.5 GWh) of the energy requirements for our operations in Cajamarquilla was contracted from Engie and 100% of this energy was consumed.

In June 2025, we entered into a 10-year supply agreement with Kallpa S.A., a Peruvian energy company, for the supply of 278.0 MW of power from 2027 to 2036, which will replace our contracts with Electroperú and Engie, which expire in December 2026. For the contract with Kallpa we will use the International REC Standard certificate system to offset greenhouse gas emissions.

The following table sets forth the energy sources and energy consumption with respect to our Peruvian operating units in 2025.

Operating Unit	Energy Source	Total Energy Consumed in 2025 (GWh)	Percentage of Total Energy Usage in 2025
Third-Party			
Cerro Lindo	Third-Party (Electroperú S.A.)	290.9	14.8%
El Porvenir	Third-Party (Electroperú S.A.)	150.1	7.7%
Atacocha	Third-Party (Electroperú S.A.)	33.9	1.7%
Cajamarquilla	Third-Party (Engie S.A.)	58.5	3.0%
Cajamarquilla	Third-Party (Electroperú S.A.)	1,429.8	72.8%
Total Energy Usage		1,963.2	100%
Own Power Plant			
El Porvenir	Own Power Plant (Candelaria)	0.0	0%
Atacocha	Own Power Plant (Chaprin and Marcopampa)	32.5	62.5%
Cogeneration CJM	Two steam turbines with HRSG from <i>tostación</i>	19.5	37.5%
Total Energy Usage		52.0	100%

Hydroelectric plants*Candelaria*

The El Porvenir unit has one hydroelectric plant, the Candelaria Hydroelectric Power Plant, which is located along the Lloclla River. The plant contains three separate hydroelectric turbines, two of which have been operational since 1957 and the third since 1998, and which together have an installed rated capacity of 4.8 MW. However, since 2020, Candelaria Hydroelectric Power Plant has been shut off indefinitely.

Chaprin and Marcopampa

The Atacocha unit has two hydroelectric plants. The Chaprin Hydroelectric Power Plant is located along the Lagia Ravine near the Huallaga River. The plant has been operating since 1957, and its installed rated capacity is 5.9 MW. The Marcopampa Hydroelectric Power Plant has been operating since 1953, and was overhauled in 1984, increasing its installed rated capacity to 1.2 MW. Since 2020, Marcopampa has been shut off indefinitely. During 2025, Atacocha consumed 32.5 GWh from these plants, which represented approximately 48.9% of the energy usage of the mine.

Brazil

With respect to our Brazilian operations, as of December 31, 2025, energy supply comes from various contracts, and our subsidiary Pollarix.

Our subsidiary Pollarix holds direct or indirect interests in five hydroelectric power plants: a 22.4% equity participation in Enercan (Campos Novos), a 100.0% ownership of Picada, located in Minas Gerais, a 12.6% equity participation in the Amador Aguiar I, a 12.6% equity participation in the Amador Aguiar II and a 23.9% equity participation in the Igarapava. These plants have hydroelectric power facilities in the states of Minas Gerais, Santa Catarina, and São Paulo. The hydroelectric power plants of Pollarix provide energy to the four operating units (Vazante, Três Marias, Juiz de Fora and Aripuanã). With Pollarix, we have access to most of the energy needed for our operations. In 2025, it provided 1,276.8 GWh of energy, which represented 82.2% of our total energy purchased.

The only activity of Pollarix is to own our energy assets and sell energy to our Brazilian operating subsidiaries at market prices. We own all the common shares of Pollarix, which represents 33.3% of its total share capital. The remaining shares are preferred shares with limited voting rights, which are owned by Auren Energia S.A. ("Auren"). Under the terms of the preferred shares, Auren is entitled to dividends per share equal to 1.93 times the dividends per share payable on the common shares. See "Operating and Financial Review and Prospects—Overview—Key factors affecting our business and results of operations—Operating costs and expenses—Energy costs."

In May 2024, we entered into a 10-year supply agreement (from 2025 to 2034) with Eneva S.A. ("Eneva"), a Brazilian energy company. In 2025, Eneva provided a total supply of 219.0 GWh of energy, representing 14.1% of our total energy purchased. This amount of energy was acquired by Nexa Energy, our energy trading company, and distributed among all four operating units according to their consumption). All energy supplied under this contract is tied to I-REC certification, assuring the energy was generated from renewable sources.

In 2020, we began a 15-year renewable electric energy supply agreement with Furnas Centrais Elétricas S.A. ("Furnas"), a Brazilian energy company, controlled by Eletrobras, to help address the increasing energy demand in our operations. Furnas provides energy to two operating units (Três Marias and Juiz de Fora). The supply contract was terminated in February 2025. During these two months, Furnas provided a total supply of 33.7 GWh of energy, representing 2.2% of Nexa's total energy purchased.

We also have a contract with Auren, which provides electric energy from several energy generation sites to our Juiz de Fora and Três Marias operations in Brazil. In 2025, Auren provided a total supply of 16.9 GWh of energy, representing 1.1% of our total energy purchased.

During 2025, in addition to long-term contracts, to meet the energy demand of the operating units, it was necessary to purchase energy on the short-term market through Nexa Energy. These short-term contracts totaled 6.3 GWh, which represented 0.4% of Nexa Brazil total energy purchased.

The following table sets forth our energy sources and consumption with respect to our Brazilian operations in 2025.

Operating Unit	Energy Source	Total Energy Consumed in 2025 (GWh)	Percentage of Total Energy Usage in 2025
Third-Party and Own Power Plants			
Juiz de Fora	Pollarix S.A, Furnas	351.8	24.1%
Três Marias	S.A., Enercan, Auren	666.0	45.7%
Vazante	and Market	325.4	22.3%
Aripuanã		114.7	7.9%
Total Energy Usage		1,457.9	100%

Hydroelectric plants

Campos Novos

Campos Novos is a hydroelectric plant located along the Canoas River, in the state of Santa Catarina. The plant has an installed capacity of 880 MW and has been authorized by the Brazilian Energy Regulatory Agency (*Agência Nacional de Energia Elétrica* or ANEEL), to produce 382.2 MWavg. During 2025, Aripuanã, Vazante, Três Marias and Juiz de Fora units acquired 612.9 GWh from Campos Novos, which represented approximately 39.5% of our total energy purchased.

Picada

Picada is a hydroelectric plant located along the Peixe River in the state of Minas Gerais. The plant has an installed capacity of 50 MW and has been authorized by ANEEL to produce 29.6 MWavg. During 2025, the Vazante unit acquired 207.6 GWh, which represented 13.4% of our total energy purchased.

Igarapava

Igarapava is a hydroelectric plant located along the Grande River in the state of Sao Paulo. The plant has an installed capacity of 210 MW and has been authorized by ANEEL to produce 127.5 MWavg. During 2025, Aripuanã, Vazante, Três Marias and Juiz de Fora units acquired 214.7 GWh from Igarapava, which represented approximately 13.8% of our total energy purchased.

Amador Aguiar I

Amador Aguiar is a hydroelectric plant located along the Araguari River in the state of Minas Gerais. The plant has an installed capacity of 240 MW and has been authorized by ANEEL to produce 146.7 MWavg. During 2025, Aripuanã, Vazante, Três Marias and Juiz de Fora units acquired 129.4 GWh from Amador Aguiar I, which represented 8.3% of our total energy purchased.

Amador Aguiar II

Amador Aguiar is a hydroelectric plant located along the Araguari River in the state of Minas Gerais. The plant has an installed capacity of 210 MW and has been authorized by ANEEL to produce 125.2 MWavg. During 2025, Aripuanã, Vazante, Três Marias and Juiz de Fora units acquired 112.3 GWh from Amador Aguiar II, which represented 7.2% of our total energy purchased.

Nexa Energy

In June 2024, we acquired an energy trading company, currently named Nexa Energy, to maximize the benefits of our consumer units in the free energy market. The trading company acts as an intermediary in the negotiation of supply contracts, customizing them according to our specific needs, in addition to facilitating access to a variety of suppliers.

In certain situations, we may have a volume of available energy higher than our expected consumption, and Nexa Energy plays a crucial role in managing this surplus, enabling its trade in the free energy market. This operation can generate financial returns or mitigate potential financial losses, depending on market prices. It also prevents excess energy from being liquidated at the Electric Energy Commerce Chamber (*Câmara de Comercialização de Energia Elétrica* or “CCEE”), which is subject to the risk of non-payment by CCEE. Non-payment occurs when participants do not meet their financial obligations in the monthly settlements. In this case, the unpaid amounts are divided among all creditors, resulting in lower credits than the amount originally due.

In 2025, the amount of surplus energy traded by Nexa Energy was 158.7 MWavg.

CAPITAL EXPENDITURES

Our capital expenditures for the three years ended December 31, 2025, totaled US\$937.7 million. For 2026, we expect to invest approximately US\$380.8 million, an increase relative to 2025 investments, primarily attributed to higher mine development investments aimed at improving mine flexibility, sustaining capital requirements, and HS&E initiatives. Of the 2026 planned amount, US\$375.4 million are expected to be directed towards non-expansion investments and US\$5.4 million towards expansion projects.

The following table sets forth our capital expenditures for the periods indicated.

	For the Year Ended December 31,		
	2025	2024	2023
	(in millions of US\$)		
Capital Expenditures			
Expansion ⁽¹⁾	1.1	2.3	3.7
Modernization	3.3	3.3	3.8
Sustaining ⁽²⁾	333.9	268.0	292.8
Health, Safety and Environment ("HS&E")	14.6	12.2	15.7
Others	1.2	6.6	3.5
Subtotal	354.0	292.4	319.5
Reconciliation to Financial Statements ⁽³⁾	(2.1)	(15.5)	(10.5)
Total	351.9	276.8	309.0

(1) For a description of the projects, see "Information on the Company—Mining Operations."

(2) Investments related to the tailings storage facilities and mine development are also included in sustaining expenses.

(3) The amounts under "Reconciliation to Financial Statements" are mainly related to advance payment of imported materials, capitalization of interest net of advanced payments and tax credits.

Our capital allocation during these periods has focused on sustaining investments and mine development, reflecting a deliberate focus on extending life-of-mine, enhancing operational flexibility, and advancing tailings management across our operations. Investments on expansion have been lower following the completion of construction at Aripuanã in 2022, as we prioritize returns from existing assets and advance the permitting and engineering stages of future growth projects.

The principal drivers by year were as follows:

- In 2025, our capital expenditures totaled US\$351.9 million, a 27.1% increase compared to 2024, mainly due to investments related to Phase I of the Cerro Pasco Integration Project, specifically, the tailings pumping system, classified as sustaining, which were designed to enable safe, long-term tailings management at the complex, along with higher mine development spending and the impact of unfavorable foreign exchange variations.
- In 2024, our capital expenditures totaled US\$276.8 million, a 10.4% decrease compared to 2023, mainly due to favorable foreign exchange variations and ongoing initiatives to optimize capital allocation, which together more than offset continued investments in sustaining and mine development activities.
- In 2023, our capital expenditures were US\$309.0 million, an 18.9% decrease compared to 2022, mainly due to the conclusion of construction at Aripuanã, which had been our principal expansion project. This reduction in expansion capital expenditures was partially offset by increased sustaining capital expenditures, including US\$79.4 million invested in the ramp-up of the Aripuanã mine.

We expect to fund our capital expenditures through operating cash flow and our existing available liquidity. To the extent attractive financing instruments and terms are available, we may also access debt markets to optimize our capital structure. Actual capital expenditures may differ from current estimates in both amount and timing.

ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG)

We are committed to fully integrating ESG into our business through systematic planning and execution, prioritizing risk and impact management, and maintaining a positive social, economic and environmental legacy where we operate. Our practices related to ESG continuously evolve to adapt to new frameworks, regulatory and disclosure requirements, best practices, ESG-related trends and stakeholder feedback. We have a multidisciplinary task force that continuously assesses and refines our ESG strategy, including analyses of risks related to increasing severity of weather events, global and local weather conditions, and greenhouse gas emissions.

Our sustainability approach is set out in our Code of Conduct and Compliance and our ESG strategy. We adhere to the United Nations Global Compact, and our goals seek to contribute to fulfilling the UN's Sustainable Development Goals. Our ESG efforts focus on putting the health, safety and well-being of our people first; being environmentally responsible and accountable; respecting and fostering human rights; and supporting and dialoging with the communities where we operate.

Governance

Our Board of Directors oversees our ESG strategy and current material topics. The CNG Committee focuses on governance and supervises our social responsibility plans and policies. The SCP Committee oversees sustainability-related issues, including prioritization of safe and sustainable business practices, environmental, health, safety and social matters, tailings disposal management and governance, and capital projects monitoring. The SCP Committee also established our long-term targets and management's ESG plan.

The Audit Committee engages in ESG matters with a focus on financial reporting and preparedness to meet applicable disclosure requirements, including under the Corporate Sustainability Reporting Directive ("CSRD") and IFRS S1 and S2. The Audit Committee monitors the status of the CSRD implementation timeline, including the European Commission's proposal to defer the reporting obligation for companies in scope of the first wave to fiscal years beginning on or after January 1, 2027, with the first sustainability reports expected to be published in 2028.

ESG Commitments

ESG matters are important to our ability to responsibly develop mineral resources and sustain long-term operations, given the scale of our industrial activities and interaction with local communities and natural ecosystems. We seek to operate in accordance with applicable environmental regulations and internationally recognized industry standards, with a focus on safety performance, tailings and water management, climate change mitigation and adaptation, and community engagement and integrate ESG considerations into our strategic planning and risk-management processes. In 2025, we created an HS&E & ESG Committee under our Management Committee to support the overseeing and advancing of HS&E & ESG-related matters. This committee is responsible for (i) evaluating and monitoring our ESG strategy, (ii) prioritizing ESG-related investments, (iii) defining corporate guidelines, and (iv) monitoring ESG risks and opportunities. Our corporate ESG area was reorganized under one general management leadership, integrating Safety, Health, Environment, and ESG.

In 2025, we conducted a comprehensive materiality review to align our sustainability practices and disclosures with emerging regulatory and reporting requirements, including the CSRD and the IFRS S1 and S2 standards. This work incorporated the concept of double materiality and, in parallel, supported a reassessment of the public ESG targets and commitments we originally established in 2022.

We determined that a recalibration of those 2022 targets was necessary due to three concurrent developments: (i) the divestment of Morro Agudo, which removed a significant asset from our operations and affected the comparability of certain baselines; (ii) the transition of Aripuanã from a project-stage operation to ongoing operations, which enabled us to replace project-based assumptions with observed operating data; and (iii) the increased methodological rigor and disclosure traceability required under CSRD and IFRS S1/S2, which exceeds the level of documentation and consistency applied in our 2022 target-setting process. Accordingly, we reviewed our targets and commitments to enhance methodological consistency, strengthen transparency for investors, and improve alignment between our sustainability commitments, updated baselines, and medium- and long-term operational planning.

As a result of this review, we updated our baseline across three areas: GHG emissions; water consumption in mining; and water consumption in smelting. For GHG emissions, we also revised the target metric from an absolute basis to an intensity-based approach, and the updated GHG baseline underwent independent verification. Accordingly, we recalibrated certain public ESG targets, supported by operational sensitivity analyses and an assessment of technical constraints inherent to mining and smelting activities, under three governing principles:

- (i) technical robustness and data integrity;
- (ii) transparency regarding operational limitations; and
- (iii) long-term sustainability of commitments, ensuring alignment with economic value creation.

For further information on our revised commitments, including the rationale for these changes, as well as expanded discussion of our updated materiality matrix—encompassing a comprehensive analysis of the key differences from the prior framework and the rationale for each update—please refer to our Annual Sustainability Report, expected to be published in April 2026. Our Annual Sustainability Report is not incorporated by reference into this report and should not be considered part of it.

Safety

Health and safety is the main priority in our operations. Our underground and metallurgical operations carry inherent physical, chemical, and psychosocial risks that require active, daily management. Our commitments in this category are:

- Zero fatalities in all operating units (annually); and
- By 2030, position us in the first quartile of the mining industry with regard to the Total Recordable Injury Frequency Rate (“TRIFR”) based on the International Council on Mining and Metals (“ICMM”) benchmarks.

Unfortunately, in 2025 we recorded two fatalities at El Porvenir, following the three fatalities in 2024, at El Porvenir and Cerro Lindo in Peru, and at Vazante in Brazil. In 2025, the fatality was related to a post-seismic rockfall event. In 2024, the fatalities were related to an accident with mobile equipment during underground transport; failure in piping maintenance; and an accident with the conveyor system. The investigation of the five incidents identified a shared root, insufficient verification of critical controls at the point of task execution, particularly during non-routine tasks and shift transitions.

In direct response to those findings, we implemented three structural changes: (i) mandatory independent verification of critical controls before non-routine tasks at all underground operations; (ii) revision of shift transition protocols at the four units where fatal incidents occurred, with independent audit of the revised procedures; and (iii) permanent integration of fatal incident causal patterns into our risk matrix as reference cases for ongoing training and risk assessment.

Our 2025 data reflects material improvement to our injury frequency. Our TRIFR declined from 2.15 in 2023 and 2.36 in 2024, to 1.57 in 2025, approaching the first-quartile threshold of 1.46. This rate is defined as the number of injuries with and without lost time per one million man-hours worked. Our lost-work-time incident rate fell from 0.88 in 2023 and 1.11 in 2024, to 0.84 in 2025. This rate is defined as the number of injuries with lost time per one million man-hours worked. Severity rate in 2025 was 414, compared to 529 in 2024 and 64 in 2023. To calculate the severity rate, we consider the sum of lost, transported and debited days, divided by the total number of man-hours worked times one million. Our calculation reflects the ABNT NBR14280 methodology, which assigns 6,000 debited days per fatality. This methodology reflects the irreversibility of fatal outcomes and should be interpreted alongside frequency data, rather than as a substitute for it. The 2023 severity rate reflects a year with no fatalities and therefore carries no debited days under the ABNT NBR14280 methodology; the change to 529 in 2024 is attributable to the three fatal incidents recorded that year. We believe making direct year-over-year comparison of severity rates is informative only when read alongside fatality counts.

To support this improved trajectory, we continued implementing our G-MIRM project across all operating units, delivering 56,394 hours of training to 12,918 people in 2025. We deepened academic partnerships with the University of Sao Paulo in Brazil and the Sustainable Mining Institute - International Center of Excellence, University of Queensland, in Peru. In February 2025, we held our Safety Leadership Meeting in São Paulo to define annual safety priorities, featuring presentations from our CEO and vice-presidents, with more than 600 leaders completing the Humanized Leadership module.

Emissions Reduction

Mining and metals production are inherently energy-intensive activities, and our GHG emissions reflect this operational reality, as scope 1 emissions derive primarily from fuel combustion in mobile equipment and industrial process activities.

In 2022, we committed to (i) a 20% absolute reduction in Scope 1 emissions by 2030 against a 252.6 ktCO₂e baseline, (ii) carbon neutrality by 2040, and (iii) net-zero emissions by 2050. In 2025, we revised these commitments, adopting a revised 276.3 ktCO₂e baseline and replacing our absolute reduction target with an emissions intensity target. We also added a commitment to maintain our electricity matrix almost entirely based on renewable sources, and replaced our 2040 and 2050 long-term outcome targets with intermediate process milestones, which will identify operational and strategic responses to physical and transition climate risks, establishing the analytical foundation for restoring long-term outcome targets, in response to Brazil's enactment of Law No. 15,052, which establishes a national emissions trading system with carbon credit trading mechanisms expected by 2030 and which we intend to incorporate into our long-term target-setting framework. Our new commitments as of 2025 are:

- 10% reduction in Scope 1 emissions intensity per tonne of zinc (tCO₂e/tZn) by 2030;
- Maintain Nexa's electricity matrix almost entirely based on renewable sources by 2030;
- Develop a Climate Change Adaptation Plan by 2030; and
- Define, until 2035 a carbon neutrality roadmap.

As of 2025, our Scope 1 emissions totaled 210.7 ktCO₂e, a 7.1% decrease versus 2024 and a 23.7% decrease versus our updated 2020 baseline, while our emissions intensity stood at 0.37 tCO₂e/tZn, reflecting a 6.6% compared to 2024, and a 20.8% reduction against the same baseline. In June 2025, we signed a sector-wide memorandum of understanding with eight other mining companies to eliminate CO₂ emissions and received Gold Seal certification from Fundação Getúlio Vargas under the Brazilian GHG Protocol Program for the rigor of our carbon accounting and disclosure standards.

Our electrical energy supply has remained predominantly renewable, with renewable sources accounting for 98.4%, while our life-cycle carbon footprint for zinc production ranks among the lowest reported in the industry, as verified against International Zinc Association ("IZA") data by an independent third party.

Water usage and disposal

Water management is a material operational and social risk across our portfolio, with exposure concentrated at Cerro Lindo in Peru and Aripuanã in Brazil. Our commitment is to have a 10% reduction in specific water consumption at both mining and smelting operations by 2030. In 2025, we revised the baselines underpinning these targets to reflect the divestment of Morro Agudo and the full inclusion of Aripuanã's operational data.

Mining Operations

- Our revised 2030 target is 1.93 m³/ton of ROM, measured against an updated 2024 baseline of 2.26 m³/ton of ROM. Our previous target was set against a 2021 baseline of 1.68 m³/ton of ROM.

In 2025, specific water consumption improved to 2.01 m³/ton of ROM, compared to 2.26 m³/ton of ROM in 2024, and our water recirculation rate was 83.5%, compared to 84.2% in 2024 and 82.5% in 2023. Active investments include a wastewater treatment facility in development at Aripuanã, where construction is expected to begin in the first half of 2026, directly targeting the gap between current performance and our 2030 target.

Smelting Operations

- Our revised 2030 target is 18.09 m³/ton of cathode zinc, measured against an updated 2023 baseline of 20.10 m³/ton of cathode zinc. We revised the base production unit to cathode zinc to better reflect core operational efficiency. Our previous target was set against a 2021 baseline referenced against total metal output.

In 2025, smelting consumption was 20.48 m³/ton of cathode zinc, compared to 19.66 m³/ton of cathode zinc in 2024. Active investments include a water efficiency and effluent reuse project at Cajamarquilla, which increases the volume of treated water reused within the smelting cycle, and an industrial wastewater treatment plant under construction at Juiz de Fora, with completion expected in 2026.

Materiality Matrix

In 2025, we conducted our first comprehensive revision of our materiality matrix since 2023, driven by the adoption of CSRD and IFRS S1/S2 double materiality requirements, updated regulatory benchmarking across Brazil and Peru, and changes to our operating portfolio, including the addition of Aripuanã and the divestment of Morro Agudo. The process involved consultation with 507 stakeholders across both countries.

The revised matrix retains eight priority topics: Dam, Waste and Tailings Management; Climate Change; Natural Capital; Environmental Incident Risk Management; Social Development; Corporate Integrity and Governance; Human Capital; and Health, Safety and Well-being. Key changes include the addition of Environmental Incident Risk Management as a standalone priority topic, the integration of Plurality into Human Capital, and the

Environmental

- **Dam, waste and tailings management.** Tailings management is among the most consequential operational and reputational risks we carry. High volumes of tailings, increasingly stringent regulatory requirements under frameworks such as GISTM, and the irreversible nature of structural failures make this a priority that cannot be managed through compliance alone. Our strategic response has been to systematically migrate away from wet tailings storage toward dry stacking, a method that significantly reduces the volume of water-saturated material storage and the associated failure risk. Cerro Lindo, Vazante, Aripuanã and Três Marias all operate dry stacking systems. In 2025, we filtered an average of 34.7% of tailings material across all operations and through backfill method 26.6%, with only 38.6% disposed in tailings dams. Additionally, notable results were achieved at Três Marias, filtering an average of 74.6% of tailings material, a meaningful operational benchmark that we track against GISTM-aligned standards and intend to improve further as capital investment in filtration capacity continues.
- **Climate change.** Our Scope 1 emissions derive mainly from fuel combustion in mobile equipment and industrial process activities. In 2025, our electrical energy supply was 98.4% renewable, primarily hydroelectric, which structurally limits our Scope 2 exposure relative to peers operating on carbon-intensive grids. Transition risks we actively monitor include potential regulatory carbon pricing in Brazil and Peru, carbon-market volatility affecting the economics of offset strategies, and the long-term operational viability of high-emission mobile equipment fleets as decarbonization standards tighten in the mining sector. In 2025, we revised our emissions targets. For a description of these revised commitments and for 2025 performance data, see the Emissions Reduction section above.

- **Natural Capital.** Water availability is a material operational and social risk, particularly at Cerro Lindo, which operates in a water-stressed coastal environment and sources desalinated seawater for operational use, eliminating direct competition with local communities for freshwater. Our target is a 10% reduction in specific water consumption at both mining and smelting operations by 2030, against updated baselines established in 2025. For further detail on our revised targets, 2025 performance data, and active efficiency investments, see the Water Usage and Disposal section above.
- **Environmental Incident Risk Management:** Our operations generate atmospheric emissions, effluents, and solid waste streams that are managed under site-specific environmental control systems. The primary incident risk vectors are unplanned releases of process water or tailings, excess atmospheric emissions during abnormal operations, and dust dispersion from exposed surfaces, particularly during high-rainfall periods in Brazil and dry seasons in Peru. In 2025, we invested US\$32.5 million in environmental management initiatives and incurred US\$22.3 million in environmental operating expenditures. These amounts include spending on environmental compliance, pollution control systems, monitoring programs, and other environmental management activities.

Social

- **Social development.** Our acceptance among local communities is a direct input to operational continuity, particularly in Peru, where proximity to communities and historically contested resource rights require sustained, substantive engagement. In 2025, we invested US\$9.4 million in social initiatives in Peru and US\$1.9 million in Brazil, supporting 169 social projects that benefited more than 6,000 people. Community tensions or conflicts remain a monitored risk. Though to date we have not experienced operational disruptions attributable to community opposition, we actively track early indicators and maintain formal grievance mechanisms at each operating unit.

Governance

- **Corporate Integrity and Governance.** Business conduct practices create risks and opportunities for corporate integrity. Despite continued enhancements to our reporting mechanisms and awareness efforts through our Ethics Line and Compliance training and communications, opportunities remain to strengthen whistleblower protection, including external access and safeguards against retaliation. Political engagement can support sectoral policy development but requires clear governance to prevent misalignment with ESG commitments. Acting responsibly and transparently is one of our core values. We are committed to high standards of ethics and integrity across the entire company, whose principles stated in our Code of Conduct and reflected in our Compliance Program. Our Audit Committee and Board of directors are main agents in promoting the program and ensuring compliance with our Code of Conduct. In 2025, we completed a comprehensive revision of our Code of Conduct, one of the core elements of our Compliance Program. The updated version, which is expected to be approved by the Board of Directors in the upcoming months, was streamlined to enhance clarity and address emerging topics such as AI and cybersecurity. During the year, all employees received training on the Code of Conduct and our Anti-Corruption Policy, covering, among other topics, anti-corruption practices, conflicts of interest, data privacy, and AI. Additionally, we finalized a comprehensive review of our compliance policies, which are also expected to be approved by the Board of Directors in the upcoming months. In addition, we developed practical guidelines to further support employee understanding and application of our standards. We also activated a Cybersecurity Emergency Committee and incorporated AI-related risks into our strategic risk matrix. For further information on our Company's governance, see "Corporate Governance, Management and employees."

- **Human Capital:** Workforce stability, technical capability, and occupational health are material to operational continuity in underground mining and smelting. Our workforce faces distinct risk profiles depending on operational context: shift-intensive underground work, exposure to chemical agents in metallurgical environments, and geographic isolation at remote sites. We manage these risks through occupational health monitoring, structured mental health support via our Employee Assistance Program, and a compensation structure that includes fixed and variable pay linked to both individual performance and ESG outcomes. In 2025, we delivered 203,744 training hours across the organization, 32.8 hours per employee, including mandatory safety training, technical development, and leadership programs. ESG performance targets have been embedded in senior leadership compensation since 2022 and are customized by role for all other employees.
- **Health, safety and well-being.** Underground and metallurgical operations present the most direct risks to worker safety that we manage. In 2025, we recorded two fatal accidents and a TRIFR of 1.57, down from 2.36 in 2024 and approaching the first-quartile ICMM benchmark of 1.46. The zero-fatality commitment was not met in 2024 or 2025. For the full account of safety performance, program investments, and structural corrective actions, see the Safety section above.

Artificial Intelligence

In 2025, we launched the Nex.AI Program to enhance data and artificial intelligence capabilities across the organization, with a focus on operational efficiency, risk management, and data-driven decision-making. The Nex.AI Program is structured around three main pillars: (i) Data, Analytics, and AI Initiatives targeting measurable business outcomes; (ii) Regulatory and Governance of data and AI use; and (iii) Culture and People promoting data literacy and capability building across the workforce.

Our corporate data infrastructure will support these pillars through standardized, quality, and traceable data essential for scalable AI deployment. The main features of the implementation of the Nex.AI program are:

- (i) **Technology Framework.** The program aims to leverage scalable cloud platforms, analytics tools, and proprietary models, ensuring flexibility, scalability, and compliance with cybersecurity and data protection standards;
- (ii) **Governance.** Policies and processes will be in place for data management, model development, and lifecycle management of AI solutions, focusing on quality, accountability, and transparency;
- (iii) **Risk Management.** Through measures such as Responsible AI policies and training, we aim to manage risks related to data privacy and cybersecurity;
- (iv) **Future Actions.** We will continue to expand AI policies, capabilities, prioritizing disciplined and incremental adoption to support operational resilience, efficiency, and long-term value creation.

REGULATORY MATTERS

We are subject to a wide range of governmental regulations in the jurisdictions in which we operate. The following discussion summarizes the kinds of regulations that have the most significant impact on our operations.

Brazilian regulatory framework

Mining rights and regulation of mining activities

Mining activities in Brazil are governed by the Brazilian Federal Constitution of 1988, the Brazilian Mining Code and other decrees, laws, ordinances, and regulations, such as Decree nº 9.406/2018 which renewed the regulation of the Mining Code. These regulations impose several obligations on mining companies, including rules for exploration and exploitation of mineral deposits, health and safety of personnel and local communities where mines are located, and environmental protection and remediation measures. The MME and ANM regulate mining activities in Brazil, whereas the ANM is responsible for monitoring, analyzing, and promoting the performance of the Brazilian mineral economy, granting rights related to the exploration and exploitation of mineral resources and mineral reserves and other related activities in Brazil.

Under the Brazilian Federal Constitution, surface property rights are distinct from mineral rights, which belong exclusively to the Brazilian Federal Government, the sole entity responsible for governing mineral exploration and mining activity in Brazil.

Summary of Brazilian concessions

In Brazil, we hold 74 exploration authorizations, 10 mining concessions, 5 mining concession applications, 2 rights to apply for mining concession and 9 exploration authorization applications, which we broadly and collectively refer herein to as mineral rights, that cover a total area of 405,645.7 hectares, of which: (i) 343,738.2 hectares, or 84.8%, are exploration authorizations, (ii) 5,706.1 hectares, or 1.4%, are mining concessions, (iii) 1,641.8 hectares, or 0.4%, are mining concession applications, (iv) 1,344.5 hectares, or 0.3%, are rights to apply for mining concession and (v) 53,215.1 hectares, or 13.1%, remain as exploration authorization applications and are presently under initial geological reconnaissance.

The term of each of the mining concessions mentioned above is valid for the life of mine, evaluated pursuant to the specific mining project. All our mineral rights in Brazil are in good standing. Maintaining our mineral rights in Brazil in good standing involves: (i) maintaining production on the mineral concessions and/or satisfying the ANM's requirements if production has been suspended; (ii) developing exploration work and paying an annual property fee for the exploration authorizations; and (iii) complying with all the legal requirements, including not only as to mining, but also as to environmental and real estate requirements applicable to claiming a property with respect to exploration authorization applications.

Failure to pay the applicable fees for any given year will result in us forfeiting our mineral rights. As of December 31, 2025, we have paid all applicable royalties, taxes, and fees on our mineral rights. Our mineral rights in Brazil that are not currently undergoing exploration, or production will not expire unless we fail to timely pay the applicable royalties, taxes, and fees, as well as the applicable penalties and meet the ANM's and environmental authorities' requirements, as applicable. See "Information on the Company—Regulatory Matters—Brazilian regulatory framework—Royalties and other taxes on mining activities."

The following table summarizes our mineral rights in Brazil.

	Mine/Project	Mineral Rights	
		Titles	Area (hectares)
Mines	Vazante	36	13,453.4
	Aripuanã	12	36,854.0
Prospective Projects	Various	52	355,338.3
Total		100	405,645.7

Exploration authorization and mining concession regimes

Exploration authorizations grant the rights to conduct exploration activities for a period from one to four years, which may be renewable for an additional period (and potentially additional renewals on a case-by-case basis). Exploration authorizations are granted on a first come, first serve basis, and the ANM will only grant one exploration authorization for any given area. Mining concessions are currently valid until the mineral deposit reserves are exhausted. Mining concessions may be transferred to eligible third parties with the ANM's prior approval, pursuant to applicable legislation.

Decommissioning

In Brazil, enterprises dedicated to the exploitation of mineral resources shall submit a recovery plan to receive a mining concession. Accordingly, the environmental recovery of the degraded areas caused by mineral exploitation activities shall have been planned since their conception. According to Minas Gerais law, entrepreneurs must also submit to the environmental agency an environmental plan for closing two years before the planned mine closing. According to federal law, all mine closure plans must be approved by the ANM as well as the environmental licensing agency. We have been complying with legal requirements regarding mine closure plans and continue to comply with all regulatory and environmental requirements.

Royalties and other taxes on mining activities

Revenues from mining activities are subject to the Brazilian mining royalty, *Compensação Financeira pela Exploração de Recursos Minerais* ("CFEM"), which is paid to the ANM. CFEM is a monthly royalty based on gross revenue, excluding taxes on the sale of minerals. When the produced minerals are used in its internal industrial processes, CFEM is determined based on the costs incurred to produce them. CFEM is determined by a reference price of the respective mineral to be defined by the ANM. The applicable rate varies according to the mineral product (currently 2.0% for zinc, lead, copper, and silver). In addition, we are required to make certain fee payments for exploration authorizations known as the Annual Fee per Hectare (*Taxa I por Hectare*). There is also a monthly inspection fee related to the transfer and commercialization of certain minerals in some Brazilian states, such as Minas Gerais and Mato Grosso, where the concessions are located.

Since the State of Minas Gerais granted a tax benefit suspending VAT on the commercialization of metallic zinc by companies incorporated in the State, regulatory scrutiny of operations in the State has increased. We have provided all the requested information by the tax authorities in this process of reviewing the commercialization of our products throughout the zinc value chain. In case the buyer does not comply with the VAT deferred regulation, we may be subject to (i) subsidiary liability (pursuant to art. 57, IN, RICMS/MG); or (ii) joint liability (pursuant to art. 124, I of National Tax Code and art. 56, XI, RICMS/MG). For additional information, see "Risk Factors—Changes in tax laws, and any related tax agreements we have entered into or may enter into with local governments, may increase our tax burden and, as a result, could adversely affect our business, financial position and results of operations."

The states of Mato Grosso and Minas Gerais, among others in Brazil, approved a tax on mining operations collected according to the nature of the extracted ore.

Environmental regulations

We are subject to several environmental regulations related to, among other matters, water resources, caves, waste management, contaminated areas, areas of permanent preservation, conservation of protected areas and environmental recovery policies. For more information on environmental recovery policies that we are subject to, see "Information on the Company—Mining Operations—Tailings disposal." Specifically, we have taken the following actions regarding contaminated areas and areas of permanent preservation:

Contaminated areas. We have conducted environmental assessments on our operation units to verify the existence of contamination in groundwater and soil. The assessments prepared for the Brazilian units identified deviations in soil, groundwater, and surface water quality standards. We are committed to improving the management of areas identified as contaminated. For most of the identified deviations, we developed a robust remediation plan in order to comply with all legal requirements. We recorded provisions in our consolidated financial statements in respect of any potential liabilities associated with these deviations from applicable standards. See "Operating and Financial Review and Prospects—Overview—Key factors affecting our business and results of operations—Environmental expenses." We continue to conduct similar assessments with respect to the Peruvian operating units.

Areas of permanent preservation. Permanent Preservation Areas (*Áreas de Preservação Permanente*, or APP) are areas that, because of their importance for preserving water resources, geological stability, biodiversity protection and erosion control, receive special legal protection. The existence of such protected areas within a property, whether in urban or rural locations, may cause restrictions to the performance of the intended activities. Interference or removal of APP vegetation is only allowed in cases of public utility (such as mining activities), social interest, or low environmental impact, if there is a prior authorization from the applicable environmental authorities. Most of our properties in the state of Minas Gerais interfere in APPs in some way, however all are authorized by environmental agencies. For such properties, we have either established an advanced ongoing regularization process or have started the process for other properties. The regularization process includes the implementation of rigid controls over the properties.

Tailings dams. In December 2023, the State of Minas Gerais published State Decree No. 48,747/2023, regulating the environmental recovery policies that companies are required to have in place in the event of an accident or deactivation of a dam. Under State Decree No. 48,747/2023, any dams that meet the requirements established under the 2019 Dam Safety Policy law must have an environmental guarantee policy in place. During the second quarter of 2024, the Decree was amended to modify, among other provisions, the deadline for mining companies to indicate the type(s) of guarantee method(s) they would use. We complied with this requirement in 2024. The amendment also established that mining companies must have presented 50% of the chosen guarantees by the end of 2024. The guarantee can be made by one of the following methods: (i) cash deposit; (ii) CDB; (iii) bank guarantee; or (iv) guarantee insurance. On December 27, 2024, we filed the environmental recovery proposal, contracting for 50% of the guarantee. As of December 31, 2025, we estimated that US\$22.3 million would be required to cover the applicable dams under this policy. We have provided US\$11.1 million in bank guarantees covering all of our structures in Minas Gerais, representing 50% of the total required guarantee. A new State Decree, enacted on December 31, 2024, established that the timeline for the remaining installments will only begin after the approval of the proposal by the environmental agency. We are still awaiting such approval before proceeding with the remaining obligations. For more information, see “Information on the Company—Tailings Disposal—Regulatory framework.”

In 2024, a new resolution was published by the State of Minas Gerais (GMG Resolution No. 83, of the Civil Defense), in Brazil, which establishes the minimum requirements for the preparation, analysis and approval of the second section of the Dam Emergency Action Plan (*PAE*), following the powers of the Civil Defense of Minas Gerais, according to State Decree No. 48,078, of November 2020. This resolution aims to standardize and ensure the effectiveness of emergency measures in dams. Among the main new requirements are the implementation of geotechnical monitoring rooms, which operate 24 hours a day, 7 days a week, in addition to changes in the sounding of alert sirens, which were implemented in the units of Três Marias, Juiz de Fora and Vazante. These new requirements reflect the industry’s, and therefore our focus on improvement of safety and monitoring structures, increasing the efficiency of emergency prevention and response actions at dams. See “Information on the Company—Mining Operations—Tailings disposal” and Notes 27 and 32(b) of our consolidated financial statements.

In 2025, the ANM issued Resolution No. 220/2025, which establishes a new, consolidated regulatory framework for tailings dam safety with stricter oversight, monitoring and emergency requirements, while maintaining the ban on upstream dams. Most provisions take effect in August 2027 and may increase compliance costs due to additional technical and operational requirements. For more information, see “Information on the Company—Tailings Disposal—Regulatory framework.”

Environmental licenses

The Brazilian Federal Constitution grants federal, state and municipal governments the authority to issue environmental protection laws and to publish regulations based on those laws. While the Brazilian federal government has authority to issue environmental regulations setting general standards for environmental protection, state governments have the authority to issue stricter environmental regulations. Municipal governments may only issue regulations regarding matters of local interest or as a supplement to federal or state laws.

Under Brazilian law, the construction, installation, expansion and operation of any establishment or activity that uses environmental resources, or is deemed to be actually or potentially polluting, as well as those capable of causing any kind of environmental degradation, is subject to a prior licensing process.

Notably, in addition to the general guidelines set by the Brazilian federal government, each state is legally competent to promulgate specific regulations governing environmental licensing procedures under its jurisdiction. Depending on the level of environmental impact caused by the exploration/exploitation activities, the procedures for obtaining an environmental license may require assessment of the environmental impact and public hearings, which may considerably increase the complexity and duration of the licensing process and expose the exploration/exploitation activities to potential legal claims.

In August 2025, Brazil enacted the General Environmental Licensing Law (Federal Law No. 15,090/2025), establishing a unified national framework for environmental licensing procedures. The law seeks to align legislation and regulation across federal, state, and municipal authorities within the National Environmental System (“Sisnama”), strengthening legal certainty, transparency, and efficiency in permitting processes by defining guiding principles for licensing, including public participation, disclosure of environmental studies, streamlined procedures, and a strengthened focus on environmental risk assessment and prevention.

Environmental liability

Environmental liability may be determined by civil, administrative and criminal courts, with the application of administrative and criminal sanctions, in addition to the obligation to redress the damages caused. All our operating units, except for Cerro Lindo and Aripuanã, have obtained certification under the ISO 14001 standard.

Regulation of other activities

In addition to mining and environmental regulation, we must abide by regulations related to, among other things, the use of explosives and fuel storage. We are also subject to more general legislation on labor, occupational health and safety, and support of communities near mines, among other matters.

Peruvian regulatory framework

Mining rights and regulation of mining activities

In Peru, private landowners own surface land, while the government retains ownership of all subsurface land and mineral resources, with the Peruvian Constitution establishing that mineral resources are the property of the Nation and the State is sovereign in their administration. The Peruvian government may establish by law the conditions for granting exploitation rights and titles to individuals and legal entities. The General Mining Law (*Texto Único Ordenado de la Ley General de Minería*) is the primary legislation governing metallic and non-metallic mining activities in Peru and is complemented by regulations approved by the Ministry of Energy and Mines (MINEM), which through its regulatory body, the Dirección General de Minería (“DGM”), proposes and evaluates mining sector regulations and authorizes the commencement of mining activities. Mining activities such as exploration, exploitation, mining labor, beneficiation, and mining transport are conducted exclusively through concessions granted by the Peruvian State via the *Instituto Geológico, Minero y Metalúrgico*, though concession holders must separately purchase surface land, reach temporary use agreements with landowners, or obtain legal easements from MINEM to develop exploration or exploitation works.

Mining concessions are irrevocable and have an indefinite term, provided holders comply with obligations including payment of annual validity fees per hectare and achievement of minimum annual production targets, with failure to pay fees or production penalties for two consecutive years resulting in cancellation. Concession holders must also satisfy minimum annual production thresholds within a specified period—currently thirty years beginning the year after grant for concessions granted after October 2008, and thirty years beginning January 2009, for earlier concessions—or face potential cancellation. In September 2024, Congress began reviewing an amendment to the General Mining Law that would increase annual validity fees from US\$3 to US\$5 per hectare and reduce the term to satisfy minimum annual production from thirty years to twenty years, which, if adopted, could have a material impact on our business and projects. As of the date of this annual report, the amendment has not been adopted.

Additionally, on June 26, 2024, Supreme Decree No. 011-2024-EM was enacted, allowing any holder of a beneficiation concession (*concesión de beneficio*) to have a tolerance margin of up to 10% additional to the authorized daily installed capacity of mineral processing, without the need to apply to the corresponding beneficiation concession modification procedure. It should be noted that the additional processing capacity must not result from the installation of new equipment, new auxiliary facilities, repowering, or modification of the operating parameters of the equipment, process improvements, among other changes that require the prior approval of the amendment of the beneficiation concession.

Summary of Peruvian concessions

In Peru, we hold, through Nexa Peru and its subsidiaries, 477 mining and exploration concessions, which cover a total area of 178,261.1 hectares and 4 mineral claims totaling 1,500.0 hectares. Of our mines in Peru, the Atacocha mine property includes 147 mining concessions that cover an area of 2,872.5 hectares and one beneficiation concession, the El Porvenir mine property includes 25 mining concessions that cover an area of 4,846.7 hectares and one beneficiation concession, the Cerro Lindo mine has 68 mining concessions that cover an area of 44,171.3 hectares and one beneficiation concession. In addition, we have 95 mineral rights concessions for greenfield projects in Peru that cover a total area of 34,518.3 hectares. Our prospective projects include 42 mining concessions that cover an area of 91,852.3 hectares.

All our mining and processing concessions in Peru are in good standing. Maintaining our concessions in Peru in good standing involves, among other requirements, (i) paying the annual validity fee and production penalties (when applicable) for mining concessions with no production or with no effective exploration or (ii) paying the annual validity fee and complying with minimum production or investment requirements established in mining law.

Failure to pay such validity fees or production penalties (when applicable) for two consecutive years results in the cancellation of the respective mining concessions or beneficiation concessions granted by the Peruvian government. Our mining and beneficiation concessions will not expire unless we do not timely comply in paying these fees or with the minimum production or investment required by law in respect of such rights and depending on the applicable regime.

The following table summarizes our mining concessions in Peru:

	Mine/Project	Concessions	
		Titles	Area (hectares)
Mines	Atacocha	147	2,872.5
	El Porvenir	25	4,846.7
	Cerro Lindo	68	44,171.3
	Florida Canyon Zinc	11	8,700.0
Greenfield Projects	Hilarión	48	9,374.0
	Magistral	36	16,444.3
Prospective Projects	Various	147	91,852.3
Total		477	178,261.1

Exploration and authorization and mining concession regimes

Mining concessions are granted for an indefinite term, though dependent on the fulfillment of certain legal obligations. The commencement and re-commencement of exploration and/or exploitation mining activities are subject to the prior obtainment of an authorization for the commencement of activities before the DGM. Such authorizations could be subject to a prior consultation procedure with indigenous communities, conducted by MINEM, if mining activities were to impact said communities' collective rights and territories as determined by the Ministry of Culture.

As of December 31, 2025, we primarily owned metallic mining concessions with respect to zinc, copper, silver and lead. Our mining rights and concessions are in full force and effect under applicable Peruvian laws. We believe that we comply in all material respects with the terms and requirements applicable to our mining rights and concessions.

Decommissioning

Title holders of mining exploitation and beneficiation activities, and, in some cases, of exploration activities require the prior approval of a mine closure plan, which includes the environmental rehabilitation, restoration and remediation measures that shall be executed along with the mining operations and until its closure. Once the corresponding mine closure plan is approved, a guarantee (usually a bank performance bond) must be granted in favor of the MINEM to back up the environmental costs associated with the execution of the mine closure plan. Mining exploitation and beneficiation activities may only be initiated once the mine closure plan is approved, and the corresponding environmental guarantee is duly submitted before the competent authority. The referred guarantee is renewed yearly. If the titleholder of an ongoing mining operation fails to comply with this obligation, the MINEM is entitled to suspend the execution of such mining operation. In 2025, Supreme Decree No. 006-2025-EM amended the mine closure regulation to implement changes introduced by Law No. 31347, strengthening technical and financial closure requirements. Key amendments include: (i) a requirement for detailed engineering in closure plans, subject to verification by the supervisory authority; (ii) extension of financial guarantees to cover major components during progressive closure; (iii) mandatory revision of closure plans when environmental impact studies are modified; and (iv) enhanced monitoring powers for environmental oversight authorities. Additional provisions for enforcing the detailed engineering requirement and financial guarantees remain pending. These changes align Peru's regulatory framework with international best practices and enhance environmental and operational safety throughout the mine closure process. For additional information, see "Risk Factors—Political, economic, social, and regulatory risks—Our mineral rights may be terminated or not renewed by governmental authorities."

Royalties and other taxes on mining activities

Holders of mining concessions are required to pay a mining royalty (*regalía minera*) to the Peruvian government for the exploitation of metallic and non-metallic resources. The amount of the royalty is payable on a quarterly basis and is equal to the greater of (i) an amount determined in accordance with a statutory scale of marginal tax rates from 1.0% to 12.0% based on a company operating income margin and applied to that company's operating income and (ii) 1.0% of a company's sales, in each case during the applicable quarter. We are also required to pay annual fees (*derecho de vigencia*) for our mining concessions and, in some cases, penalties for not timely reaching the minimum production levels or the minimum annual investment set by Peruvian mining law.

Holders of mining concessions are also required to pay a Special Mining Tax (*Impuesto Especial a la Minería*) to the Peruvian government. The Special Mining Tax is payable on a quarterly basis and is calculated based on the operating income derived exclusively from the sale of metallic resources, with marginal rates between 2.0% and 8.4%.

Holders of mining concessions that are subject to administrative legal stability (in force as of the effective date) under an Agreement of Guarantees and Measures for Investment Protection entered into with the MINEM shall enter into an agreement with the Peruvian government for the payment of a Special Charge on Mining (*Gravamen Especial a la Minería*, or "GEM"). The GEM is payable on a quarterly basis and is calculated based on the operating income derived exclusively from the sale of metallic resources, with marginal rates between 4.00% and 13.12%.

Municipal permits

Under the General Mining Law, all Peruvian mines located in rural areas such as Cerro Lindo, Atacocha, El Porvenir and Chapi (which was sold on December 23, 2024) are exempted from paying municipal taxes and obtaining municipal permits.

Environmental regulations

The development of economic activities in Peruvian territory, such as those related to the mining industry, are subject to a broad range of general environmental laws and regulations related to the generation, storage, handling, use, disposal and transportation of hazardous and controlled materials; the emission and discharge of hazardous materials into the ground, air or water; and the protection of migratory birds and endangered and threatened species and plants. These regulations also set environmental quality standards for noise, water, air and soil, which shall be considered for the preparation, assessment, and approval of the corresponding environmental management instrument, granted by the National Service for Environmental Certification of Sustainable Investments ("SENACE") for exploitation and beneficiation activities, or the MINEM for exploration activities.

The Ministry of Environment and other administrative entities, such as the *Dirección General de Asuntos Ambientales Mineros* (“DGAAM”), have the authority to enact regulations related to environmental matters. Additionally, the Environmental Supervision Agency (*Organismo de Evaluación y Fiscalización Ambiental*, or “OEFA”), is the competent authority in charge of supervising and imposing sanctions on mining companies upon non-compliance of applicable environmental legislation. In addition, there are other competent governmental agencies or authorities on specific environmental matters such as water, forestry resources, protected natural areas and aquatic environment that regulate, authorize, and supervise environmental compliance and liability.

On November 23, 2023, Supreme Decree No. 028-2023-EM was enacted, amending the Regulations for Environmental Protection in Mining Exploration Activities in order to allow the simultaneous processing of various enabling permits related to water resources, such as water use authorizations or discharge permits, alongside the evaluation procedure for the respective environmental management instrument. This is expected to result in expedited processing of relevant permits for exploration projects. Additionally, on November 25, 2023, Supreme Decree No. 031-2023-EM was enacted, approving the law that specifies the mandatory environmental protection measures in the transportation and final disposal of tailings and the corresponding environmental management instruments for mining operations.

The Peruvian Congress initiated a revision process of a law to prohibit economic activities in the headwaters of basins, which are considered vulnerable areas that require protection and mitigation measures. However, the revision process lost momentum and has shown no sign of progress to date. If adopted, this law could have a material impact on our projects in case any new projects were to occur in headwaters of basins.

In December 2023, the Peruvian government published Supreme Decree No. 034-2023-EM, which amended the Occupational Health and Safety in Mining regulation by adding a chapter on management and safety requirements for waste and tailings disposal facilities. Among other requirements, the Decree addresses the installation of emergency warning systems for dams. We are currently adapting our operations to comply with the new requirements of the decree.

In addition, on May 3, 2024, Supreme Decree No. 004-2024-MINAM was enacted, amending Article 51 of the Regulation of the Law of the National Environmental Impact Assessment System, by simplifying and streamlining the environmental impact assessment processes, focusing on the reception and management of technical opinions by other authorities. On August 8, 2024, Law 32106 was passed. This law regulates the declaration of an environmental emergency over a specific geographic area in the event of a sudden and significant occurrence that affects environmental quality or ecosystems. The law states that the applicable environmental authority, together with the responsible party, will have to implement actions to contain, control, and reduce the environmental impact.

On March 19, 2025, Supreme Decree No. 006-2025-EM amended the Regulation for Mine Closure, introducing several key changes. Financial guarantees must now cover progressive closure measures for major components—including tailings storage facilities, waste rock dumps, leach pads, open pits, and underground workings—in addition to final and post-closure activities. Mining titleholders have three years to update their guaranteed budgets and must provide additional guarantees if required by the enforcement authority. The amendment establishes joint and several liability for mining titleholders, directors, and/or majority shareholders for actions or omissions that breach the Mine Closure Plan and cause actual environmental harm. Additionally, mining titleholders responsible for abandoned units or non-compliance causing environmental damage are prohibited for five years from acquiring new mining rights or obtaining authorizations for exploration, exploitation, or beneficiation activities.

Additionally, on July 24, 2025, Resolution No. 00019-2025-OEFA/CD was published, introducing several favorable changes to the enforcement framework. Key reforms include: (i) elimination of the sanctioning provision that discouraged voluntary remediation and did not exempt administrative liability, establishing that timely correction before the start of the sanctioning procedure is sufficient, even for non-compliances previously considered non-remediable; (ii) creation of commitment agreements allowing supervised parties to undertake specific corrective actions in lieu of receiving administrative measures; and (iii) revision of the “Manifestly Evident Improvement” definition so that compliance is measured by the achievement of environmental objectives, permitting measures that provide higher levels of environmental protection provided they do not generate new significant negative impacts.

Environmental permit regularization processes

Supreme Decree 040-2014-EM provided special procedures allowing us to acquire environmental and operational permits for mining operations and to regularize the mining of certain areas within the Cerro Lindo and Atacocha mines. While these regularization procedures were successfully completed, compliance with these special procedures did not exempt us from administrative sanctions by OEFA for the implementation of certain mining components without obtaining the corresponding environmental permits. Similarly, Supreme Decree 013-2019-EM allowed for further regularization procedures to be conducted, which also allowed us to acquire environmental and operational permits for infrastructure and mining areas in the Cerro Lindo, Atacocha, El Porvenir and Chapi (which was sold on December 23, 2024) mines. The regularization procedure for Cerro Lindo was denied due to an unfavorable opinion by the National Water Authority, yet proper procedure was not followed for which judicial measures to appeal the denial were taken and are currently in course. Atacocha's procedure was conducted to completion while the El Porvenir regularization procedure is still underway. The Chapi mine (which was sold on December 23, 2024) procedure did not fall through and the areas subject to the procedure must follow the standard mine closure regulations.

Supreme Decree 014-2024-EM allowed a new opportunity for regularization for environmental certifications to take place, for which an initial communication to MINEM and OEFA had to be made by December 13, 2024. The Cerro Lindo, Atacocha, El Porvenir, Chapi (which was sold on December 23, 2024) and Cajamarquilla operations invoked said procedure on time and presented the corresponding technical information by September 2025. All cases are pending evaluation by MINEM. Likewise, OEFA may impose sanctions for environmental non-compliance.

Regulation of other activities

In addition to mining and environmental regulation, we must abide by regulations related to, among other activities, the use of explosives, fuel storage, controlled substances, telecommunications, archeological remains, and energy concessions. We are also subject to more general legislation on labor, occupational health and safety, and indigenous communities, among others. With respect to labor regulations, in July 2023, a 2022 law establishing a series of measures to eliminate the outsourcing of a company's "core business" activities was deemed to be unconstitutional because it was determined to be an unenforceable bureaucratic barrier by the National Institute for the INDECOPI. In addition, we initiated a lawsuit seeking to declare the unconstitutionality of this law. However, in October 2025 the Constitutional Court determined that the prohibition to outsource core activities is constitutional. As a result, chances of obtaining a favorable outcome in the aforementioned lawsuit are remote. In parallel, there is a class action initiated by SEDAPAL challenging the aforementioned law, which that is pending a final judgment on appeal. We are not a party to this class action, but its outcome may impact the legal criteria applicable to our situation. The complaint filed at INDECOPI is still in effect in our favor, and we continue to monitor any developments.

For additional information, see "Risk Factors—Operational risks—We may be liable for certain payments to individuals employed by third-party contractors" and "Risk Factors—Operational risks—The nature of our business includes risks related to litigation and administrative proceedings that could materially and adversely affect our business and financial performance in the event of unfavorable rulings."

Regarding occupational health and safety regulations, on December 2023, Supreme Decree No. 034-2023-EM was enacted, amending the Regulation of Occupational Safety and Health in Mining approved by Supreme Decree No. 024-2016-EM. Among the key modifications made are the inclusion of parameters for the development of geo-mechanical, hydrogeological, seismicity, and stability studies; the elaboration of a monthly report on geotechnical supervision of tailings deposits, pads, leaching heaps, and waste rock deposits; changes regarding which entity should receive the preliminary report on hazardous incidents or fatal accidents; as well as the addition of a chapter on tailings deposit management which includes parameters for the development of a geotechnical monitoring and control program, a risk analysis and assessment, a management plan, among others. We began adapting and complying with the new obligations incorporated by the amendment in 2024.

In addition, in September 2024, Legislative Decree No. 1680, which establishes the “Archaeological Surface Diagnosis” was enacted. The decree allows for the certification of the non-existence of archaeological remains through an archaeologist duly authorized and registered with the Ministry of Culture, without the need to process the approval of a Certificate of Non-Existence of Archaeological Remains (“CIRA”).

II. OPERATING AND FINANCIAL REVIEW AND PROSPECTS

OVERVIEW

Executive summary

Below are our highlights in 2025:

- **Operational performance.** In 2025, we reported net income of US\$223.1 million compared to a net loss of US\$187.4 million in 2024, while advancing the operational milestones that positions us for volume recovery in 2026. Net revenues reached US\$3,002.1 million, an 8.5% increase year-over-year, mainly driven by higher metal prices that offset lower smelting sales volumes. The improvement in net income reflected higher gross profit, a non-cash impairment reversal of US\$91.7 million and increased foreign exchange gains. See “Overview—Results of Operations—Net revenues” for more information.
- **Production and sales.** In 2025, mining production decreased 4.6% on a zinc equivalent basis, from 705.1 thousand tonnes in 2024 to 672.4 thousand tonnes in 2025, mainly attributed to lower volumes across all metals, except gold. Our total metal sales (metallic zinc and zinc oxide) decreased 4.1% from 591.3 thousand tonnes in 2024 to 567.0 thousand tonnes in 2025.
- **Aripuanã.** Following completion of the ramp-up phase in June 2024 and consolidation of operational performance through 2025, Aripuanã reached 76% average capacity utilization in the fourth quarter, with plant downtime reduced by approximately 50% compared to the first half of 2025. A fourth tailings filter was delivered to the site in November 2025, and installation is expected in April 2026, and commissioning in the first half of 2026. Full operational capacity is expected in the second half of 2026.
- **CAPEX.** Our capital expenditures totaled US\$351.9 million in 2025, a 27.1% increase compared to 2024, mainly reflecting investments related to Phase I of the Cerro Pasco Integration Project, focused on the tailings pumping system, and the appreciation of the Brazilian real against the U.S. dollar. Sustaining investments, including those in tailings storage facilities, accounted for 94.9% of total capital expenditures.
- **Exploration activities.** In 2025, we continued to prioritize brownfield exploration aiming at extending the life of our current mines, allocating 65.8% of the mineral exploration budget to projects around our operating mines and 34.2% to greenfield initiatives. Total exploration drilling reached 69.8 km in 2025, compared to 63.8 km in 2024.
- **Divestments.** In 2025, we completed the sale of the Otavi Project in Namibia for US\$3.0 million upfront, plus up to US\$7.0 million in contingent payments, while retaining royalty rights. Namibia remains a strategic region for Nexa, supporting the advancement of copper exploration initiatives in the Kalahari Copper Belt.
- **Financial Transactions.** In December 2025, we initiated a revenue hedge strategy for silver and gold through Zero Cost Collar derivatives. This strategy is designed to reduce price exposure at our Peruvian mining operations in 2026 and protect operating margins.

Key factors affecting our business and results of operations

Reporting segments

We operate through two reporting segments, mining, and smelting. Our vertically integrated structure means that in 2025, 100% of our zinc mining production was processed by our own smelters, while our own mines supplied approximately 50.1% of the total zinc raw material consumed (excluding oxide). The balance was sourced from third-party concentrate suppliers. Revenues from the mining segment include intercompany sales to the smelting segment, and costs of the smelting segment include corresponding intercompany purchases; both are calculated on an arm's length basis to evaluate each segment's performance individually and are eliminated in consolidation.

The profitability of our mining segment depends primarily on prevailing world prices for the metals we produce and on our unit cost to produce concentrates. Treatment charges, the processing fees that smelters charge to convert concentrate into refined metal, reduce the net revenue our mining segment realizes on concentrate sales.

The profitability of our smelting segment is less directly exposed to metal price movements, as prices affect both revenue and raw material cost. Smelting margins are instead mainly driven by treatment charges, which impacts the segment's cost to acquire concentrates; the premiums over benchmark metal prices that we realize on our refined products, operating costs and recovery efficiency at our smelters; and revenue from by-products. Additionally, since our smelters generally pay for 85% of the zinc LME price, they capture the value of the residual 15% – referred to in the industry as 'free metal'. Because treatment charges represent a cost to the mining segment and a benefit to the smelting segment, our integrated model naturally offsets treatment charges movements, which explains our consolidated margin profile.

Our segments are reported in accordance with IFRS 8 – Operating Segments, and the information is presented to the Chief Executive Officer, who is our Chief Operating Decision Maker (CODM). Our segment results are derived from the accounting records and are adjusted for reallocations between segments, depreciation and amortization and miscellaneous adjustments, if any, for the period. For more information, see "Operating and Financial Review and Prospects—Results of Operations—Non-IFRS Accounting Standards measures and reconciliation" in this report. See also Note 2 to our consolidated financial statements.

Metal prices

Our financial performance is significantly affected by the market prices of the metals we produce, especially zinc, copper and lead, and to a lesser extent, silver, gold, and other by-products recovered in our smelting operations. Zinc is our primary revenue driver, and movements in the LME zinc price have the most material impact on our consolidated results. Metal prices have historically been subject to significant volatility and are affected by numerous factors beyond our control. The factors that influence pricing, which affect each metal to varying degrees, include global macroeconomic conditions, regional and sector-specific demand trends (particularly in construction, infrastructure, automotive and, increasingly, energy transition applications), levels of mine and smelter supply, inventory dynamics on the LME and other exchanges, the availability and cost of substitutes, and currency exchange rates. Prices can also be affected by shorter-term factors, including shifts in speculative positioning and exchange warehouse flow.

The market prices for zinc, copper and lead are principally referenced to the daily cash seller and settlement price established on the LME. For zinc, LME prices reflect the balance of global supply and demand for both concentrate and metallic zinc. The supply of metallic zinc depends on concentrate availability and secondary feed volumes, and the utilization of global smelting capacity. Copper and lead prices are determined by analogous supply-demand dynamics, though each metal has a distinct demand profile and concentrate market structure.

In addition to metal prices, the treatment charges negotiated between miners and smelters for the processing of concentrates have a material effect on our results, functioning as a cost to the mining segment and a cost offset to the smelting segment. Movements in benchmark treatment charges, which have been notably compressed in recent periods, can influence segment profitability independently of metal price levels.

The table below sets forth the average published market prices for the metals and periods indicated:

Average Market Prices of Base Metals	For the Year Ended December 31,			
	2025		2024	
	(US\$/tonne)	(US¢/lb)	(US\$/tonne)	(US¢/lb)
Zinc (LME)	2,869.66	130.17	2,779.02	126.05
Copper (LME)	9,944.94	451.09	9,146.79	414.89
Lead (LME)	1,963.44	89.06	2,072.67	94.01

Average Market Prices of Precious Metals	For the Year Ended December 31,	
	2025	2024
	(in US\$/oz)	
Silver (LBMA)	40.03	28.27
Gold (Fix)	3,431.54	2,386.20

The key drivers and latest trends of each of the metals that we produce are discussed below.

Zinc

Zinc is essential to the construction, transport, and infrastructure industries, which represent approximately 50%, 21%, and 16% of zinc end-use, respectively, according to Wood Mackenzie. Galvanizing, the application of zinc coatings to protect steel from corrosion, accounts for approximately half of global consumption and positions zinc as an indirect beneficiary of the global buildout of renewable energy infrastructure, including wind towers, solar racking systems and transmission networks that rely on galvanized steel components.

The annual average price of zinc on the LME for the year ended on December 31, 2025, was 3.3% higher compared to the year ended December 31, 2024. Zinc prices fluctuated greatly during the year, shaped by two distinct phases. In the first half of the year, following the U.S. tariff announcements, U.S. dollar strength and uncertainty around global trade policy dragged down zinc prices sharply in early April alongside other base metals. In the second half of the year, U.S. dollar depreciation following interest rate cuts by the Federal Reserve, combined with a strong and sustained depletion of exchange inventories outside China lifted zinc prices. LME zinc inventories fell by 54.1% over the year, from 234,100 tonnes in January to a low of 33,825 tonnes in late November, less than one day of global consumption, and remained below 100,000 tonnes for most of the second half. This inventory constraint outside China, where domestic inventories followed a different pattern, sustained zinc prices above the US\$3,000/t mark for much of the fourth quarter.

On the demand side, global refined zinc consumption reached 13.6 million tonnes, an increase of 1.1% compared to 2024, according to Wood Mackenzie's December 2025 report. China led growth, where government stimulus measures and infrastructure spending supported galvanized steel demand, as well as by gains in India and parts of Europe. However, demand in the United States and certain Asian markets remained low, influenced by tariff-related uncertainty affecting construction and automotive activity, both significant zinc-consuming sectors.

On the supply side, mine production increased 4.7% in 2025 compared with 2024, totaling 12.8 million tonnes, as new and expanded operations, including Kipushi, Ozeroye and Mehdiabad, outperformed market expectations, generating a concentrate surplus of 263 thousand tonnes. Refined zinc production increased 2.6%, driven predominantly by new Chinese smelting capacity, including the expansion at Chehe Nanfang and the start of operations at the Wangyang and Anning smelters, which collectively boosted China's refined output to record levels. However, refined supply growth outside China remained constrained as smelters in several other countries continued to operate below capacity. The Odda smelter expansion in Norway was delayed, and low treatment charges, combined with limited uncontracted concentrate availability, prevented a meaningful rebound in ex-China output. This divergence, surplus refined metal in China alongside physical scarcity in the rest of the world, was the defining structural feature of the zinc market in 2025 and a primary driver of LME price support.

Spot treatment charges for imported concentrates in China recovered from record lows in 2024 and reached US\$110 per tonne in July 2025, but fell sharply to US\$35 per tonne by December 2025, as reported by Wood Mackenzie. Long-term contract treatment charges decreased from US\$165 per tonne in 2024 to US\$80 per tonne in 2025. The decline in treatment charges compressed smelting margins and, combined with limited concentrate availability on the spot market, reinforced the operating constraints on non-Chinese smelters. For integrated producers such as Nexa, the TC environment creates offsetting effects: lower TCs reduce smelting revenue but reflect tighter concentrate markets that support mining margins.

According to Wood Mackenzie's December 2025 report, the global zinc metal market closed 2025 with a surplus of 40 thousand tonnes, with refined production of 13.7 million tonnes narrowly exceeding consumption. However, this global balance masked significant regional imbalances, as the physical availability of metal outside China remained severely constrained throughout the year.

Copper

Copper is used in building construction, power generation and transmission, electronic product manufacturing, and the production of industrial machinery and transportation vehicles. According to Wood Mackenzie, electricity end uses, including electric vehicles, renewable energy systems and grid infrastructure, accounted for a growing share of global copper consumption in 2025, reinforcing copper's role as a structural beneficiary of the energy transition.

The annual average price of copper on the LME for the year ended on December 31, 2025, was 8.7% higher compared to the year ended on December 31, 2024. Prices increased through the first quarter, supported by a weaker U.S. dollar and expectations of Chinese stimulus, before falling sharply in early April alongside other commodities following U.S. tariff announcements. Copper recovered more quickly than most base metals, however, uncertainty over potential U.S. copper import tariffs in 2026 boosted speculative long positions across both LME and COMEX and incentivized physical metal flows into U.S. warehouses. Stronger-than-expected demand led by robust Chinese consumption from electric vehicles, renewables, and appliances, as well as solid Middle Eastern growth, further reinforced the price recovery by eroding already thin stock buffers.

On the supply side, mine production growth remained modest at 0.7% in 2025 as smelters faced maintenance outages, project delays and sharply lower treatment and refining charges, which signaled tightening concentrate markets. Refined production increased 2.1%, constrained by concentrate availability outside China. Consumption, however, grew 4.2%, outpacing supply growth and resulting in a refined market deficit of 203 thousand tonnes, according to Wood Mackenzie's 2025 report.

Lead

Lead is used primarily in lead-acid batteries for starting, lighting, and ignition applications, energy storage systems, and telecommunications backup power, which together account for approximately 85% of global lead consumption. Other end uses include radiation shielding, ammunition, and construction materials. Because lead is predominantly mined as a by-product of zinc, copper, and silver operations rather than as a primary metal, its mine supply is largely determined by production decisions for those metals, making the lead price particularly sensitive to demand-side shifts. The annual average price of lead on the LME for the year ended December 31, 2025, was 5.3% lower than compared to the year-ended December 31, 2024. Prices traded above US\$2,000 per tonne through the first quarter, supported by seasonal restocking and inventory draws in western markets, but fell sharply in April following the broad commodities sell-off triggered by U.S. tariff announcements, reaching a year-low near US\$1,830 per tonne. Prices partially recovered in the second half of 2025 but remained below prior-year levels as surplus conditions weighed on sentiment.

Silver

Silver is both a precious metal and an industrial metal. Its monetary role as a store of value supports price resilience during periods of economic uncertainty, while its physical properties make it essential to a growing range of industrial applications. Industrial fabrication now accounts for approximately 59% of total silver consumption, with solar photovoltaic manufacturing alone representing roughly one-fifth of global demand, up from approximately 5% a decade ago, according to the Silver Institute. Other significant industrial end uses include electronics, electric vehicle components, and brazing alloys, in addition to traditional applications in jewelry and silverware.

The annual average LBMA silver price for the year ended on December 31, 2025, was 41.6% higher compared to the year ended December 31, 2024. Silver prices accelerated sharply in the second half of the year, driven by a convergence of record industrial offtake, renewed investor demand through exchange-traded products, and persistent physical market tightness. Silver prices reached the highest level of the year on December 30, 2025, at US\$74.83 per ounce, which was 116.9% above the highest point of the previous year reached on October 24, 2024. This represented a new all-time nominal high for the LBMA silver price. The global silver market recorded its fifth consecutive annual supply deficit in 2025, with demand continuing to outpace mine production that remained broadly flat at approximately 813-823 million ounces. Approximately 70% of silver is mined as a by-product of copper, lead, and zinc operations, which limits the ability of producers to respond to higher prices by increasing silver-specific output.

Gold

Gold is primarily a monetary and investment asset, with additional demand from jewelry, electronics, and central bank reserve accumulation. The annual average LBMA gold price for the year ended on December 31, 2025, was US\$3,431.54 per ounce, 43.8% higher compared to the year ended on December 31, 2024. Gold prices reached successive all-time highs throughout the year, driven by sustained central bank purchasing, particularly from emerging market institutions seeking to diversify reserves away from the U.S. dollar, as well as strong investor inflows into exchange-traded products amid geopolitical uncertainty and expectations of monetary easing. Like silver, gold produced in our mining operations is recovered as a by-product of our polymetallic ore processing, and its price performance contributed to the favorable precious metals environment that positively impacted our net revenues in 2025.

Production volumes, ore grade and metal mix

Our production volumes, the ore grade from our mines and the mix of metals in our product portfolio affect our business performance. For more details, see “Information on the Company—Mining Operations.” Our zinc, copper lead and silver production decreased by 3.5%, 6.4%, 9.0%, and 6.7%, respectively, while gold production increased by 6.2%, in 2025.

Commercial terms

We sell our concentrates and metallic zinc and zinc oxide products mostly through supply contracts with terms between one and two years, and only a small portion is sold on the spot market. The agreements with our customers include customary international commercial terms, such as cost, insurance and freight, or CIF; free on board, or FOB; free carrier, or FCA; and cost and freight, or CFR; pursuant to Incoterms 2010/2020, as published by the International Chamber of Commerce. For concentrates, revenues are recorded at provisional prices and, typically, an adjustment is made after delivery, based on the pricing terms provided for under the relevant contract.

Sales prices for our products are based on LME and/or LBMA quotations. Concentrates are typically sold at the LME price reference minus a discount (treatment charge for zinc and lead; treatment charge and refining charge for copper). Metallic zinc and zinc oxide are typically sold at the LME quotation averaged during a quotation period, such as the month after shipment, the month prior to shipment or another agreed period, plus a negotiable premium that varies based on quality, shape, origin, and delivery terms, as well as the market where the metal will be sold. In 2025, 49.3% of the total zinc raw material consumption in our smelters was produced by our mines and 50.7% was purchased from third parties or obtained from secondary raw materials (including oxide). We buy zinc concentrates from different suppliers in the market to meet our raw material requirements. We sell all our copper and lead concentrates production to metal producers and international traders, on international market terms.

Our sales of metallic zinc are highly diversified. Our customer base is composed mainly of end users across various industries, including transport, construction, infrastructure, consumer goods, and industrial machinery. In 2025, 81.9% of our total sales were to customers in the continuous galvanizing, general galvanizing, die casting, transformers, and alloy segments, and 18.1% were to international traders. Our ten largest customers represented approximately 52.9% of our total sales volume. Overall, in 2025, we sold to more than 309 customers across 42 different countries.

Free zinc, treatment charges, premiums, and smelter by-products

Smelters operate as processing businesses that generate margins on the concentrates and other feed stocks they process. The price for the underlying metal is largely passed through from the miner supplying the concentrate or the supplier of the secondary feed material to the smelter’s customer. Our smelters use zinc concentrate as feedstock, which is supplied both from our own mines and third-party suppliers. The smelter’s revenue comes from three primary sources (i) the treatment charge reflects a discount applied to the purchase price of concentrates, (ii) free metal, which is the refined metal produced and sold over and above the metal content paid for in purchased concentrates and (iii) any premium on refined products. Additionally, our smelting operations generate revenue from by-products, which include sulfuric acid, silver concentrate, copper cement, copper sulfate, lead concentrate, lead-silver concentrate, and other metallurgical by-products.

Free zinc and treatment charges

Free zinc refers to the difference between the total amount of zinc recovered for sale by the smelter and the zinc content that is paid for in the concentrates. Typically, the industry standard for payable zinc content in concentrates is 85.0% of the total zinc content, multiplied by the LME price of zinc. Any additional zinc recovered beyond this percentage is considered “free zinc.” A smelter’s margin improves as it increases the amount of recoverable metal from zinc.

The TC is a discount per tonne of concentrates, which is determined by negotiation between the seller (a mine or a trading company) and the buyer (a smelter). There are three types of treatment charges: benchmark TC (negotiated annually by major miners and buyers, serving as a market reference), spot TC (determined by short-term market conditions and supply-demand dynamics) or negotiated TC (set in direct agreements between smelters and miners or traders). For our integrated mining and smelter operations in Brazil and Peru, we apply a benchmark TC. For our other purchases of zinc concentrate from third-party miners and trading companies, we apply a negotiated TC.

In order to mitigate volatility, most of our third-party contracts use a three-year average TC, thereby smoothing price fluctuations. In 2025, this reference (based on the average benchmark TC of 2025, 2024 and 2023) was US\$173/t concentrate, down 22.4% from the previous reference of US\$223/t concentrate (based on average benchmark TC of 2024, 2023 and 2022).

The market trend for treatment charges levels reflects the balance between supply and demand for concentrates in the market. When concentrate supply exceeds smelting capacity, treatment charges increase. When concentrate supply is tight relative to smelting capacity, treatment charges decrease. These cyclical dynamics influence both our smelting profitability and the cost of processing third-party concentrates. For information regarding our actual treatment charges, see “Information on the Company—Smelting Operations.”

The following table sets forth, for the periods indicated, the zinc realized Benchmark TC, expressed in dollars per dry metric tonne (“dmt”) of concentrate.

	For the Year Ended December 31,	
	2025	2024
Treatment Charge (in US\$/dmt)	80	165

Source: Wood Mackenzie.

Premiums

Like other smelters, we sell metallic zinc and zinc oxide products at a premium over the base LME price. This premium reflects a combination of several factors, including the smelter’s service in delivering zinc in specific sizes, shapes, or qualities required by customers, as well as transportation costs. Additionally, premiums are influenced by supply and demand conditions in the respective regional markets. Since transportation costs and customer specification preferences vary by region, premiums are shaped more by regional and local market dynamics rather than by global trends.

The following table presents information on premiums for the indicated markets, expressed in U.S. dollars per tonne, for the periods specified.

	For the Year Ended December 31,	
	2025	2024
Rotterdam (in US\$/tonne)	245	200
Singapore (in US\$/tonne)	115	105
United States (in US\$/tonne)	419	386

Source: Wood Mackenzie.

The following table presents information on gross premiums over the base LME price for zinc oxide realized by our smelting operations in Brazil, expressed in U.S. dollars per tonne.

	For the Year Ended December 31,	
	2025	2024
Brazilian operations (in US\$/tonne)	622	648

Smelter by-products

Our smelting operations generate by-products, especially sulfuric acid and silver concentrate, the volumes and value of which depend on the chemical composition of the concentrate feed and the recovery rates achieved at each smelter.

Sulfuric acid, our main by-product in volume, is generated from sulfur dioxide gas released during the roasting of zinc concentrates. While our zinc smelters consume a portion of this acid in their leach plants, most of their requirements are met by sulfuric acid produced in the electrolysis stage, leaving most of the roasting-derived acid available for external sale. We sell sulfuric acid under annual and multi-year contracts as well as through spot transactions.

Silver concentrate is produced at our Cajamarquilla and Juiz de Fora smelters, recovered from intermediate process streams during the metallurgical treatment of zinc concentrates. The recovered silver is primarily sold to international traders and local customers.

Copper cement is produced at our Cajamarquilla smelter as a by-product of the purification stage of the hydrometallurgical process. It is sold to international traders and local customers, with logistics through the port of Callao. In 2025, our three smelters produced a combined 775,812 tonnes of sulfuric acid, of which 616,881 tonnes were available for external sale after internal consumption: Cajamarquilla accounted for 594,124 tonnes produced and 566,279 tonnes sold; Juiz de Fora produced 105,832 tonnes, with 50,170 tonnes sold; and Três Marias produced 75,856 tonnes, substantially all of which was consumed internally in the leach plant, with the remaining 877 tonnes sold.

Operating costs and expenses

Our ability to manage our operating costs and expenses is a significant driver of our business performance. We prioritize cost control and expense management to enhance efficiency and ensure resilience during less favorable pricing conditions.

Energy costs

Energy is one of the key components of our costs. Our total energy cost includes the operating expenses of our own hydroelectric power plants, long-term energy supply contracts, and transmission and distribution charges.

In Peru, the energy market is relatively stable in terms of generation (based on hydrology forecasts) and pricing. In 2025, we sourced 2.6% of the energy for our operations from our own hydroelectric power plants and cogeneration in Cajamarquilla and the remaining 97.4% through third-party contracts with the SEIN.

In Brazil, our energy cost structure is supported by hydroelectric assets held through Pollarix, which consolidates our self-production interests and provides long-term supply stability and cost efficiency. Pollarix's portfolio includes wholly owned assets, joint operations, and an equity-accounted investment.

- Pollarix fully owns the Picada Hydroelectric Power Plant in Minas Gerais. In addition, Pollarix holds a 12.6% consortium interest in the Capim Branco Hydropower Complex, which comprises the Amador Aguiar I and Amador Aguiar II plants, accounted for as joint operations, and holds a 23.9% consortium interest in Igarapava Hydropower.
- Pollarix also holds a 22.4% equity interest in ENERCAN (Campos Novos), accounted for under the equity method. Dividends received from ENERCAN are included in Pollarix's Adjusted EBITDA, and Pollarix's consolidated results—covering its wholly owned plant, joint operations, and equity-accounted investment—are reflected in our operational cash flow.

Pollarix's sole activity is owning our energy assets, and it sells energy to our Brazilian operating subsidiaries at market prices. We control Pollarix through the ownership of all its common shares, which represent 33.3% of Pollarix's total share capital. The remaining shares are preferred shares with limited voting rights, held by Auren. Under the terms of the preferred shares, Auren is entitled to dividends per share that are 1.93 times higher than the dividends per share paid on the common shares. See "Information on the Company—Energy—Power and energy supply—Brazil." As a result of Pollarix's ownership structure, a portion of the profit from Pollarix's energy sales to our Brazilian operating subsidiaries is attributable to non-controlling interests and recognized accordingly in our consolidated financial statements.

Environmental expenses

Our mines and smelters operate under licenses issued by government authorities that control, among other things, air emissions and water discharges and are subject to stringent laws and regulations relating to waste materials and various other environmental matters. Additionally, each operation once it permanently ceases activities, will require full site rehabilitation.

We have made significant investments to reduce our environmental impact on the areas in which we operate and to ensure that we are able to comply with environmental standards. All our operational units have environmental improvement initiatives relating to reducing emissions and waste and improving the efficiency of use of natural resources and energy.

Where appropriate, we establish environmental provisions for restoration or remediation of existing contamination and disturbance, with all material issues being reviewed annually. Provisions associated with smelter and mining operations sites primarily relate to soil and groundwater contamination.

Since 2016, we have conducted extensive studies and updates of our decommissioning plans, including potential environmental obligations. During this period, we also modified our internal policies for decommissioning and environmental issues, which require frequent updates of environmental studies to reflect the best international practices. As a result of these adjustments, we recorded additional environmental provisions of US\$4.2 million and US\$4.9 million in 2025 and 2024, respectively. Although not expected in the near future, changes in legislation and adjustments to our internal policies after the ongoing evaluations could require additional provisions.

Macroeconomic conditions of the countries and regions where we operate

Peru

The following table presents the inflation rates, interest rates, and exchange rates in Peru for the dates and periods indicated.

	For the Year Ended December 31,	
	2025	2024
Real GDP growth rate ⁽¹⁾⁽²⁾	3.4%	3.5%
Internal demand growth rate ⁽¹⁾⁽²⁾	5.8%	4.0%
Private investment growth rate ⁽¹⁾⁽²⁾	10.0%	3.3%
Reference interest rate	5.1%	5.2%
CPI rate ⁽²⁾	1.5%	2.0%
(Appreciation) devaluation of <i>sol</i> against the U.S. dollar ⁽³⁾	(10.1%)	1.0%
Exchange rate of <i>soles</i> to US\$1.00 (end of period) ⁽⁴⁾	3.3625	3.7403

Sources: Central Reserve Bank of Perú, Peruvian Ministry of Economy and Finance, Bloomberg.

(1) Preview published by the Central Reserve Bank of Perú official report ("Peru in Figures").

(2) Accumulated during each period.

(3) Exchange rate between end of periods.

(4) Official offer exchange rates.

Brazil

The following table presents inflation rates, interest rates, and exchange rates in Brazil for the dates and periods indicated.

	For the Year Ended December 31,	
	2025	2024
Real GDP growth rate ⁽¹⁾⁽²⁾	2.3%	3.5%
Inflation rate (IGP-M) ⁽¹⁾⁽²⁾	(1.0%)	6.3%
Inflation rate (IPCA) ⁽¹⁾⁽²⁾	4.3%	4.8%
CDI rate (end of period) ⁽¹⁾⁽²⁾	14.9%	10.9%
SELIC rate (end of period) ⁽¹⁾⁽²⁾	15.0%	12.2%
TJLP ⁽²⁾	9.1%	7.4%
(Appreciation) devaluation of <i>real</i> against the U.S. dollar ⁽³⁾	(11.1%)	27.9%
Exchange rate of <i>real</i> to US\$1.00 (end of period) ⁽⁴⁾	5.5021	6.1920

Sources: Brazilian Central Bank, IBGE, Cetip, FGV, and Bloomberg.

(1) Preview published by the Brazilian Central Bank official report ("Focus") as of January 2, 2026.

(2) Accumulated during each period.

(3) Exchange rate between end of periods.

(4) Official offer exchange rates.

Effects of exchange rate fluctuations

Prices for our products are based on international indices, such as LME prices, and denominated in U.S. dollars. However, a portion of our production costs are denominated in *reais* or *soles*, creating a mismatch between our revenue and costs in terms of currency. In 2025, 14.9% of our production costs and operational expenses were denominated in *reais* and 14.4% of our production costs and operational expenses were denominated in *soles*. The latter is a smaller portion compared to *reais*, since most of our costs in Peru are in U.S. dollars. As a result, our operational results are impacted by fluctuations in exchange rates between *reais*, *soles*, and the U.S. dollar.

In addition, our Brazilian subsidiary, Nexa Brazil holds outstanding accounts receivables and accounts payables to Nexa Resources, intercompany loans with its related parties and loans in foreign currency, which are denominated in U.S. dollars. The functional currency of Nexa Brazil is the real, therefore, Nexa Brazil recognizes exchange gains or losses when the *real* fluctuates compared to the U.S. dollar. These gains and losses are not eliminated in consolidation, as the functional currency of Nexa Resources is the U.S. dollar, meaning no offsetting gains or losses are recognized, which resulted in a net foreign exchange gain of US\$74.4 million in our consolidated financial statements.

The following table presents, for the periods indicated (i) the high and low exchange rates, (ii) the average exchange rates as of the last day of each month for each year, as well as the daily average exchange rates for each month, and (iii) the exchange rate at the end of each period, expressed in *soles* per U.S. dollar (*sol*/US\$) and *reais* per U.S. dollar (*real*/US\$) as reported by the Peruvian Central Bank and the Brazilian Central Bank, respectively.

	Exchange Rates of S/ and R\$ per US\$1.00							
	Period-End		Average ⁽¹⁾		High		Low	
	S/	R\$	S/	R\$	S/	R\$	S/	R\$
Year ended December 31,								
2024	3.7403	6.1920	3.7541	5.3917	3.8835	6.1988	3.6730	4.8540
2025	3.3625	5.5021	3.5679	5.5852	3.7810	6.2083	3.3610	5.2726
Month								
January 2026	3.3690	5.2298	3.3571	5.3377	3.3690	5.4369	3.3452	5.1835
February 2026	3.3535	5.1492	3.3566	5.2003	3.3666	5.2584	3.3455	5.1379
March 2026 (through March 23)	3.4600	5.2437	3.4398	5.2300	3.4905	5.2875	3.3635	5.1593

Source: Central Reserve Bank of Peru, Brazilian Central Bank, official offer exchange rates.

(1) Annually represents the average of the daily exchange rates during the periods presented.

Income taxes

Income taxes in Luxembourg, Peru and Brazil have a significant impact on our results. Due to varying economic and political conditions, tax rates in different jurisdictions may experience significant changes. Our future effective tax rates could be affected by changes in the mix of earnings across countries with different statutory tax rates, adjustments in the valuation of deferred tax assets and liabilities and changes in tax laws or their interpretation.

Luxembourg

The combined applicable income tax rate (including an unemployment fund contribution) as of January 1, 2025, was reduced from 24.94% to 23.87% (for entities with their statutory seat in Luxembourg City).

Brazil

Our Brazilian subsidiaries are subject to corporate income tax on both their Brazilian and non-Brazilian income. In addition to the corporate income tax, a social contribution tax is levied on their worldwide income. The combined applicable rate for both taxes is 34.0%. For a discussion of our effective income tax rate, see “Operating and Financial Review and Prospects—Results of Operations— Income tax (expense) benefit.”

Peru

Our Peruvian subsidiaries are subject to income tax on their worldwide income and are eligible for a potential credit for foreign taxes paid on income derived from foreign sources. The general income tax rate has been 29.5% since 2017.

Since January 1, 2022, the general income tax rate of 29.5% is applicable to Nexa Peru. Our Peruvian subsidiaries Nexa Peru, Nexa Resources El Porvenir S.A.C. and Nexa Resources Atacocha S.A.A. are subject to a special mining tax (*Impuesto Especial a la Minería*, or “IEM”), with marginal rates ranging from 2.00% and 8.40% of operating mining income, depending on the operating margin. In addition, these companies are subject to a mining royalty (*regalía minera*).

Dividends distributed to us by our Peruvian subsidiaries are subject to a withholding tax of 5.0 % on profits earned since 2017.

RESULTS OF OPERATIONS

The following discussion and analysis of our financial position and results of operations is based on our consolidated financial statements, for 2025, compared to 2024. For a discussion of the financial condition and results of operations for 2024 compared to 2023, please refer to "Operating and Financial Review and Prospects" in our Annual Report on Form 20-F for the year ended December 31, 2024. The following table sets forth our summarized results of operations for the periods indicated.

	For the Year Ended December 31,		Variation	% of Net Revenue from Products Sold	
	2025	2024	2025/2024	2025	2024
	(in millions of US\$)		(percentage)	(percentage)	
Consolidated income statement information:					
Net revenues	3,002.1	2,766.5	8.5	100.0	100.0
Cost of sales	(2,289.2)	(2,228.4)	2.7	(76.3)	(80.5)
Gross profit	712.9	538.1	32.5	23.7	19.5
Operating expenses:					
Selling, general and administrative	(145.5)	(127.3)	14.2	(4.8)	(4.6)
Mineral exploration and project evaluation	(81.7)	(68.0)	20.2	(2.7)	(2.5)
Impairment reversal (loss) of long-lived assets	91.7	(32.9)	(378.7)	3.1	(1.2)
Other income and expenses, net	(79.5)	(33.5)	137.3	(2.6)	(1.2)
Operating income (loss)	498.0	276.4	80.2	16.6	10.0
Share in the results of associates	21.1	21.2	(0.5)	0.7	0.8
Results from associates' equity	21.1	21.2	(0.5)	0.7	0.8
Financial income	29.9	24.0	24.4	1.0	0.9
Financial expenses	(306.5)	(245.8)	24.7	(10.2)	(8.8)
Other financial items, net	89.2	(147.7)	(160.4)	3.0	(5.4)
Net financial results	(187.4)	(369.5)	(49.3)	(6.2)	(13.4)
Income (loss) before tax	331.7	(71.9)	(561.3)	11.0	(2.6)
Income tax (expense) benefit	(108.6)	(115.6)	(6.1)	(3.6)	(4.2)
Net income (loss) for the year	223.1	(187.4)	(219.1)	7.4	(6.8)

Net revenues

In 2025, net revenues of US\$3,002.1 million increased by 8.5%, or US\$235.6 million compared to 2024. This growth was primarily driven by higher metal prices, partially offset by lower smelting sales volume. Higher prices of silver and gold contained in concentrates positively impacted net revenues by approximately US\$175.1 million. The average LME prices for zinc, a key benchmark for our pricing, increased by 3.3%, from US\$2,779.0 per tonne in 2024 to US\$2,869.7 per tonne in 2025. This increase contributed approximately US\$53.6 million to net revenues, based on our 2024 sales volumes of 591.3kt and the average LME price difference of US\$90.6/t between 2025 and 2024. Additionally, the average price of copper increased 8.7% from US\$9,146.8 per tonne in 2024 to US\$9,944.9 per tonne in 2025, contributing an additional US\$27.5 million to net revenues. These positive impacts were partially offset by lower smelting sales volume, which reduced net revenues by approximately US\$67.5 million, and by lower sales volume of copper and lead negatively impacted net revenues by approximately US\$32.6 million. For a discussion of the underlying reasons driving the change in commodity prices, see "Operating and Financial Review and Prospects—Overview—Key factors affecting our business and results of operations—Metal Prices."

The following table shows a breakdown of our net revenues by destination of our sales.

	For the Year Ended December 31,	
	2025	2024
	(in millions of US\$)	
Peru	965.5	833.9
Brazil	654.3	601.0
United States	233.4	166.9
Singapore	208.7	234.8
Switzerland	136.1	224.3
South Korea	99.2	60.4
Chile	94.8	78.2
United Kingdom	85.2	62.6
Argentina	79.7	81.5
Luxembourg	66.5	71.3
Austria	47.4	42.8
Taiwan	39.0	30.5
Colombia	38.6	31.2
South Africa	36.5	39.4
Turkey	30.9	20.6
Germany	21.0	23.2
Belgium	19.8	9.0
Ecuador	14.5	11.1
China	13.1	7.6
France	12.0	3.4
Sweden	11.8	0.8
Japan	11.2	39.7
Netherlands	9.1	5.5
Vietnam	9.0	18.7
Other	64.8	68.0
Net revenues	3,002.1	2,766.5

Net revenues by destination reflected a continued strengthening of sales to home markets and a shift in the geographic mix towards direct end-user destinations. Peru and Brazil, our home markets, where we hold a leading competitive position, accounted for US\$1,619.8 million, or 54.0% of consolidated net revenues in 2025, an increase of US\$184.9 million, or 12.9% compared to 2024, mainly due to both higher metal prices and the strong performance of our Cajamarquilla smelter, which serves the Peruvian domestic market and is the primary export platform for our refined zinc products.

Sales to the United States increased 39.8% to US\$233.4 million, driven primarily by higher Cajamarquilla export volumes directed to U.S. customers and increased demand from the U.S. galvanizing sector. South Korea sales also grew, increasing 64.2% to US\$99.2 million, reflecting expanded silver and copper cement sales to direct end users. These gains were partially offset by lower revenues from Switzerland, which declined 39.3% to US\$136.1 million, and Japan, which declined 71.8% to US\$11.2 million. The declines in Switzerland and, to a lesser extent, Singapore and Luxembourg largely reflect changes in the booking destination of trading-intermediated sales rather than a loss of end-market demand, and a reallocation of concentrate sales from trading intermediaries to direct end users.

Overall, the geographic diversification of our revenues continued in 2025, with no single country outside our home markets representing more than 8% of our net revenues.

The following table sets forth the components of our production and sales volumes for the metals and periods indicated.

	For the Year Ended December 31,	
	2025	2024
Treatment Ore (in tonnes)	13,024,510	13,420,966
Mining Production—Metal Contained in Concentrate		
Zinc contained in concentrates (in tonnes)	315,648	326,995
Copper contained in concentrates (in tonnes)	33,396	35,698
Lead contained in concentrates (in tonnes)	63,086	69,303
Silver contained in concentrates (in oz)	10,905,969	11,694,073
Gold contained in concentrates (in oz)	38,247	36,027
External Mining Sales—Metal Contained in Concentrate		
Zinc contained in concentrates (in tonnes)	0	887
Copper contained in concentrates (in tonnes)	33,371	35,669
Lead contained in concentrates (in tonnes)	62,631	69,267
Smelting Production—Zinc Contained in Product Volumes		
Cajamarquilla (metal available for sale in tonnes)	345,281	334,078
Três Marias (metal available for sale in tonnes)	122,731	144,096
Juiz de Fora ⁽²⁾ (metal available for sale in tonnes)	61,827	81,989
Total zinc metal production (in tonnes)	529,839	560,163
Zinc Oxide Production—Zinc Contained in Product Volumes		
Três Marias (Zinc oxide, contained zinc in tonnes)	34,566	34,569
Smelting Sales—Product Volumes ⁽³⁾		
Metallic zinc (in tonnes)	532,488	556,795
Zinc oxide (in tonnes)	34,531	34,512
Total smelting sales volumes (in tonnes)	567,019	591,307

(1) Based on typical zinc contents in metallic zinc products and zinc oxide. For more details, see “Information on the Company—Smelting Operations—Smelter sales.”

(2) Including 3,181 tonnes of zinc ashes and drosses in 2025 and 2,861 in 2024.

(3) Including resale.

Cost of sales

In 2025, our cost of sales of US\$2,289.2 million increased by 2.7%, or US\$60.7 million, compared to 2024. At the segment level, the increase reflected mixed trends: smelting cost of sales increased 9.7%, or US\$175.3 million, mainly driven by significantly lower treatment charges, which raised the effective cost of third-party zinc concentrates, while mining cost of sales decreased 7.3%, or US\$73.5 million, reflecting lower production volumes and associated variable cost reductions. On a consolidated basis, treatment charges were the most significant driver of the cost increase. The three-year average benchmark TC used in most of our third-party contracts fell 22.4%, from US\$223 per tonne of concentrate to US\$173 per tonne, reflecting the decline in the annual benchmark from US\$165 per dry metric tonne in 2024 to US\$80 in 2025. Because treatment charges function as a discount on the price we pay for concentrates, this compression directly increased our smelting raw material costs. Higher zinc and copper prices also raised the payable metal component of concentrate purchases. These increases, along with higher maintenance expenses, particularly at our Brazilian smelters and unfavorable foreign exchange variations, were partially offset by lower smelting sales volumes and reduced energy costs. For a detailed discussion of segment-level cost dynamics, see “Operating and Financial Review and Prospects—Results of Operations—Results by segment.”

Selling, general and administrative expenses

In 2025, our selling, general and administrative (“SG&A”) expenses of US\$145.5 million increased by 14.2%, or US\$18.1 million, compared to 2024. This increase was mainly driven by higher personnel and third-party services expenses, increased freight expenses from higher sales volume at Cajamarquilla, and unfavorable foreign exchange variations.

Mineral exploration and project evaluation

In 2025, our mineral exploration and project evaluation expenses totaled US\$81.7 million, representing an increase of 20.2%, or US\$13.7 million, compared to 2024. This increase was primarily due to an increase in mineral exploration expenses, reinforcing our strategy of prioritizing exploratory drilling programs aimed at identifying new mineralized trends, both near operating mines and within greenfield initiatives. In 2025, our exploration drilling reached 69.8 km, compared to 63.8 km in 2024, including early-stage exploration programs.

Impairment reversal (loss) of long-lived assets

In 2025, we conducted our annual impairment test, analyzed all indicators and recorded an impairment reversal of US\$91.7 million. This reversal was primarily comprised of an impairment reversal related to the Cerro Pasco cash-generating unit of US\$108.0 million. The reversal primarily reflects higher short- and long-term metal price assumptions. This effect was partially offset by the recognition of an impairment loss of US\$16.3 million on other individual assets. For further information about our impairment assessments, please refer to Note 31 to our consolidated financial statements.

Other income and expenses, net

In 2025, our other income and expenses, net negatively impacted our results by US\$79.5 million, mainly due to the recognition of a non-cash accumulated loss of US\$49.3 million as of December 31, 2025, compared to a loss of US\$3.3 million as of December 31, 2024, due to the significant change in the projected copper price under the Aripuanã copper concentrate offtake agreement, which is measured at fair value through profit or loss.

The following table presents our other income and expenses, net for the periods indicated. For further information, please refer to Note 9 to our consolidated financial statements.

	For the Year Ended December 31,	
	2025	2024
	(in millions of US\$)	
Other income and expenses, net		
Changes in fair value of offtake agreement	(49.3)	(3.3)
Changes in fair value of derivative financial instruments	0.2	0.7
Loss on sale and write-off of property, plant and equipment	(1.6)	(16.2)
Changes in asset retirement, restoration and environmental obligations	(0.2)	13.8
Slow moving and obsolete inventory	(10.4)	(10.9)
Provision for legal claims	(15.2)	1.9
Penalties and fines on income tax	(11.4)	-
Contribution to communities	(12.9)	(14.6)
Changes in fair value of energy forward contracts	9.6	0.1
Divestment and restructuring	7.7	9.0
Others	3.8	(14.0)
Total other income and expenses, net	(79.5)	(33.5)

Net financial results

In 2025, we recognized net financial expenses of US\$187.4 million, a decrease of 49.3%, or US\$182.1 million, compared to US\$369.5 million in 2024. This decrease was mainly due to:

- Our financial income in 2025 increased by 24.4%, or US\$5.9 million, to US\$29.9 million. This increase was mainly due to reversals of monetary adjustments on contingencies recognized in prior periods, and the increase in Brazilian benchmark interest rates.
- Our financial expenses in 2025 increased by 24.7%, or US\$60.7 million, to US\$306.5 million. This increase was primarily attributed to interest on tax contingency provisions and premiums on bond repurchases. These effects were partially offset by lower interest on lease liabilities and other positive financial impacts.
- Other financial items, net increased by US\$236.9 million, reaching US\$89.2 million in 2025. This increase was mainly due to a positive effect attributable to the depreciation of the U.S. dollar on U.S. dollar-denominated balances and intercompany loans of Nexa Brazil, reflecting the appreciation of the Brazilian real in 2025, following a depreciation in 2024, and the fair value gains related to the cross-currency swap contracts we entered into to hedge the Brazilian real exposure of Nexa Brazil debentures.

- Excluding the impact of foreign exchange variations, our net financial results increased by 18.5%, or US\$40.8 million, to US\$261.7 million in 2025 compared to US\$220.9 million in 2024, because of the aforementioned reasons.

Income (loss) before tax

As a result of the factors described above, our income before tax in 2025 was US\$331.7 million, as compared to a loss before tax of US\$71.9 million in 2024.

Income tax (expense) benefit

In 2025, we recorded an income tax expense of US\$108.6 million, as compared to an income tax expense of US\$115.6 million in 2024. Our current income tax expense in 2025 decreased by 48.3%, or US\$99.3 million, to US\$106.4 million, mainly due to decrease in the income tax provision related to the Cerro Lindo stability agreement.

The difference between the nominal and effective tax rates in 2025 and 2024 is attributed to items that impacted the calculation of current income tax for these periods. These include the tax effect in translation of non-monetary assets (liabilities) to functional currency in Peru and the uncertain income tax treatment, specifically related to the Cerro Lindo Stability Agreement, which decreased the effective tax rate in 2025, as well as tax losses that did not qualify for deferred tax asset recognition, the special mining levy and mining taxes in Peru, and the difference in tax rate of subsidiaries outside Luxembourg, that increased the effective tax rate in the period. In 2025, we recorded a deferred tax expense of US\$2.2 million, a decrease of US\$92.3 million compared to 2024, mainly because of the reduction in the tax losses and foreign exchange expenses in Brazil.

Net income (loss) for the year

As a result of the foregoing, we had net income of US\$223.1 million in 2025 compared to a net loss of US\$187.4 million in 2024. This performance was driven by an increase in operating income from higher gross profit, a non-cash impairment reversal recorded during the year, and increased foreign exchange gains. These positive factors were partially offset by higher net financial expenses, increased other income and expenses, primarily due to changes in the fair value of offtake agreement, along with higher mineral exploration and project evaluation expenses.

Results by segment

The following table presents our summarized results of operations by segment for the periods indicated.

	For the Year Ended December 31,		Variation	Variation
	2025	2024	2025/2024	2025/2024
Consolidated Income Statement Information:	(in millions of US\$)		(percentage)	
Net revenues:				
Mining	1,569.9	1,349.7	220.2	16.3
Smelting	2,057.1	1,997.3	59.7	3.0
Intersegments Sales	(669.3)	(604.0)	(65.3)	10.8
Adjustments ⁽¹⁾	44.4	23.5	20.9	88.9
Total	3,002.1	2,766.5	235.6	8.5
Cost of sales:				
Mining	(938.3)	(1,011.7)	73.5	(7.3)
Smelting	(1,975.1)	(1,799.8)	(175.3)	9.7
Intersegments Sales	669.3	604.0	65.3	10.8
Adjustments ⁽¹⁾	(45.1)	(20.9)	(24.2)	115.8
Total	(2,289.2)	(2,228.4)	(60.8)	2.7
Gross profit:				
Mining	631.6	337.9	293.7	86.9
Smelting	82.0	197.6	(115.6)	(58.5)
Adjustments ⁽¹⁾	(0.7)	2.6	(3.3)	(126.9)
Total	712.9	538.1	174.8	32.5

(1) See Note 2 to our consolidated financial statements.

Mining**Net revenues**

In 2025, our net revenues in the mining segment totaled US\$1,569.9 million, an increase of 16.3%, or US\$220.2 million, compared to 2024. This increase was driven by the combined effect of higher metal prices and lower treatment charges, which more than offset declines in production volumes across copper and silver. Higher LME zinc prices contributed approximately US\$53.6 million to mining revenues, while the sharp increase in precious metals prices, silver up 41.6% and gold up 43.8% on an annual average basis, had a significant positive impact on the value of by-product credits in our polymetallic concentrates. The decline in benchmark treatment charges from US\$165 to US\$80 per dry metric tonne also benefited mining segment revenue, as lower TCs increase the net realized price on concentrates sold to our smelting operations. In 2025, 100% of our zinc concentrate production was directed to our smelting operations in Peru and Brazil, with internal transfer prices calculated on an arm's length basis using the benchmark TC.

Cost of sales

In 2025, our cost of sales in our mining segment totaled US\$938.3 million, a decrease of 7.3%, or US\$73.5 million, compared to 2024. The decrease primarily reflected the impact of lower production and sales volumes on variable costs, as treated ore sales volume declined 3.0% year-over-year. These cost reductions were achieved despite Aripuanã operating for a full year following the completion of its ramp-up phase in 2024, which added a full twelve months of operating costs to the mining segment's cost base compared to approximately six months in the prior-year period.

Smelting**Net revenues**

In 2025, our net revenues in the smelting segment amounted to US\$2,057.1 million, an increase of 3.0%, or US\$59.7 million, compared to 2024. The increase was supported by higher LME zinc prices and an increased contribution from smelter by-products, mainly sulfuric acid and silver concentrate, which more than offset a 4.3% decline in total smelting sales volumes, while higher regional premiums in key markets also positively contributed.

Cost of sales

In 2025, our cost of sales in the smelting segment totaled US\$1,975.1 million, representing an increase of 9.7%, or US\$175.3 million, compared to 2024. The increase was primarily driven by significantly lower treatment charges. The benchmark TC fell from US\$165 per dry metric tonne of concentrate in 2024 to US\$80 per dry metric tonne in 2025, a 51.5% decrease and one of the lowest benchmark levels observed. As treatment charges function as a discount on the price we pay for concentrates, a lower TC directly increases our raw material costs. Each dollar decline in the effective TC, applied across our third-party concentrate purchases, translates into an equivalent increase in smelting cost of sales. Higher zinc prices also contributed to increased concentrate acquisition costs, as the payable metal component is priced based on the LME. Additionally, higher maintenance and operating expenses at our Brazilian smelters accounted for the balance of the cost increase. These effects were partially offset by lower smelting sales volumes, which declined 4.1% year-over-year.

Adjusted EBITDA by Segment

Adjusted EBITDA by segment is the main performance measure used by the chief operating decision maker to assess segment performance and to make decisions about resource allocation. Adjusted EBITDA information for our segments is disclosed and reconciled with IFRS Accounting Standards numbers in Note 2 to our financial statements. The use of Adjusted EBITDA as a segment performance measure is not considered a non-IFRS Accounting Standards financial measure.

A breakdown of Adjusted EBITDA by segment is presented below.

	For the Year Ended December 31,	
	2025	2024
	(in millions of US\$)	
Breakdown of Adjusted EBITDA by segment:		
Mining	658.3	464.1
Smelting	113.3	249.6
Other ⁽¹⁾	0.3	0.5
Adjusted EBITDA	771.9	714.1

(1) Represents the residual component of Adjusted EBITDA either not pertaining to the mining or smelting segments, or represents items that, because of their nature, are not being allocated to a specific segment.

Non-IFRS Accounting Standards measures and reconciliation

Adjusted EBITDA

In 2025, our Adjusted EBITDA amounted to US\$771.9 million, up 8.1% compared to 2024, primarily attributed to higher zinc prices, higher by-products contribution, and favorable foreign exchange variations, partially offset by increased operating costs in both segments, and lower metal sales volume.

Our management uses Adjusted EBITDA as an additional performance measure on a consolidated basis, in addition to, and not as a substitute for, net income. We define Adjusted EBITDA as net income (loss) for the year, adjusted by (i) share in the results of associates, depreciation and amortization, net financial results and income tax; (ii) addition of cash dividends received from associates; (iii) non-cash events and non-cash gains or losses that do not specifically reflect our operational performance for the specific period, such as: gain (loss) on sale of investments; impairment and impairment reversals; gain (loss) on sale of long-lived assets; write-offs of long-lived assets; remeasurement in estimates of asset retirement obligations and other restoration obligations; (iv) pre-operating and ramp-up expenses incurred during the commissioning and ramp-up phases of greenfield projects. For future periods, when applicable, management may exclude the impact of certain types of transactions that in its judgments are (i) events that are non-recurring, unusual or infrequent, and (ii) other specific events that, by their nature and scope, do not reflect our operational performance for the specific period.

We believe this measure provides useful information about the performance of our operations as it facilitates consistent comparisons between periods, planning, and forecasting of future operating results. This reflects the operational performance of our existing business without the impact of interest, taxes, amortization, depreciation, non-cash items that do not reflect our operational performance for the specific reporting period and the impact of pre-operating and ramp-up expenses during the commissioning and ramp-up phases of Aripuanã. Pre-operating and ramp-up expenses incurred during the commissioning and ramp-up phases of Aripuanã are not considered infrequent, unusual, or non-recurring expenses, as they have recurred in prior years with respect to Aripuanã and may recur in the future with respect to Aripuanã or any other projects that may reach the commissioning or ramp-up phases. Commencing in July 2024, these effects have no longer been included since, at the end of June 2024, Aripuanã reached the final stage of its ramp-up phase, transitioning to an ongoing operation. Also, since 2024, our management includes the cash dividend received from associates (currently, Enercan is our only associate) as part of our Adjusted EBITDA calculation. Enercan is an equity method investee with which we have a long-term energy supply agreement. Energy is one of the key components of our costs; as the purpose of our equity investment in Enercan is to secure a reliable long-term energy supply, our management considers this cash dividend received from Enercan each year as part of its analysis of our energy costs for such year. See “Operating and Financial Review and Prospects—Key factors affecting our business and results of operations—Energy costs.”

Our calculation of Adjusted EBITDA may differ from the calculation used by other companies, including our competitors in the mining industry, so our measures may not be comparable to those of other companies.

A reconciliation of Adjusted EBITDA to our net income (loss) for the years indicated is presented below.

	For the Year Ended December 31,	
	2025	2024
	(in millions of US\$)	
Reconciliation of Adjusted EBITDA:		
Net income (loss) for the year	223.1	(187.4)
Depreciation and amortization	289.0	330.2
Share in the results of associates	(21.1)	(21.2)
Net financial results	187.4	369.5
Income tax (benefit) expense	108.6	115.6
Change in fair value of offtake agreement ⁽¹⁾	44.2	0.1
Impairment loss (reversal) of long-lived assets ⁽²⁾	(91.7)	32.9
Impairment (reversal) of other assets ⁽³⁾	-	0.3
Aripuanã ramp-up impacts ⁽⁴⁾	-	25.2
Gain (loss) on sale and write-off of property, plant and equipment ⁽⁵⁾	1.6	16.2
Remeasurement adjustment of streaming agreement ⁽⁶⁾	24.6	21.1
Change in fair value of energy forward contracts ⁽⁷⁾	(9.6)	(0.1)
Other restoration obligations ⁽⁸⁾	(8.1)	1.0
Divestment and restructuring gains ⁽⁹⁾	(7.7)	(9.0)
Dividends received in cash ⁽¹⁰⁾	23.8	25.2
Asset retirement obligations remeasurement estimate ⁽¹¹⁾	7.7	(5.3)
Adjusted EBITDA	771.9	714.1

(1) Non-cash adjustment: Derivative financial instrument related to the “offtake agreement.”

(2) Non-cash adjustment: Cash generating unit and individual PP&E assets impairment loss (reversal).

(3) Non-cash adjustment: Value-added-taxes impairment loss.

(4) Expenses related to pre-operating and ramp-up expenses incurred during the commissioning and ramp-up phases of greenfield projects which have not achieved their expected production capacity. Commencing in July 2024, these effects were no longer included since, at the end of June 2024 it reached the final stage of its ramp-up phase, transitioning to an ongoing operation.

(5) Non-cash adjustment: Results from sale and disposal of certain non-current assets.

(6) Non-cash adjustment: Remeasurement of contractual obligation related to the forward sale contract of Cerro Lindo's Silver contained in the ore.

(7) Non-cash adjustment: The fair value adjustment of the energy surplus resulting from electric energy purchase contracts of our subsidiary, Pollarix and Nexa Energy.

(8) Non-cash adjustment: Expenses related to the remeasurement of provision related to estimated costs of anticipated additional obligations in relation to certain inactive industrial waste containment structures in Brazil that have been closed for more than 20 years and that do not contain mining tailings, water, or liquid waste.

(9) Expenses related to the effects of obligations of restructuring and divestment related to assets held for sale.

(10) Amount in cash dividend received from associates (currently, Enercan is our only associate), as our management considers this dividend part of the analysis of our energy costs.

(11) Non-cash adjustment: Asset retirement obligation remeasurement of discount rate and updated studies that are not subject to capitalization.

Net Debt

We define Net Debt as (i) loans and financing and lease liabilities, *less* (ii) cash and cash equivalents, *less* (iii) financial investments, *plus/less* (iv) the fair value of derivative financial liabilities or assets, respectively. Our management believes that net debt is an important figure because it indicates our ability to repay outstanding debts that become due simultaneously using available cash and highly liquid assets.

A reconciliation of Net Debt to loans and financing as of December 31, 2025, and 2024 is presented below.

	As of December 31,	
	2025	2024
	(in millions of US\$)	
Calculation of Net Debt:		
Loans and financings	1,706.0	1,762.6
Derivative financial instruments	(2.3)	(1.5)
Lease liabilities	121.1	95.9
Cash and cash equivalents	(515.9)	(620.5)
Financial investments	(5.7)	(19.7)
Net Debt	1,303.2	1,216.8

Net Debt to Adjusted EBITDA

We define Net Debt to Adjusted EBITDA ratio as Net Debt divided by Adjusted EBITDA.

The calculation of our Net Debt to Adjusted EBITDA ratio for the periods indicated is presented below.

	As of and For the Year Ended December 31,	
	2025	2024
	(in millions of US\$)	
Calculation of Net Debt to Adjusted EBITDA Ratio:		
Net debt (period end)	1,303.2	1,216.8
Adjusted EBITDA	771.9	714.1
Net Debt to Adjusted EBITDA Ratio	1.69	1.70

Adjusted EBITDA Margin

We define Adjusted EBITDA margin as Adjusted EBITDA divided by net revenues. The calculation of our Adjusted EBITDA margin for the periods indicated is presented below.

	For the Year Ended December 31,	
	2025	2024
	(in millions of US\$)	
Calculation of Adjusted EBITDA Margin:		
Adjusted EBITDA	771.9	714.1
Net revenues	3,002.1	2,766.5
Adjusted EBITDA Margin	25.7%	25.8%

Cash cost, net of by-products credits and related measures

In this report, we also present measures of costs that are widely used by peer companies operating in the mining and smelting industries. These performance measures are non-IFRS Accounting Standards measures, and they do not have a standard meaning and therefore may not be comparable to similar data presented by other mining and smelting companies. They should not be considered as a substitute for costs of sales, costs of selling and administrative expenses, or as an indicator of costs. Similar measures are also calculated by Wood Mackenzie for many market participants, but Wood Mackenzie's methodology differs from the methodology we use below.

Our management uses cash cost, net of by-products credits and related measures, among other measures, for internal planning and performance measurement purposes. We believe these measures provide useful information about the operational performance of our operations that facilitates period-to-period comparisons on a consistent basis.

In calculating cash cost, net of by-products credits, we account for transactions between our mining operations and our smelting operations using the same methodology we use to evaluate the performance of our mining and smelting segments. See Note 2 to our consolidated financial statements. We prepare an internal calculation based on transfer pricing adjustments made on an arm's length principal basis. All information disclosed for cash cost, net of by-products credits is consistent with this methodology.

Mining operations

Cash cost, net of by-products credits: For our mining operations, cash cost, net of by-products credits includes all direct costs associated with mining, concentrating, leaching, solvent extraction, on-site administration and general expenses, any off-site services essential to the operation, concentrate freight costs, marketing costs and property and severance taxes paid to state or federal agencies that are not profit-related. Treatment and refining charges on metal sales, which are typically recognized as a deduction component of sales revenues, are added to cash cost. Cash cost is calculated on a contained zinc sold basis, which indicates the percentage of zinc in metal sold, after the deduction of by-products credits attributable to mining operations, such as copper, silver, gold, and lead, which are deducted from total cash cost.

Sustaining cash cost, net of by-products credits: Sustaining cash cost, net of by-products credits is defined as the cash cost, net of by-products credits *plus* non-expansion capital expenditure, including sustaining health, safety and environment, modernization and other non-expansion-related capital expenditures.

All in sustaining cost, net of by-products credits: All in sustaining cost (“AISC”) is defined as sustaining cash cost, net of by-products credits *plus* corporate general and administrative expenses, royalties, and workers’ participation.

Our cash cost and AISC net of by-products credits are measured with respect to zinc sold.

For mining operations, we present below cash cost, net of by-products credits, sustaining cash cost, net of by-products credits and all-in sustaining cost and a reconciliation to our consolidated financial statements.

For the year ended December 31, 2025

	Vazante	Aripuanã	Cerro Lindo	El Porvenir	Atacocha	Consolidation of Operations	Corporate and Others	Mining
Operations (in millions of US\$, unless otherwise indicated)								
Sales Volume (Zinc Contained in Concentrate)								
Tonnes	128,402	35,165	86,269	59,974	11,853	315,023		315,023
Cost of goods sold	134.1	220.9	331.6	193.7	71.76	952.0	(15.0)	937.0
On-site G&A	1.0	0.7	10.2	5.01	4.02	20.9		20.9
By-product credits	(21.2)	(160.7)	(450.3)	(225.9)	(109.58)	(967.7)	(63.8)	(1,031.4)
Treatment and refining charges	49.3	3.5	19.6	15.5	3.13	91.0		91.0
Selling expenses	0.2	1.8	2.1	0.9	0.48	5.4		5.4
Depreciation and amortization	(31.6)	(48.4)	(58.0)	(35.6)	(13.11)	(186.8)		(186.8)
Royalties	(2.9)	(8.6)	(6.7)	(3.0)	(1.34)	(22.5)		(22.5)
Workers’ participation & bonus	(2.0)	(2.5)	(9.3)	(9.4)	(3.54)	(26.7)		(26.7)
Others	0.6	0.7	3.4	1.4	(1.21)	5.0		5.0
Cash cost net of by-product credits (sold)	127.5	7.3	(157.4)	(57.2)	(49.4)	(129.2)	(78.8)	(208.0)
Cash cost net of by-product credits (sold) (US\$/tonne)	992.9	207.5	(1,816.7)	(1,080.4)	(4,167.50)	(410.2)	0.00	(660.2)
Non-expansion capital expenditure	25.0	69.0	59.6	87.5	15.74	256.9	0.5	257.4
Sustaining cash cost net of by-product credits (sold)	152.5	76.3	(97.7)	30.3	(33.66)	127.7	(78.2)	49.4
Sustaining cash cost net of by-product credits (sold) (per tonne)	1,187.8	2,168.4	(1,128.2)	571.5	(2,839.7)	405.2		156.8
Workers’ participation & bonus	2.0	2.5	9.3	9.4	3.54	26.7		26.7
Royalties	2.9	8.6	6.7	3.0	1.34	22.5		22.5
Corporate G&A							44.5	44.5
AISC net of by-product credits (sold)								143.0
AISC net of by-product credits (sold) (per tonne)								454.0

Smelting operations

Cash cost, net of by-products credits: For our smelting operations, cash cost, net of by-products credits includes all the costs of smelting, including costs associated with labor, net energy, maintenance, materials, consumables and other on-site costs, as well as raw material costs. Cash cost is calculated on a contained zinc sold basis after the deduction of by-products credits attributable to smelting operations.

Sustaining cash cost, net of by-products credits: Sustaining cash cost, net of by-products credits is defined as the cash cost, after by-products credits *plus* non-expansion capital expenditure, including sustaining health, safety and environment, modernization and other non-expansion-related capital expenditures.

All in sustaining cost, net of by-products credits: All in sustaining cost is defined as sustaining cash cost, net of by-products credits *plus* general and administrative expenses and workers’ participation.

Our cash cost and AISC net of by-products credits are measured with respect to contained zinc sold, not considering resale operations of zinc from third parties. For our smelting operations, we present below cash cost, net of by-products credits, sustaining cash cost, net of by-products credits and all in sustaining cost and a reconciliation to our consolidated financial statements.

For the year ended December 31, 2025

	Très Marias	Juiz de Fora	Cajamarquilla	Consolidation of Operations	Corporate and Others	Smelting
Operations (in millions of US\$, unless otherwise indicated)						
Sales Volume (Zinc Contained in Products)						
Tonnes	149,210	60,457	345,874	555,541		555,541
Cost of goods sold	545.6	249.9	1,175.4	1,970.9	(4.9)	1,966.0
Cost of services rendered	(10.8)	(3.0)	(49.6)	(63.4)		(63.4)
On-site G&A	2.5	1.2	9.5	13.2		13.2
Depreciation and amortization	(31.2)	(16.2)	(46.6)	(94.0)		(94.0)
By-product credits	(17.1)	(26.9)	(220.9)	(264.8)	4.9	(259.9)
Workers' participation & Bonus	(1.7)	(1.3)	(5.6)	(8.6)		(8.6)
Others	9.0	4.3	6.1	19.4		19.4
Cash cost, net of by-product credits (sold)	496.3	208.2	868.3	1,572.8		1,572.8
Cash cost, net of by-product credits (sold) (per tonne)	3,326.0	3,443.5	2,510.5	2,831.0		2,831.0
Non-expansion capital expenditure	27.0	16.9	49.1	93.0	0.3	93.3
Sustaining cash cost, net of by-product credits (sold)	523.3	225.0	917.4	1,665.7	0.3	1,666.0
Sustaining cash cost net of by-product credits (sold) (per tonne)	3,507.3	3,722.4	2,652.3	2,998.4		2,998.9
Workers' participation	1.7	1.3	5.6	8.6		8.6
Corporate G&A					33.7	33.7
AISC net of by-product credits (sold)						1,708.3
AISC net of by-product credits (sold) (per tonne)						3,075.1

LIQUIDITY AND CAPITAL RESOURCES

Overview

In the ordinary course of business, our principal funding requirements are for working capital, capital expenditures relating to maintenance and expansion investments, servicing our indebtedness and distributions to our shareholders. We typically meet these requirements through operational cash flows, short, mid or long-term borrowings from private banks, the Brazilian Economic and Social Development Bank (*Banco Nacional de Desenvolvimento Econômico e Social*, or “BNDES”), international export credit agencies, and the issuance of debt securities in the international and local capital markets.

In April 2025, we issued US\$500 million 6.600% senior unsecured notes due in April 2037. The net proceeds of this offering were directed towards funding a cash tender offer for part of our existing notes due in 2027 and in 2028. Also in April 2025, we announced and completed the early redemption and cancellation of all of our outstanding 5.375% Notes due 2027 in the principal amount of US\$110.5 million. This strategic refinancing initiative extends our debt maturity profile, enhances financial flexibility, highlights solid credit metrics and investors' confidence, and reduces near-term refinancing risk.

In May 2025, to enhance our short-term liquidity and take advantage of competitive market conditions, we entered into an Advance on Export Foreign Exchange Contract term loan in the principal amount of US\$40 million at a 5.350% annual interest rate with a six-month maturity term. This loan was repaid in a single installment including principal, interest, and applicable foreign exchange adjustments in December 2025.

In December 2025, we made a partial repayment of US\$60.0 million on an export credit note maturing in 2027, which had an outstanding principal balance of US\$90.0 million prior to this repayment.

Our financing strategy is to fund necessary capital expenditures at competitive cost while preserving liquidity and meeting our debt service obligations. We believe that our cash and cash equivalents on hand, cash generated from operations and available borrowings capacity will be adequate to meet our capital expenditure requirements and liquidity needs for our current obligations. We may, however, require temporary additional capital to support longer-term liquidity and future growth initiatives. Although we believe our sources of liquidity are adequate, weaker economic conditions in Brazil, Peru or globally could materially and adversely affect our business, financial condition, and liquidity.

Sources of funds

Our principal sources of funds are cash flows from operations and borrowings. The availability of cash flows from operations is affected by our working capital requirements and investment activities, as well as a need to service our indebtedness. In 2025, we generated net cash provided by operating activities of US\$365.0 million, a 3.9% increase as compared to US\$351.4 million in 2024, which was largely due to higher operating cash flow, partially offset by higher working capital needs.

Uses of funds

In the ordinary course of business, our principal funding requirements are related to capital expenditures and debt service. In 2025, we also used funds (i) to invest towards sustaining our current operations, (ii) for our working capital needs, (iii) for taxes and (iv) for interest to service debt and debt payments.

Capital expenditures

Our capital expenditures in 2025 amounted to US\$351.9 million, 1.4% higher than our annual guidance mainly attributed to the appreciation of the Brazilian real against the U.S. dollar, which resulted in a negative impact of US\$7 million in 2025.

Non-expansion investments, which includes sustaining, TSF and HS&E, among others, accounted for 99.7% of the total capital expenditures (or US\$350.8 million) in 2025, including the amounts under “Reconciliation to Financial Statements” which are mainly related to capitalization of interest net of advanced payments for imported materials and tax credits.

For 2026, we have budgeted US\$380.8 million to invest in our operations and projects that are currently underway.

Expenses related to mineral exploration and project evaluation

In 2025, mineral exploration expenses were US\$63.1 million, focused on unlocking the mineral potential of our assets. We continue with efforts to replenish and increase available mineral resources as part of our long-term strategy, advancing mineral exploration activities, focusing mainly on identifying new ore bodies through drilling campaigns and preserving our investments in greenfield projects and business development analysis. In 2026, we expect to spend US\$67.7 million on expenses relating primarily to targeting greenfield and brownfield projects.

In 2025, project evaluation expenses amounted to US\$15.1 million. In 2026, we expect to spend US\$18.4 million on Information Technology initiatives to enhance cybersecurity solutions and optimize systems, as well as funding for the implementation of a new tailings stockpile in Aripuanã.

Distributions

Under our dividend policy, we aim to distribute annual dividends, subject to our governance framework and the availability of distributable amounts under Luxembourg law. The annual determination of distributable amounts (through dividends and/or share premium reimbursements) considers several factors, including: (i) cash balance; (ii) free cash flow and earnings generated during the year; (iii) leverage, measured by the Net Debt to Adjusted EBITDA ratio; (iv) capital investment programs and other capital allocation decisions; (v) expected future cash flows from operations; (vi) market volatility; and (vii) strategic planning considerations. In accordance with this policy, we target an annual dividend of up to 20% of free cash flow pre-events (defined as free cash flow excluding the effects of non-recurring or extraordinary items that are not part of our normal operations, including, among others, acquisitions, divestitures, legal settlements, and other one-off transactions), with a minimum payment of US\$0.08 per common share.

For the year ended on December 31, 2025, the Board of Directors proposed a share premium reimbursement equivalent to 20% of the free cash flow pre-events, amounting to approximately US\$17.5 million or US\$0.132136 per share. This proposal is subject to approval at the annual general shareholder meeting, expected to take place on June 25, 2026. If approved, the share premium reimbursement is expected to occur on or around August 11, 2026, to shareholders of record as of July 26, 2026.

Debt

As of December 31, 2025, our total outstanding consolidated indebtedness (current and non-current loans and financings, including accrued interest as of December 31, 2025) is US\$1,706.0 million, consisting of US\$55.4 million of short-term indebtedness, including the current portion of long-term indebtedness (or 3.2% of the total indebtedness), and US\$1,650.6 million of long-term indebtedness (or 96.8% of the total indebtedness). Our outstanding consolidated indebtedness decreased by 3.2% compared to December 31, 2024.

Our U.S. dollar denominated indebtedness as of December 31, 2025, was US\$1,393.9 million (or 81.7% of our total indebtedness), our Brazilian real denominated indebtedness was US\$312.1 million (or 18.3% of our total indebtedness).

As of December 31, 2025, US\$362.3 million, or 21.2% of our total consolidated indebtedness, bears interest at floating rates, including US\$190.0 million of *real*-denominated indebtedness that bear interest at rates based on the CDI, SELIC, TJLP and TLP rates (the long-term interest rates set by the Brazilian National Monetary Council and the basic costs of financing of the BNDES), and US\$172.3 million of foreign currency-denominated indebtedness that bear interest at rates based on SOFR.

Only 3.2% (US\$55.4 million) of the total debt matures in 2026, 2.9% (US\$49.4 million) matures in 2027, 25.6% (US\$436.1 million) matures between 2028 and 2031, 37.3% (US\$636.8 million) matures between 2032 and 2036, while 31.0% (US\$528.2 million) of total debt matures in and after 2037.

We continuously assess short- and mid-term debt to finance operational activities, ensuring business continuity, efficient working capital management, and a stable maturity profile of our debt. Actions related to our capital structure, including, but not limited to, improving the profile of outstanding debt, extending maturity and assessing financing alternatives are constantly under evaluation.

The following table sets forth selected information with respect to our total outstanding consolidated indebtedness as of December 31, 2025.

		As of December 31, 2025		
Indebtedness	Average Annual Interest Rate	Current Portion ⁽¹⁾	Long-term Portion ⁽¹⁾	Total ⁽¹⁾
(in millions of US\$)				
Eurobonds - USD	Pre-USD + 6.67%	19.0	1,202.6	1,221.6
BNDES	TJLP + 2.82%	28.3	147.1	175.4
	SELIC + 3.10%			
	TLP - IPCA + 5.85%			
Export Credit Notes	SOFR + 2.4%	0.9	121.2	122.1
Debtentures	SOFR + 2.5%			
	CDI + 1.50%	4.6	117.5	122.1
Others		2.6	62.2	64.8
Total		55.4	1,650.6	1,706.0

⁽¹⁾ Includes principal and interest.

As of December 31, 2025, US\$175.4 million remains outstanding under our loan agreements with BNDES regarding to Nexa Brazil's facility agreements which are guaranteed only by Nexa Resources.

As of December 31, 2025, some of our debt instruments contained covenants that restrict, among other things, our ability, and the ability of certain of our subsidiaries to incur liens and merge or consolidate with any other person or sell or otherwise dispose of all or substantially all its assets. These instruments also contained covenants requiring that we comply with certain financial ratios, including:

- a debt service coverage ratio equal to or higher than 1.0;
- a net debt to EBITDA ratio equal to or lower than 4.0; and
- an equity to total assets ratio equal to or higher than 0.3.

In 2024, we did not comply with one of the financial covenants included in the BNDES loan agreements, the capitalization ratio, which is measured as equity to total assets ratio, and must be equal to or higher than 0.3. We obtained a bank guarantee in accordance with the loan agreements which guaranteed us the right to classify the debt as long-term. Subsequently, in February 2025, we obtained a waiver from BNDES for the period from December 31, 2024, to December 31, 2025.

During 2025, we engaged in negotiations with BNDES and, on December 22, 2025, obtained a side letter authorizing: (i) the waiver of the financial covenants applicable to the fiscal year ended December 31, 2025, and (ii) the replacement of such covenants with a new contractual obligation to maintain a minimum corporate credit rating. The corresponding amendments to the loan agreements are expected to be executed within 120 days from the issuance of the letter. In accordance with the letter, the previous financial ratio requirements were replaced with minimum global-scale rating requirements. Given that the letter was issued prior to year-end and provides a legally enforceable and unconditional right to defer settlement, there was no event of default, and the previous covenants no longer affect the loan's maturity profile. As of December 31, 2025, we were in compliance with these requirements, and management has not identified any conditions that would indicate a potential downgrade below the required levels.

Short-term indebtedness and revolving credit lines

Our consolidated short-term indebtedness, including the current portion of our long-term debt, was US\$55.4 million, including principal and interest, as of December 31, 2025.

We have a US\$320 million sustainability-linked revolving credit facility, to support our liquidity profile, and the applicable margin may vary subject to compliance with carbon reduction key performance indicators. The facility is guaranteed by Nexa Brazil and Nexa CJM, and will mature in October 2028, and amounts drawn are subject to an initial interest rate of 1.60% plus Term SOFR per annum. As of December 31, 2025, no amounts were drawn under this facility.

In May 2025, to enhance our short-term liquidity and take advantage of competitive market conditions, we entered into a Term Loan of Advance on Export Foreign Exchange Contract in the principal amount of US\$40 million at a 5.35% annual interest rate with a six-month maturity term. This loan was repaid in a single installment, including principal, interest, and applicable foreign exchange adjustments.

In December 2025, we made a partial early repayment of US\$60.0 million for an export credit note maturing in 2027, which had an outstanding principal balance of US\$90.0 million prior to the repayment.

We believe that, based on current market conditions and our liquidity position, we will continue to secure sufficient credit to finance our working capital needs. See “Risk factors—Financial risk— Our business requires substantial capital expenditures and is subject to financing risks.”

Long-term indebtedness

The following discussion briefly describes our principal financing agreements as of the date of this annual report. For additional information, see Note 24 to our consolidated financial statements.

- *Debentures.* In April 2024, our wholly owned subsidiary Nexa Brazil issued 650,000 non-convertible ESG-linked debentures, each with a par value of R\$1,000.00, totaling R\$650 million (approximately US\$130 million). The debentures mature on March 28, 2030, are unsecured, bullet, and bear interest at 100% of CDI interest rate plus 1.50% per annum. In March 2025, we entered into a cross-currency swap agreement to change the variability of the CDI exposure associated with these debentures to an effective fixed rate in USD of approximately 6.21% per annum. As of December 31, 2025, our outstanding principal amount under this debenture was US\$122.1 million, including accrued interest.
- *Export Finance Notes.* In December 2023, we issued a Credit Note in the total principal amount of US\$50 million with maturity date of five years and costs of 2.20% plus TERM SOFR. As of December 31, 2025, our outstanding principal amount under this facility was US\$50.1 million, including accrued interest.
- *Export Credit Notes.* In March 2024, we extended by five years one of our remaining Export Credit Notes which was maturing on October 2024 with a cost of TERM SOFR plus 2.4%, in the total initial facility amount of US\$90.0 million. As of December 31, 2025, our outstanding principal amount under these Export Credit Notes was US\$91.6 million, including accrued interest.
- *Export Credit Notes.* In March 2022, we issued Export Credit Notes in the total principal amount of US\$90 million with a maturity date of five years and costs of 2.5% plus TERM SOFR. In December 2025, we made a partial early repayment of US\$60.0 million, plus the proportional accrued interest. As of December 31, 2025, our outstanding principal amount under our Export Credit Notes was US\$30.6 million, including accrued interest.
- *Nexa Resources Bonds due 2028.* In June 2020, we issued an aggregate principal amount of US\$500.0 million in bonds maturing in 2028 and bearing interest at 6.500% per year. The bonds are guaranteed by our subsidiaries Nexa Brazil, Nexa Peru, and Nexa CJM. In April 2024, we repurchased approximately 19.9% of the outstanding principal amount of the 2028 Notes. As of December 31, 2025, the outstanding amount under these bonds was US\$113.9 million, including accrued interest.

Nexa Resources Bonds due 2034. In April 2024, we issued an aggregate principal amount of US\$600.0 million in senior unsecured notes maturing in 2034 and bearing interest at 6.750% per year. The bonds are guaranteed by Nexa Brazil and Nexa CJM. The net proceeds of this offer were used to fund cash tender offers for our existing bonds due 2027 and 2028, which were validly tendered and accepted for purchase pursuant to the tender offers. As of December 31, 2025, the outstanding amount under these notes was US\$604.7 million, including accrued interest.

Nexa Resources Bonds due 2037. In April 2025, we issued an aggregate principal amount of US\$500.0 million in senior unsecured notes maturing in 2037 and bearing interest at 6.600% per year. The bonds are guaranteed by Nexa Brazil and Nexa CJM. The net proceeds of this offer were used to fund cash tender offers for our existing bonds due 2027 and 2028, which were validly tendered and accepted for purchase pursuant to the tender offers. As of December 31, 2025, the outstanding amount under these notes was US\$502.9 million, including accrued interest.

BNDES - ESG linked credit line. In June 2024, Nexa Brazil drew upon an ESG linked credit line from BNDES amounting to R\$200.0 million, with a term of approximately 8 years, maturing in March 2032. The credit line carries interest rate of IPCA plus 5.4% p.a. and a spread of 1.84%. Following a 2-year grace period, amortization of the loan will occur in 72 consecutive installments. After the 2-year grace period, the spread rate of 1.84% may be reduced to 1.44% if certain ESG goals are met, otherwise, the rate will increase to 2.84%. As of December 31, 2025, our outstanding principal amount under this loan agreement was US\$35.7 million, including accrued interest and fees.

BNDES - Aripuanã Loan. We have obtained a multi-tranche Credit Facility Agreement from BNDES for our Aripuanã Project with a cost of TLP IPCA plus 5.89%, maturing in 2040. As of December 31, 2025, our outstanding principal amount under this loan agreement was US\$113.7 million, including accrued interest.

BNDES - Revolving credit agreement I and II. We have obtained a multi-tranches Credit Facility Agreement from BNDES for our several projects (mainly Vazante Mine Deepening) with a cost of TLP plus 5.13%, SELIC plus 3.10%, TJLP plus 2.82% and TLP - IPCA plus 5.22%, with the final tranche maturing in 2028. As of December 31, 2025, our outstanding principal amount under these loan agreements was US\$25.9 million, including accrued interest.

FINEP. In 2014, Nexa Brazil obtained a loan from the Brazilian Financing Agency for Studies and Projects (*Financiadora de Estudos e Projetos* or “FINEP”), to finance the research and development of various projects. As of December 31, 2025, our outstanding principal amount under this loan agreement was US\$14.6 million, including accrued interest.

The following table sets forth selected information with respect to Nexa Brazil’s principal long-term financings with BNDES and our outstanding amount under these financings as of December 31, 2025.

Indebtedness	Borrower	Guarantor	Interest Rate	Payments Commencing on	Maturity Date	Principal Amount Outstanding As of December 31, 2025 (in millions of US\$)
R\$200.0 million ESG-linked credit line	Nexa Brazil	Nexa Resources	IPCA plus 7.35%	April 15, 2026	March 15, 2032	35.7
Total						35.7
R\$1,000.0 million BNDES Revolving Credit Agreement I	Nexa Brazil	Nexa Resources	TLP plus 5.13% per annum	January 15, 2019	December 15, 2028	5.3
Total						5.3
R\$1,200.0 million BNDES Revolving Credit Agreement II ⁽¹⁾	Nexa Brazil	Nexa Resources	SELIC plus 3.10% per annum	October 15, 2021	September 15, 2026	7.2
	Nexa Brazil	Nexa Resources	TJLP plus 2.82% per annum	September 15, 2017	September 15, 2026	3.2
	Nexa Brazil	Nexa Resources	TLP - IPCA plus 5.89% per annum	January 15, 2019	December 15, 2028	10.2
Total						20.6
Credit Facility Agreement	Nexa Brazil	Nexa Resources	TLP plus 5.52% per annum	March 15, 2023	August 15, 2040	113.7
Total						113.7
Total BNDES Long-Term Indebtedness						175.4

⁽¹⁾ Consists of three tranches.

Cash flows

The table below presents our cash flows from operating activities, investing activities and financing activities for the years ended December 31, 2025, and 2024.

	For the Year Ended December 31,	
	2025	2024
	(in millions of US\$)	
Consolidated Statement of Cash Flows Information		
Net cash flows provided by (used in):		
Operating activities	365.0	351.4
Investing activities	(297.0)	(238.1)
Financing activities	(185.3)	62.4
Foreign exchange effects on cash and cash equivalents	12.7	(12.4)
Increase (decrease) in cash and cash equivalents	(104.6)	163.3
Cash and cash equivalents at the beginning of the year	620.5	457.3
Cash and cash equivalents at the end of the year	515.9	620.5

In 2025, our net cash flow provided by operating activities was US\$365.0 million, primarily due to an increase in the confirming payables program, along with interest and foreign exchange effects, which offset higher income tax payments.

In 2025, our net cash flow used in investing activities was US\$297.0 million to maintain the sustainability of our business and invest in our growth, mainly related to sustaining investments related to mine development and the acquisition, replacement, and repairs of equipment in our operations.

In 2025, our net cash flow used in financing activities was US\$185.3 million as a result of activities resulting from our liability management actions conducted during the year, such as bond repurchases, payments of loans and financings (including the partial repayment of an export credit note and the full settlement of a short-term loan), payment of share premium reimbursement and payments of lease liabilities.

As a result, on December 31, 2025, our cash and cash equivalents were US\$515.9 million, US\$104.7 million lower compared to our cash and cash equivalents on December 31, 2024.

RISK MANAGEMENT

Risk management is considered one of the key points in our business strategy and contributes to value creation and increasing the level of confidence in us by its main stakeholders, including shareholders, employees, customers, suppliers, and the local communities.

As a result, we have adopted an Enterprise Risk Management Policy that describes our Risk Management Model as available at our website, and its activities are an integral part of the processes in our operational units, corporate departments, and projects, and provide support for decision-making by our executive officers and Board of directors.

Risks are categorized into four major classes—strategic, financial, operational, and regulatory—and further broken down into categories and subcategories. We seek to identify material risks, which are then assessed with consideration of the potential health and safety, environmental, social, reputational, legal and compliance, cybersecurity and information security, and financial impacts. Our risk governance operates through three integrated levels: the executive level (the board and the management committee) addresses strategic and prioritized risks; the tactical level (corporate vice-presidents and general managers) translates strategic policies into concrete actions and determines which risks to escalate; and the transactional level (operational managers and process leaders) manages risks that emerge in daily operational processes, including health and safety. In this context, we promote a culture of collective ownership of risk management, where risks are identified, discussed, and shared across the organization. While governance and oversight responsibilities are clearly defined, risk ownership is embedded throughout our business, and employees at all levels are expected to actively contribute to the identification and management of risks within their areas of responsibility. By embedding risk management into our work processes and critical business systems through this structured approach, we work to ensure we make decisions based on our risk appetite, which is reviewed annually and validated by senior management, based on relevant inputs and valid data.

We ensure a coordinated approach to risk management by integrating processes across Risk Management, Internal Controls, Internal Audit, Compliance, and our Ethics Hotline, aligning our approach when managing the same risk on different fronts. The Risk Committee, a standing committee of the Management Committee, monitors the risks that may affect the achievement of our objectives, provides oversight across all risk categories, approves and oversees the processes used to identify, evaluate, and manage risks, and issues recommendations to the Management Committee related to performance of risk controls, compliance with action plans, and risk response strategies. The Risks Area is responsible for coordinating the preparation and consolidation of information to be presented at each governance level, in line with the defined information hierarchy, and ensuring that such information is updated in accordance with the frequency of the applicable forums.

Financial risk

We consider market risk to be the potential loss arising from adverse changes in market rates and prices. We are exposed to several market risks arising from our normal business activities. These market risks, which are beyond our control, principally involve the possibility that changes in commodity prices, interest rates or exchange rates will adversely affect the value of our inventory, financial assets and liabilities or future cash flows and earnings. For information on our risk management policies, see Note 12 to our consolidated financial statements.

Our financial risk management policy seeks to preserve our liquidity and protect our cash flow and its operating components (revenues and costs), as well as financial components (financial assets and liabilities) against adverse credit and market events such as fluctuations in currency and interest rates.

A significant portion of the products we sell are commodities, with prices based on international indices and denominated in U.S. dollars. A portion of our costs, however, are denominated in *reais* and *soles*, and therefore leads to a mismatch of currencies between our revenues and costs. Additionally, our indebtedness is based on different indices and currencies, which may impact our cash flows.

Our current financial risk management policy includes:

- **Foreign Exchange Exposure Management.** Foreign exchange exposure is our exposure to fluctuations in the currencies that make up our commercial, operational, and financial relations (the *real* and *sol*), and that may impact our U.S. dollar cash flow. All actions in the financial risk management process are intended to hedge our cash flow in U.S. dollars, to maintain our ability to pay our financial obligations and to comply with liquidity and indebtedness levels defined by our management team. Our foreign exchange hedge mechanisms are based on the foreign exchange exposure that is projected at least for 12 months after a reference date.

- **Interest Rate Exposure Management.** Exposure to the interest rate is our exposure to fluctuations in each of the indices of interest rates (mainly CDI, SOFR and TJLP) from loans and financing transactions and financial investment that may impact our cash flow. Interest rate fluctuations would also result in gains or losses in the market value of our fixed rate debt portfolio due to differences in market interest rates and the rates at the execution of the debt agreements.
- **Commodity Exposure Management.** Exposure to commodity prices is our exposure to income and operating costs fluctuations due to changes in the reference prices for commodities (*e.g.*, zinc, copper, silver) based on demand, production capacity, producers' inventory levels and commercial strategies and the availability of substitutes in the global market. We calculate our exposure for at least 12 months after a reference date, considering any derivative financial instrument that has a certain commodity as the underlying asset.
- **Counterparties and Issuers' Risk Management.** This policy establishes exposure limits for financial and non-financial institutions that are counterparties of financial transactions and/or issuers of debt securities. The purpose of our counterparties and issuers' risk management is to mitigate the occurrence of negative impacts on our cash flows from the non-fulfillment of financial obligations by these issuers and counterparties. In the case of financial investments (cash allocation), we measure exposure to credit risk of issuers by the sum of gross balances of financial investments. In the case of derivative transactions, the credit risk exposure of a certain counterparty and transaction is measured by the pre-settlement risk using statistical models. Exposure limits are determined based on ratings assigned by rating agencies and the equity of the relevant financial institution.
- **Liquidity and Financial Indebtedness Management.** This policy establishes guidelines for managing our liquidity and financial indebtedness. The main instrument for measuring and monitoring liquidity is a cash flow projection, considering a minimum projection period of 12 months from the reference date. Liquidity and debt management considers as an objective the comparable metrics provided by global credit rating agencies for investment grade entities. With respect to indebtedness, metrics considered compatible with the relevant objective are considered.

All proposals must comply with the guidelines and rules set forth in our Financial Risk Management Policy and subsequently submitted for review by our Finance Committee and then for our Board of directors' approval, under the governance structure set forth in our Financial Risk Management Policy.

The following sensitivity analyses present the estimated impact on our Adjusted EBITDA from changes in the principal market variables to which our results are exposed. Commodity prices, particularly zinc, represent our most significant market risk, with a 10% change in zinc prices estimated to impact Adjusted EBITDA by approximately US\$78.2 million, or approximately 10% of our 2025 Adjusted EBITDA. Foreign exchange movements, particularly in the Brazilian real and Peruvian sol, represent the second most significant market risk. Interest rate exposure is comparatively lower, given the predominantly fixed-rate structure of our debt portfolio. Each sensitivity is calculated independently, holding all other variables constant, and does not reflect management actions that could be taken to mitigate the impact.

Metal price sensitivity

We are subject to financial risks arising from the volatility of prices of zinc, copper, lead, and silver, and to a lesser extent gold. Assuming that expected metal production and sales are achieved, that tax rates are unchanged, and giving no effect to potential hedging programs, metal price sensitivity factors would indicate the following change in our 2025 Adjusted EBITDA (as previously defined) attributable to us resulting from metal price changes.

	Zinc	Copper	Lead	Silver
Change in metal price (in percentage)	10%	10%	10%	10%
Estimated change in Adjusted EBITDA (in millions of US\$)	78.2	30.3	10.6	32.6

Foreign exchange risk

We are subject to foreign exchange risks resulting from the fluctuation of the *real* and the *sol* against the U.S. dollar, our functional currency. All actions in the financial risk management process related to our foreign exchange exposure are intended to hedge our cash flow in U.S. dollars, to maintain our ability to pay our financial obligations and to comply with liquidity and indebtedness levels defined by our management. We are also exposed to financial risk associated with changes in foreign currency exchange rates as certain costs incurred are in currencies other than our functional currency.

Assuming that expected metal production and sales are achieved, that tax rates are unchanged, and giving no effect to potential hedging programs, a 10% exchange rate appreciation or devaluation of the Brazilian real against the U.S. dollar as of December 31, 2025, we estimate that our Adjusted EBITDA would have increased or decreased by the dollar amounts shown below. This calculation assumes that each exchange rate would change in the same direction relative to the U.S. dollar.

	+10%	-10%
Estimated change in Adjusted EBITDA (in millions of US\$)	+59.4	-72.6

In addition to the direct effects of changes in exchange rates, changes in exchange rates may also affect the volume of sales as other market participants become more or less competitive. This sensitivity analysis does not factor in a potential change in sales levels or actions that management could take to manage the potential impact. Accordingly, the actual effect of exchange rate fluctuations will vary from period to period. However, assuming all other factors are held constant, we would expect future fluctuations like those analyzed above to have a similar potential impact on our results for future periods. See “Forward-looking Statements.”

Interest rate risk

A portion of our outstanding debt bears interest at variable rates and, accordingly, is sensitive to changes in interest rates. Based upon our indebtedness as of December 31, 2025, an increase/(decrease) in SOFR of 25.0% would impact our income statement for the year and cash flows by US\$1.6 million. We calculate our exposure to fluctuations in interest rates at least 12 months after a reference date, considering any derivative financial instrument that has certain index as the underlying asset. Based on these exposures, we prepare financial protection proposals, which are submitted to our Finance Committee’s approval. The hedges of interest rates, in general, seek to exchange fixed interest rate to floating interest rate or vice versa.

Derivative instruments

To hedge against financial risk, we enter derivative transactions under our Financial Risk Management Policy. Those transactions are conducted in the over-the-counter market under master agreements such as International Swaps and Derivative Association and Brazilian *Contrato Geral de Derivativos* (“CGD”) Agreements.

None of the derivative transactions we are partying to as of December 31, 2025, have corporate guarantees or require margin calls or any kind of collateral. None of the derivatives we were party to as of December 31, 2025, were entered into for speculative or arbitrage purposes.

We have the following recurring hedge programs in place:

Commodity Hedges

Hedge for concentrate sales (Strategic Hedge)

The objective of our strategic hedge is to reduce the volatility of cash flows due to price fluctuations in LME prices for zinc, copper, and lead, as well as London Bullion Market Association (LBMA) prices for silver and gold contained within these concentrates. This approach helps ensure a more predictable operating margin.

The hedged items are the proportion of payable metals (zinc, copper, lead, gold, and silver) within the sold concentrates, priced by the LME or the LBMA. We implement this strategic hedge through the sale of forward contracts or zero-cost collar contracts.

Hedge for mismatches of quotational periods (Book Hedge)

The objective of our book hedge is to mitigate the risk of mismatches in quotational periods arising between the purchases of metal concentrate or processed metal and the sale of processed metal. These transactions usually involve the purchases and sales of zinc for future trading on the over-the-counter market.

For this strategy, the hedged items are the percentages of payable zinc contained in the purchased concentrates by the smelters and the percentages of payable zinc contained in the sold metals. Concentrates from integrated own mines, and consequently the metals produced from these concentrates, are not part of this strategy as they do not bear the risk of mismatches of quotation periods.

Hedge for non-standard price metal sales (Customer Hedge)

The objective of our customer hedge is to maintain the revenues of a business unit linked to a standard LME quotational period ("QP") price, converting non-standard QPs offered to specific customers to a standard QP. For this strategy, the hedged item is the percentage of payable metal contained in the processed metals sold with the price negotiated on the LME.

On December 16, 2025, we implemented a new gold and silver revenue hedge program using "Zero Cost Collar" derivative instruments as part of our commodity risk management strategy. This was done to reduce the exposure of our Peru operations to commodity price risk in 2026 and to protect its margins. The Zero Cost Collars have monthly maturities until December 2026, in line with the forecast volume percentages provided by the commercial team. A Zero Cost Collar involves simultaneously buying and selling options to limit exposure to adverse price movements of commodities while capping potential gains within a predefined range. These contracts are designated as hedging instruments in accordance with IFRS 9.

Foreign Exchange hedge

Our cash flow is subject to currency volatility because the prices of our products are predominantly indexed to the U.S. dollar, while a significant portion of our costs are denominated in other currencies. Additionally, some debts and financial obligations are contracted in currencies other than the U.S. dollar, which also generates foreign exchange risk. To mitigate these risks, we may engage in derivative transactions, such as forwards, swaps, and options, to hedge its cash flow against foreign exchange fluctuations.

Interest Rate hedge

The Interest Rate hedge aims to protect our cash flow from fluctuations in interest rates associated with our financial assets or liabilities. Each interest rate exposure is projected until the maturity of the corresponding assets or liabilities. The hedging strategies may include exchanging a fixed interest rate for a floating interest rate, or vice versa; swapping one floating interest rate for another; or converting an interest rate (whether fixed or floating) denominated in one currency into an interest rate (whether fixed or floating) denominated in another currency.

On March 28, 2025, we executed a cross-currency swap with a notional amount of US\$112,652 (BRL 650,000 at the transaction date) to hedge the BRL exposure on Nexa Brazil debentures issued on April 2, 2024. The swap mirrors the interest and principal payment terms of the debentures, which mature on March 28, 2030, with semi-annual payments. Under the agreement, we pay 6.209% on the U.S. Dollar notional and receive CDI + 1.50% per annum floating on the BRL notional. This instrument is recognized at fair value through profit or loss (FVTPL) under net financial results.

We initially recognize derivative instruments at fair value on the date a derivative contract is entered into and subsequently remeasure at their fair value. The method of recognizing the resulting gain or loss depends on whether we designate the derivative as a hedging instrument, in the case of adoption of hedge accounting, and if so, the nature of the item being hedged. We adopt the hedge accounting procedure and designate certain derivatives as either:

- hedges of the fair value of recognized assets or liabilities or a firm commitment (fair value hedge); or
- hedges of a particular risk associated with a recognized asset or liability or a highly probable forecast transaction (cash flow hedge).

We document the relationship between hedging instruments and hedged items at the inception of the hedging transaction, as well as the risk management objective and strategy for the undertaking of the various hedge transactions. We also document our assessment, both at the inception of the hedge and on an ongoing basis, of whether the derivatives that are used in hedging transactions have been and will continue to be highly effective in offsetting changes in fair values or cash flows or fair values of hedged items.

Cybersecurity

Risk Management and Strategy

We maintain a comprehensive process for assessing, identifying, registering, addressing, and managing material risks associated with cybersecurity that may impact on our business, including risks related to disruption of business operations, financial reporting systems, or our financial statements, as well as fraud, regulatory, reputational, and business continuity risks.

We prioritize the identification and management of cyber risks, focusing on adopting controls, technologies and processes that support cybersecurity, developing IT systems and infrastructure, emphasizing the confidentiality and privacy of data and information, and complying with legal and regulatory requirements. Our cybersecurity risk management process includes the following:

- Using our cybersecurity risk management practices integrated with our Enterprise Risk Management. We adopted National Institute of Standards and Technology ("NIST") framework based on six pillars: Govern, Identify, Protect, Detect, Respond and Recover, and in collaboration with external partners, we assess our adherence to the NIST framework through an analysis of our cybersecurity processes and technologies. In 2025, We conducted a maturity assessment based on the NIST framework to prioritize actions for the next two years. Utilizing material components within our cybersecurity framework, such as firewalls, Intrusion Detection and Protection system, endpoint detection and response mechanisms, phishing tests and annual penetration and intrusion tests to identify threats and vulnerabilities that could be exploited by cybersecurity attacks and reviewing relevant tactics, techniques, and procedures to prepare for a cyber-attack;
- Involving a dedicated team of professionals who monitor and act on cybersecurity events and risks including the Information Technology and Automation Technology areas. This team is responsible for creating, implementing, overseeing, and managing controls provided for specific cybersecurity policies and procedures, in addition to presenting priorities and strategies for information and cyber security. This team is overseen by a Chief Information Security Officer ("CISO") who reports to the Cybersecurity committee ("COSEG"). Furthermore, we partner with strategic vendors to aid in the implementation and management of our cybersecurity controls;
- Providing requisite training and ensuring employees comply with cybersecurity programs and policies;
- Utilizing a comprehensive Cybersecurity Materiality Matrix to identify material cybersecurity incidents;
- Maintaining a comprehensive incident response plan and playbooks in the event of a cyber-attack that consists of defined policies, processes, and protocols for identifying a cybersecurity attack, analyzing the materiality of a cyber incident, responding to and recovering the technological environment, communicating the incidents to internal parties, and if necessary or required under various regulatory regimes, external parties, and completing a closing analysis to identify possible improvements of processes and controls;

- Utilizing a cyber incident module in the Information Technology Service System to register incidents and conduct materiality analyses.

Cybersecurity Governance

Board of directors and Audit Committee

Our Board of directors has delegated direct oversight into cybersecurity matters to the Audit Committee. The Audit Committee collaborates with management to implement processes focused on monitoring cybersecurity, receiving regular updates on cybersecurity testing, incident response plans, and policies. The committee ensures regular risk assessments are conducted, receives periodic reports on any significant incidents, and establishes communication protocols for cybersecurity events.

Cybersecurity Management

Cybersecurity at Nexa is managed by COSEG, which is the executive committee responsible for overseeing our cybersecurity strategies and policies, including but not limited to, assessing and managing our material risks from cybersecurity threats. COSEG is composed of our senior managers and executives, including the CIO and CISO. On a regular basis, the results of operational cybersecurity indicators are presented to COSEG by the CISO. Our cybersecurity management is established based on cybersecurity policies and processes, a dedicated cybersecurity budget, technological solutions, human resources, suppliers, and a departmental structure for cybersecurity. COSEG regularly reviews, tests, and updates cybersecurity processes, discussing materiality determinations, ransomware attacks, and breaches. The Management Committee stays updated on technological, industry, and public policy developments related to cybersecurity risks and best practices and evaluates the need for external expert engagement or law enforcement involvement and conduct thorough investigations of cyber breaches. As of the date of this filing, we have not identified any incidents that would be deemed material within the context of the SEC's requirements.

III. SHARE OWNERSHIP AND TRADING

MAJOR SHAREHOLDERS

As of March 26, 2026, Nexa Resources has 132,438,611 common shares outstanding, with par value of US\$1.00 per share. The table below sets forth the list of our shareholders and their participation in our capital stock.

Votorantim S.A. is Nexa Resources' controlling shareholder. VSA does not have any different voting rights, but as long as it holds a majority of our voting stock, it can influence or control matters requiring approval by our shareholders, including the appointment of directors. VSA acquired all its shares in Nexa Resources on February 26, 2014.

Shareholder	Number	Share Capital (%)
VSA	85,655,128	64.68%
Public	46,783,483	35.32%
Total	132,438,611	100.00%

VSA

As of March 26, 2026, Hejoassu Administração S.A., or Hejoassu, is the sole shareholder of VSA's capital stock, which consists of 18,278,788,894 common shares. Hejoassu is indirectly wholly owned by a number of individuals, some of whom are related to our Board member Luís Ermíro de Moraes, through controlled companies.

RELATED PARTY TRANSACTIONS

We enter into transactions with related parties, including VSA and companies that are owned or controlled, directly or indirectly, by VSA, in our ordinary course of business. These transactions are conducted on an arm's length basis and in accordance with applicable laws and our corporate governance policies. See "Risk Factors—Risks relating to our corporate structure—VSA has substantial control over us, which could limit our shareholders' ability to influence the outcome of important corporate decisions." In accordance with article 441-7 of the Luxembourg law of August 10, 1915, concerning commercial companies, as amended ("1915 Law"), any member of our Board of directors having a direct or indirect financial interest conflicting with that of Nexa Resources in a transaction put before the Board for consideration must advise the Board thereof and cause a record of such member's statement to be included in the minutes of the meeting. The director may not take part in these deliberations and at the next following general meeting of shareholders of Nexa Resources, before any other resolution is put to vote, a special report shall be made on any such conflicted transactions. This shall not apply whereas the decision of the Board relates to ordinary business entered into under normal market conditions. A similar rule is stated in the article 441-12 of the Law 1915 and applies to the members of the Management committee.

We have controls in place in order to identify related parties on a quarterly basis and approve related party transactions in advance. Such controls include an analysis by the related party group, an internal committee, and in certain circumstances, the Audit Committee, which is required for the execution of related party transactions.

The table below sets forth the balances of our principal-related party transactions as of the dates and periods indicated. The entities disclosed are entities part of the Votorantim Group. The transactions relate to shared project costs such as environmental protection; administrative services provided by the Center of Excellence (*Centro de Excelência*); sales of limestones and cement purchases, mainly for the Aripuanã project; purchases of energy to be used in Nexa Brazil operation units and construction services for the Aripuanã project, among others.

Related Party Transaction Balances	As of December 31, 2025 (in millions of US\$)
Related Party Assets	
Current assets	
Cash and cash equivalents	
Scotiabank Peru S.A.A.	40.3
Total	40.3
Trade Accounts Receivables	
Companhia Brasileira de Alumínio	0.2
Acerbrag S.A.	0.8
Votorantim Cimentos S.A.	0.6
Total	1.6
Trade payables and leases	
Votorantim S.A.	1.4
Votorantim Cimentos S.A.	0.4
Auren Comercializadora de Energía Ltda.	0.6
Campos Novos Energia S.A.	10.0
Scotiabank Peru S.A.A.	63.9
Other	0.1
Total	76.4
Dividends payable	
Auren Comercializadora de Energia Ltda.	24.2
Other	2.7
Total	26.9
Related Party liabilities	
Votorantim S.A	4.7
Total	4.7

We summarize below some of our principal-related party transactions.

	For the Year Ended December 31,
	2025
Related Party Transactions	(in millions of US\$)
Sales	
Acerbrag S.A.	1.4
Companhia Brasileira de Alumínio	0.3
Total	1.7
Purchases	
Votorantim S.A.	6.9
Companhia Brasileira de Alumínio	0.1
Auren Comercializadora de Energia Ltda.	5.0
Campos Novos Energia S.A.	47.6
Scotiabank Peru S.A.A.	0.6
Other	3.2
Total	63.4

Scotiabank Peru S.A.A.

We have cash and cash equivalents and incur in interest expenses on lease contracts with Scotiabank Peru S.A.A., a company in which one of our directors holds the position of Chair of the Board of Directors and therefore may have significant influence.

Shared arrangements

We have entered into a number of shared services contracts with other entities in the Votorantim Group in an effort to achieve operational efficiencies. These include joint contracts for insurance coverage and information technology. Entities in the Votorantim Group with whom we maintain such contracts have access to a substantial level of information about us. In addition, VSA negotiates our insurance coverage at the level of the Votorantim group, and we thus depend on choices made by VSA for selecting the service providers to be used for all insurances contracted by us, including coverage related to property, transport, liability, credit, and engineering risk insurances. We retain the right of approval of contract renewal terms negotiated by VSA.

In addition, all executive officers participate in the *Fundação Senador José Ermírio de Moraes* (“FUNSEJEM”) pension fund, a private, closed and not-for-profit pension fund responsible for the management of the pension plans for the employees of companies linked to the Votorantim Group.

See “Risk Factors—Risks relating to our corporate structure—VSA has substantial control over us, which could limit our shareholders’ ability to influence the outcome of important corporate decisions.”

DISTRIBUTIONS

Distributions to our shareholders are subject to Luxembourg law and approval of our Board of Directors or shareholders, as applicable, and depend on factors including our cash balance, cash flow, earnings, capital investment plans, expected future cash flows, strategic plans, cash dividend distributions from subsidiaries, legal requirements, and other relevant factors. As of December 31, 2025, there were no contractual restrictions on our ability to make distributions. Based on our current dividend policy, we target an annual dividend of up to 20% of our free cash flow pre-events (defined as free cash flow before considering significant, non-recurring, or extraordinary events such as debt amortization, new funding, dividend payments, and other extraordinary payments), with a minimum payment of US\$0.08 per common share. Each common share entitles the holder to participate equally in distributions, unless the right has been suspended in accordance with our articles of association or applicable law. Distributions may be made as dividends or reimbursements of share premium. Under Luxembourg law, dividends are determined by simple majority vote at a general shareholders' meeting based on our Board's recommendation. Our Board may also declare interim dividends in the event of unexpected profits or non-recurring revenue increases (subject to certain requirements, including preparation of interim accounts), and/or proceed with reimbursements of share premium in accordance with the 1915 Law.

Distributions (including dividends or share premium reimbursements) may only be made from amounts available for distribution under Luxembourg law, determined based on our standalone statutory accounts prepared under Luxembourg GAAP. Under Luxembourg law, the distribution amount may not exceed profits at the end of the last fiscal year plus profits carried forward and amounts drawn from available reserves, less losses carried forward and sums to be placed in reserve in accordance with Luxembourg law or our articles of association. No distributions may be made if at the end of the last fiscal year the net assets as set out in the standalone statutory accounts are, or following such distribution would become, less than the subscribed share capital plus non-distributable reserves. Distributions in the form of dividends may only be made from net profits and profits carried forward, whereas share premium reimbursements may only be made from available share premium. Luxembourg law also requires at least 5.0% of our net profits per year to be allocated to the creation of a legal reserve until such reserve has reached an amount equal to 10.0% of our issued share capital. If the legal reserve subsequently falls below the 10.0% threshold, at least 5.0% of net profits again must be allocated toward the reserve. The legal reserve is not available for distribution. As of December 31, 2025, the legal reserve is US\$13,332,051.30.

The table below outlines the distributions paid or expected to be paid to our shareholders. In 2023, 2024 and 2025, distributions were made solely in the form of share premium reimbursements.

	For the Year Ended December 31,		
	2025	2024	2023
	(in millions of US\$)		
Distributions to shareholders	17.5	13.4	25.0

For the year ended December 31, 2025, the Board of Directors has proposed a share premium reimbursement equivalent to 20% of the free cash flow pre-events, amounting to approximately US\$17.5 million or US\$0.132136 per share. This proposal remains subject to approval at the Annual General Shareholder Meeting, which is expected to take place on June 25, 2026. If approved, the share premium reimbursement is expected to occur on or around August 11, 2026, for shareholders of record as of July 28, 2026.

Nexa Resources is a holding company and has no material assets other than its ownership of shares in its subsidiaries. When Nexa Resources pays a dividend or other distribution on its common shares in the future, it generally causes its operating subsidiaries to make distributions to it in an amount sufficient to cover any such dividends or distributions. The ability of subsidiaries of Nexa Resources to make distributions to Nexa Resources is subject to their capacity to generate sufficient earnings and cash flow and may also be affected by statutory accounting and tax rules in Brazil and Peru, as well as any conditions under the corporate law applicable to each subsidiary.

A Luxembourg withholding tax of 15.0% is generally due on dividends and similar distributions made by Nexa Resources to its shareholders. However, distributions on Nexa Resources' common shares that are sourced from a reduction of share capital or share premium (stemming from contributions made by the shareholders) should not be subject to Luxembourg withholding tax if Nexa Resources does not have distributable reserves or profits in its standalone statutory accounts prepared under Luxembourg GAAP and provided that such distributions are made for genuine economic reasons. See "Additional Information—Taxation—Luxembourg tax considerations—Shareholders."

There is no tax law, tax governmental decree or tax regulation in Luxembourg that would affect the remittance of dividends or other distributions by Nexa Resources to non-resident holders of its common shares, except that there may be a withholding tax on such distributions. In certain limited circumstances, the implementation and administration of international financial sanctions may affect the remittance of dividends or other distributions. There are no specified procedures for nonresident holders to claim dividends or other distributions.

Computershare Trust Company, N.A., is the pay agent for shareholders who hold common shares listed on the NYSE. Dividends and other distributions on our common shares will be declared and paid in U.S. dollars.

TRADING MARKETS

Our publicly traded share capital consists of common shares with a par value of US\$1.00 per share. Our common shares are publicly traded in the United States on the NYSE, under the ticker symbol NEXA. On March 26, 2026, there were 132,438,611 common shares issued and outstanding.

PURCHASES OF EQUITY SECURITIES BY THE ISSUER AND AFFILIATED PURCHASERS

We did not repurchase any shares during 2025. As of December 31, 2025, there were no authorized share buyback programs.

IV. CORPORATE GOVERNANCE, MANAGEMENT AND EMPLOYEES

CORPORATE GOVERNANCE

Our corporate governance model is aimed at facilitating the flow of information between our executives and other key decision-makers on our management team, specifically, our Board of directors, Board committees, and Management committee. Our corporate governance model also provides a framework for the duties of our management team, including oversight of our performance and decision-making. Our main corporate governance activities include support for Board of directors, Board advisory committees, and executive Board meetings (management committee); contribution to the process of preparing the annual report on governance practices; and elaboration of governance documents and updating of best practices.

Our corporate governance model is designed to ensure that the proper corporate governance principles are consistently applied within our organization. We have adopted certain corporate governance policies and practices that include internal rules for the Board of directors and key committees that have independent representation and leadership, including an audit committee and a compensation, nominating and governance committee. The charter for the CNG committee includes responsibility for reviewing and assessing the size, composition, and operation of the Board of directors to ensure effective and independent decision making, advising on potential conflicts of interest situations, and developing corporate governance guidelines and principles, in line with ESG standards. The disclosure set out below describes in further detail our approach to corporate governance.

Code of conduct

We work with all of our employees, as well as third parties who we work with, to ensure they behave in a manner consistent with our values, Code of Conduct, and the key principles of our compliance program, particularly as these relate to the environment, human rights and labor related issues, health and safety, anti-bribery, and corruption. The Code of Conduct reflects our commitment to the principles of anti-corruption, anti-money laundering, anti-terrorist financing, integrity, ethics, human rights, social and environmental responsibilities, and antitrust policies based on laws in effect in the countries where we operate. Our directors and executives have certified that they have read and that they will comply with our Code of Conduct. Furthermore, our Board of directors periodically monitors compliance related topics. A Conduct committee is in charge of promoting the implementation of the code and supervising the application of disciplinary measures. In 2025, we reviewed our Code of Conduct and is expected to be approved by the Board of Directors in the upcoming months. In 2022, we also launched our Code of Conduct for Suppliers and started to disseminate it to any suppliers considered to be strategic vendors. In 2023, we launched our Code of Conduct for Customers and started disseminating it as well in 2024. In 2025, we continued to disseminate our Code of Conduct for Suppliers and Code of Conduct for Customers.

Anti-corruption, anti-money laundering and antitrust programs have been implemented, including, among other things, ethics and compliance training and an ethics hotline which enables employees and third parties to report misconduct. Information reported through our ethics hotline is investigated and following the investigation, disciplinary action may be taken, if necessary. We have not granted any implicit or explicit waivers from any provision of our Code of Conduct since its adoption.

Our Code of Conduct, Code of Conduct for Suppliers and compliance-related policies are publicly available on our website at <https://www.nexaresources.com>. We will disclose future amendments to, or waivers of, our Code of Conduct on the same page as our corporate website. Information contained on our website is not incorporated by reference into this report, and you should not consider it to be part of this report.

Foreign private issuer and controlled company exemptions

Because we are a foreign private issuer, the NYSE rules applicable to us are considerably different from those applied to U.S. companies. Accordingly, we have been, and expect to continue, taking advantage of certain exemptions from NYSE governance requirements provided in the NYSE rules for foreign private issuers. Subject to the items listed below, as a foreign private issuer we are permitted to follow home country practice in lieu of the NYSE's corporate governance standards. Luxembourg law does not require that a majority of our Board consist of independent directors or the implementation of a compensation committee or nominating and corporate governance committee. As a foreign private issuer, we must comply with four principal NYSE corporate governance rules: (i) we must satisfy the requirements of Exchange Act Rule 10A-3 relating to audit committees; (ii) our chief executive officer must promptly notify the NYSE in writing after any executive officer becomes aware of any non-compliance with the applicable NYSE corporate governance rules; (iii) we must provide the NYSE with annual and interim written affirmations as required under the NYSE corporate governance rules; and (iv) we must provide a brief description of any significant differences between our corporate governance practices and those followed by U.S. companies under NYSE listing standards.

In addition, for purposes of the NYSE rules, as VSA beneficially owns a majority of our outstanding common shares, we are a “controlled company.” “Controlled companies” under those rules are companies of which more than 50.0% of the voting power is held by an individual, a group or another company. Accordingly, we are eligible to take advantage of certain exemptions from NYSE governance requirements provided in the NYSE rules. Specifically, as a controlled company under NYSE rules, we are not required to have a majority of independent directors or a compensation, nominating and corporate governance committee composed entirely of independent directors.

As described further above, we recognize that good corporate governance plays an important role in our overall success and in enhancing shareholder value and, accordingly, we have adopted certain corporate governance policies and practices that reflect these considerations. The following table briefly describes the significant differences between our practices and the practices of U.S. domestic issuers under NYSE corporate governance rules.

Section	NYSE corporate governance rule for U.S. domestic issuers	Our approach
303A.01	A listed company must have a majority of independent directors. “Controlled companies” and “foreign private issuers” are not required to comply with this requirement.	We are a controlled company because more than a majority of our voting power for the appointment of directors is controlled by VSA. We are a foreign private issuer because we are incorporated in Luxembourg. As a controlled company and foreign private issuer, we are not required to comply with the majority of independent director requirements. Four of our nine directors are independent. Our Board of directors has adopted internal rules equivalent to a charter. See “Corporate Governance, Management and Employees—Board of directors” for a description of our Board and processes our Board has implemented to promote the exercise of independent judgment.
303A.03	The non-management directors of a listed company must meet at regularly scheduled executive sessions without management.	We have no management directors.

303A.04	A listed company must have a nominating/corporate governance committee composed entirely of independent directors, with a written charter that covers certain minimum specified duties. “Controlled companies” and “foreign private issuers” are not required to comply with this requirement.	As a controlled company and foreign private issuer, we are not required to comply with the nominating/corporate governance committee requirements. However, we do have a compensation, nominating and governance committee composed of one independent director and three non-independent directors, which has adopted a committee charter. As set forth in the committee’s charter, this committee is responsible for, among other matters: · identifying individuals qualified to be nominated as members of the Board of directors; · suggesting names to fill any vacancies on the Board of directors; · developing corporate governance guidelines and principles; and · evaluating the performance and effectiveness of the Board of directors, the CEO and each of committees. See “Corporate Governance, Management and Employees—Board of directors—Committees of our Board of directors.”
303A.05	A listed company must have a compensation committee composed entirely of independent directors, with a written charter that covers certain minimum specified duties. “Controlled companies” and “foreign private issuers” are not required to comply with this requirement.	As a controlled company and foreign private issuer, we are not required to comply with the compensation committee requirements. However, we do have a compensation, nominating and governance committee composed of one independent directors and three non-independent directors, which has adopted a committee charter. As set forth in the committee’s charter, this committee is responsible for, among other matters: · reviewing and proposing new compensation models and changes to current compensation models; and · determining compensation of executive officers, directors and committee members. See “Corporate Governance, Management and Employees—Board of directors—Committees of our Board of directors.”

303A.06 303A.07	A listed company must have an audit committee with a minimum of three independent directors who satisfy the independence requirements of Rule 10A-3 under the Exchange Act, with a written charter that covers certain minimum specified duties.	We have an audit committee composed of three members, all of whom qualify as independent under Rule 10A-3 and applicable NYSE standards. Each member of the Audit Committee also satisfies the financial literacy requirement under applicable standards. The Audit Committee has adopted a committee charter which was duly approved by our Board of directors. As set forth in the committee's charter, the committee shall assist the Board of directors in fulfilling its oversight responsibilities with respect to, among others: · quality and integrity of our financial reporting and related financial disclosures; · the effectiveness of our internal control over financial reporting and disclosure controls and procedures; · our compliance with legal and statutory requirements as they relate to financial statements and related financial disclosures; · our risk management controls and monitoring processes, according to the ERM policy; · the qualifications, performance and independence of our independent auditors and performance of the internal audit function; and · our internal controls and processes to ensure ESG and cybersecurity disclosures and policies are accurate, transparent and in compliance with applicable laws, regulations, or rules. See "Corporate Governance, Management and Employees—Board of directors—Committees of our Board of directors."
303A.08	Shareholders must be given the opportunity to vote on all equity-compensation plans and material revisions thereto, with limited exemptions set forth in the NYSE rules.	Our articles of association require shareholder approval of overall remuneration, including any equity-compensation plans of members of the Board of directors and members of Board committees.
303A.09	A listed company must adopt and disclose corporate governance guidelines that cover certain minimum specified subjects.	We have corporate governance policies in place as described in "Corporate Governance, Management and Employees" in this annual report.
303A.10	A listed company must adopt and disclose a code of business conduct and ethics for directors, officers, and employees, and promptly disclose any waivers of the code for directors or executive officers.	We have adopted a formal Code of Conduct which applies to our directors, officers, employees and third parties who interact with us. Our Code of Conduct has a scope that is similar, but not identical, to that required for a U.S. domestic company under the NYSE rules.

303A.12	(a) Each listed company CEO must certify to the NYSE each year that he or she is not aware of any violation by the company of NYSE corporate governance listing standards. (b) Each listed company CEO must promptly notify the NYSE in writing after any executive officer of the listed company becomes aware of any non-compliance with any applicable provisions of this Section 303A. (c) Each listed company must submit an executed Written Affirmation annually to the NYSE. In addition, each listed company must submit an interim Written Affirmation as and when required by the interim Written Affirmation form specified by the NYSE.	As a foreign private issuer, we are subject to and comply with (b) and (c) of these requirements but are not subject to (a).

BOARD OF DIRECTORS

Our Board of directors is responsible for the general guidance of our business and affairs, including providing general guidance, governance and strategic oversight to our executives and other members of our management team. It is also responsible for ensuring that we meet our objectives, as well as for monitoring our performance and ensuring business continuity. The Board of directors is vested with broad powers to act on our behalf and to perform or authorize all acts of administrative or ancillary nature necessary or useful to accomplish our corporate purpose. All powers not expressly reserved by law to the shareholders fall within the competence of our Board of directors.

Appointment and term of members of our Board of directors

In accordance with our articles of association and the 1915 Law, the members of our Board of directors are elected by a resolution of a general meeting of shareholders adopted with a simple majority of the votes validly cast, regardless of the portion of capital represented at such general meeting. Votes are cast for or against each nominee proposed for election to the Board and cast votes shall not include votes attaching to shares for which the shareholder has not participated in the vote, has abstained or has returned a blank or invalid vote.

Our directors are appointed for two-year terms and may be reelected. Members of our Board of directors may be removed at any time, with or without cause, by a resolution adopted at a general meeting of our shareholders. Under Luxembourg law, in the case of a vacancy of the office of a director appointed by the general meeting of shareholders, the remaining directors may, by a simple majority vote of the directors present or represented, fill the vacancy. In these circumstances, the following general meeting of shareholders shall make the final appointment of the director.

Composition of the Board of directors

Our Board of directors is comprised of a minimum of five and a maximum of eleven members and currently has nine members, of which four are independent directors and five are non-independent, as set out below.

The term of each and all of our directors expires at the 2026 annual general shareholder meeting. The following table sets forth our current directors as of the date of this filing, their respective Board positions and their respective date of election to the Board.

Name	Age	Principal Residence	Position	Elected Since
Jaime Ardila ⁽²⁾⁽³⁾	70	Aventura, USA	Chair of the Board	June 18, 2019
Daniella Dimitrov ^{(1)(2)*}	56	Toronto, Canada	Director	December 14, 2017**
Edward Ruiz ^{(1)(4)*}	75	New Jersey, USA	Director	December 14, 2017**
Flavio Aidar ⁽³⁾⁽⁴⁾	48	São Paulo, Brazil	Director	October 1, 2024
Gianfranco Castagnola ⁽⁴⁾	65	Lima, Peru	Director	June 4, 2020
Hilmar Rode ^{(2)*}	58	Antwerpen, Belgium	Director	June 22, 2023
Jane Sadowsky ^{(1)(3)*}	64	New York, USA	Director	December 14, 2017**
Luís Ermírio de Moraes ⁽²⁾⁽³⁾	65	São Paulo, Brazil	Director	August 25, 2016
Paulo Ermírio de Moraes Macedo ⁽⁴⁾	37	New York, USA	Director	June 28, 2024

(1) Member of the Audit committee.

(2) Member of the SCP committee.

(3) Member of the CNG committee.

(4) Member of the Finance Committee.

* Independent pursuant to Rule 10A-3 under the Exchange Act (Rule 10A-3) and applicable NYSE standards, as well as National Instrument 52-110 *Audit Committees*.

** The Audit Committee members were elected in December 2017 and the effective date of the mandate starting period was January 2018.

The business address of each member of our Board of directors is our corporate office, which is 37A, Avenue J.F. Kennedy, L-1855, Luxembourg, Grand Duchy of Luxembourg.

We present below a brief biographical description of each member of our Board of directors:

Jaime Ardila. Mr. Ardila has been a member of our Board of directors since June 2019 and has been Chair of the Board since July 30, 2020. Mr. Ardila founded The Hawksbill Group in 2016, which provides business advisory services, including strategy, operations, public relations, communications, and investment advice. Prior to that, he held several positions at General Motors Company in the U.S., Europe, and South America in a career spanning 30 years. He also worked at the Planning Department and the Ministry of Industry and Trade for the government of Colombia from 1981 to 1984 and the investment bank Rothschild from 1996 to 1998. At General Motors, Mr. Ardila served CFO of General Motors Chile; President and Managing Director of General Motors Ecuador; President of General Motors Colombia; President of General Motors Argentina; CFO for Latin America, Africa, and the Middle East; President for Brazil and Mercosur; and President of General Motors South America from 2010-2016. He is currently a member of the board of directors of Accenture and Chairman of Goldman Sachs, BDC. Mr. Ardila earned his master's degree in Economics at the London School of Economics in 1981 and his bachelor's degree in Economics at the University of Bogota in 1977.

Daniella Dimitrov. Ms. Dimitrov has been a member of our Board of directors since January 2018. Ms. Dimitrov has over 25 years of leadership experience in building, leading and operating businesses in mining and financial services, including as CEO, COO and CFO. Ms. Dimitrov served as the CFO of a multi-mine gold producer and her previous roles include also President and CEO, Interim CEO, CFO of multi mine gold/copper producers, partner at a mining investment bank, Executive Vice Chair of an iron ore developer through its acquisition following a hostile takeover bid, COO of a Canadian national wealth management and capital markets firm, and various corporate development roles in mining and financial services. Ms. Dimitrov has also been a director of various companies in the mining, oil, gas and chemicals industries and has served as a member and chair of various board committees, including audit, technical, health and safety, compensation, and governance. Ms. Dimitrov is currently also a director of Chemtrade Logistics Income Fund and Chief Strategy and Risk Officer of Equinox Gold Corp. Ms. Dimitrov has received the NACD Directorship Certification, the ESG Global Competent Boards Designation and the Cyber Risk Oversight Certificate from the CERT Division of the Software Engineering Institute at Carnegie Mellon University. She has a Global EMBA from Kellogg School of Management and Schulich School of Business and a law degree. She was chosen as one of the top 100 Global Inspirational Women in Mining in 2016.

Edward Ruiz. Mr. Ruiz has been a member of our Board of directors since January 2018. Mr. Ruiz brings over 51 years of experience in public and private accounting. Mr. Ruiz currently serves on the audit committees of Iochpe Maxion, and SmartFit, publicly traded companies in Brazil, and he is a former member of the Risk, Audit and Finance Committees of Arezzo & Co. He is a Certified Public Accountant since 1972 and has been responsible for audits of companies in the mining and energy sectors in Brazil and the United States. Mr. Ruiz retired from Deloitte in 2012, and most recently served as an audit partner and member of Deloitte's IFRS Accounting Standards specialist group. As head of the Capital Markets group for Deloitte, Mr. Ruiz advised companies on financial and regulatory reporting matters related to initial public offerings and secondary offerings in the Brazilian, United States and European capital markets. Prior to Deloitte, he held executive positions in internal audit at JP Morgan and PepsiCo in the United States. He started his career in public accounting with Arthur Young in 1971. Mr. Ruiz obtained his bachelor's degree from Pace University, New York City in 1971.

Flavio Aidar. Mr. Aidar has been a member of our Board of directors since October 2024. He brings experience in the industrial, infrastructure, and mining sectors, along with extensive board experience in various countries and financial markets. He is currently Managing Director of Votorantim S.A. and member of the Board of directors of Companhia Brasileira de Alumínio since October 2024. He previously served as CEO of InterCement, a leading global cement company with a presence in Latin America, Europe, and Africa. His previous board roles include Director of CCR S.A., Chairman of Loma Negra, Chairman of InterCement Brasil S.A., and Chairman of Brazil's Cement Industry Associations. Before holding these positions, Mr. Aidar was a Managing Director in the Investment Banking Division of Goldman Sachs and a member of its management committee in Brazil. Mr. Aidar holds a degree in Business Administration from Fundação Getúlio Vargas.

Gianfranco Castagnola. Mr. Castagnola has been a member of our Board of directors since June 2020. Mr. Castagnola is partner and Chairman of the Board of Apoyo Consultoría, a leading firm specialized in economic, business and financial advisory services in Peru. He is also former chairman of the board of directors of its subsidiary, AC Capitaes SAFI, one of the largest Peruvian investment fund managers. He has been a member of the board of directors of the Peruvian Central Bank from 1996 to 2001 and was president of the Universidad del Pacífico board of trustees. He is also chairman of the board of directors of Scotiabank Peru S.A., and member of the board of directors of Saga Falabella, the Austral Group and IKSA. Mr. Castagnola's previous roles include serving as member of the board of directors of Nexa Peru, Nexa Resources Atacocha S.A.A., Lima Airport Partners, Quimica Suiza, Cementos Pacasmayo, Camposol Holding and Redesur. Mr. Castagnola earned his master's degree in public policy from Harvard University and his bachelor's degree in Economics from the Universidad del Pacífico.

Hilmar Rode. Mr. Rode has been a member of our Board of directors since June 2023. Mr. Rode has over 30 years of experience in the global mining, materials, chemicals, and industrial gases industries. He began his career in process development and research engineering before joining Anglo American, where he worked for 12 years in leadership positions in its industrial diamonds, base metals and paper divisions in South Africa, United Kingdom and Austria. He joined Glencore in 2007 as CEO of its zinc division in Bolivia, returning in 2019 to the copper division to work on operational strategy, technical services, projects, and capital management. Between 2015 and 2019, Mr. Rode was president of BHP's Minera Escondida Ltda. in Chile and then Chief Executive Officer of zinc producer Nyrstar. Since September 2020, Mr. Rode joined Sibelco as group CEO. Mr. Rode holds a bachelor's degree in Chemical Engineering from the University of Stellenbosch, South Africa, a Master's in Environmental Engineering and a Doctorate in Chemical Engineering from State University, Buffalo, New York, and a Certificate in the Advanced Management Program from Harvard Business School.

Jane Sadowsky. Ms. Sadowsky has been a member of our Board of directors since January 2018. Ms. Sadowsky has a broad and diverse range of finance and deal-related expertise and also has sector expertise in power and utilities and the related fields of commodities, renewables, power technology, infrastructure, and energy. She has a depth of knowledge and experience in mergers and acquisitions, public and private debt and equity, corporate restructurings, and cross-border transactions. Ms. Sadowsky retired from Evercore Partners, after more than 22 years as an investment banker. Prior to Evercore Partners, she worked in Citigroup's Investment Bank and began her investment-banking career at Donaldson, Lufkin & Jenrette. Currently, Ms. Sadowsky serves on the board, the audit and the compensation committees of Allied Gold, Inc., and chairs Allied Gold's nomination and governance committee. She also serves as a senior advisor at Moelis & Company, a U.S. publicly traded company. Ms. Sadowsky also serves on the board and Remuneration Committee of Scientific Games, a PE-backed company based in the U.S. and the NY Chapter of NACD. Ms. Sadowsky earned her MBA from the Wharton School in 1989 and her bachelor's degree in Political Science and International Relations from the University of Pennsylvania in 1983. Ms. Sadowsky has received the NACD Directorship Certification. She is a National Association of Corporate Directors Governance fellow and a frequent speaker at board governance conferences throughout the United States.

Luís Ermírio de Moraes. Mr. Moraes has been a member of our Board of directors since 2016 and was the Chair of the Board until July 30, 2020. He was a member and the Chairman of the board of directors of Nexa Brazil until 2018. Mr. Moraes has over 35 years of experience working in mining and metallurgical operations. He is a member of the board of directors of VSA, which is the Portfolio Manager Board of the Votorantim Group. Mr. Moraes is Chairman of the board of directors of CBA, the largest integrated aluminum producer in Brazil. He is a board member of Hejoassu, which is the ownership board of Votorantim. Mr. Moraes previous roles include director of VSA since 2000. Mr. Moraes also worked as an engineer in various processes in the areas of alumina refinery, smelter and aluminum smelting, pyrometallurgical and hydrometallurgical mineral processing of nickel laterites, developing novel projects for the separation and refining of cobalt. In the early 2000s, Mr. Moraes was the shareholder responsible for the creation and development of a new Votorantim business area with investments in IT and biotechnology. Mr. Moraes received a bachelor's degree in mineral and chemistry engineering from the Colorado School of Mines, in the state of Colorado, United States, in 1982.

Paulo Ermírio de Moraes Macedo. Mr. Macedo has been a member of our Board of directors since June 2024. He is a co-founder and partner of 4x4 Capital, a New York based private equity firm focused on investing in the consumer, industrial and services sectors. Mr. Macedo led the acquisition of 1440 Foods (the former sports and active nutrition division of The Bountiful Company) from KKR and The Carlyle Group in 2021 and served as its Chief Financial Officer until the sale of the company to Bain Capital Private Equity in 2023. Mr. Macedo currently serves as Board Observer of 1440 Foods and as board member of Hejoassu Administração, the ownership board of Grupo Votorantim. Prior to that, Mr. Macedo served on the Board of Citrosuco from 2020 to 2021. Mr. Macedo started his career as an investment banker at Merrill Lynch International in London, working in several M&A and capital market transactions for large European industrial and mining companies and also worked at CVC Capital Partners in its Private Equity team in Sao Paulo, Brazil. Mr. Macedo earned his MBA from Stanford University and received his M.S. and B.S. in engineering from École Nationale des Ponts et Chaussées and Escola Politécnica-USP, where he was a CAPES Foundation Scholar.

Internal rules of the Board of directors

Our Board of directors adopted Board internal rules, which includes the following, among other things:

- approve the general guidance of our business, its mission, strategic goals, and guidelines;
- ensure that the executive officers comply with such mission, strategic goals, and guidelines;
- approve the budget and a strategic plan which takes into account, among other things, the opportunities, and risks of the business;
- approve the annual commercial agreements strategy;
- recommend the shareholders to approve mergers, spin-offs, incorporations, acquisitions, divestitures, and joint venture operations related to us and our subsidiaries according to our articles of association;
- promote and ensure compliance with our corporate purpose;
- ensure our long-term and sustainable continuity with respect to our ESG and economic goals, including, but not limited to, supporting the Board committees to oversee and revise the implementation of our ESG strategy pursuant to applicable laws, when applicable;
- develop our approach to corporate governance, including the creation and review, from time to time, of corporate governance principles and guidelines that are specifically applicable to us;
- evaluate the performance of our CEO and executive officers;
- exemplify and, together with the Management committee, implement a culture of integrity throughout the organization;
- approve and monitor compliance, directly and/or through its committees, with the following policies: (a) code of conduct; (b) disclosure policy; (c) insider trading policy; (d) dividend policy; (e) compliance policy; (f) antitrust/competition policy; (g) anti-corruption policy; (h) money laundering and terrorist financing prevention policy; (i) financial risk management policy (and complementary policies proposed by the Management committee, such as the hedge, derivatives, leverage, liquidity and foreign exchange exposure policy); (j) ERM policy; (k) clawback policy; and (l) authorization policy;
- approve Board members and executive officers' compensation, the amount of which shall not exceed the amount determined by the general meeting;
- ensure appropriate succession planning for our Board of directors, CEO, and executive officers;
- deliberate and approve the terms and conditions of any compensation arrangements or proposed material amendments to any terms and conditions of existing compensation arrangements entered between us and any of our executive officers;
- with respect to cybersecurity: (a) monitor the Audit Committee and management regarding cybersecurity matters and provide guidance as needed; (b) receive updates and reports on cybersecurity tests, incident response plans, cybersecurity incidents, and our cybersecurity policies; and (c) review with management and with the support of the Audit Committee, our cybersecurity risk management program in connection with the Enterprise Risk Management policy; and
- all further tasks as required by applicable laws.

The Board internal rules are available on our website.

The Board has at its disposal a set of provisions and practices that promotes independence in the decision-making process of the Board. In accordance with the Board's internal rules, the independent members of the Board may hold separate meetings, and each director has a duty to declare, prior to any Board meeting, the existence of a particular reason or conflict of interest with us with respect to a subject matter being discussed or considered by the Board. Accordingly, such Board member would be refrained from discussing and voting on a matter that could present a conflict of interest. Additionally, our Board members are prohibited from holding executive positions with us and/or serving on more than four boards of directors of companies that do not belong to the same conglomerate. As discussed above, our Audit Committee is comprised entirely of independent Directors, and we also have independent representation on all other committees.

Description of the position of Chair

Our Board of directors has developed a written position description for the chair of the Board of directors. The chair of the Board has the following responsibilities, subject to any other matters that may be set forth in our articles of association or provided for under applicable law:

- ensure the efficiency and proper performance of the Board of directors;
- preside over the Board meetings;
- prepare, organize, elaborate and distribute the agenda and minutes of the meetings aided by the Board secretary, including all information necessary to discuss the matters on the agenda;
- coordinate the activities of other Board members;
- ensure that all Board members receive comprehensive information about the items on the Board agenda in a timely manner;
- propose the annual corporate calendar to the Board in coordination with our CEO, which shall necessarily set forth the dates of corporate events;
- organize the onboarding and education sessions for incoming members of the Board in coordination with our CEO; and
- periodically arrange for continuing education opportunities for all Board members, so that individuals may maintain or enhance their skills and abilities as members and ensure that their knowledge and understanding of our business remains current.

The chair of our Board of directors is not an independent director of Nexa Resources. The Board of directors has carefully considered governance issues relating to chair independence and believes that the chair fulfills separate responsibilities diligently and that, with the compensating practices in place, the Board of directors operates effectively and in our best interest.

Meetings of the Board of directors and attendance

The Board of directors ordinarily meets in person or by other means of communication as may be required. The frequency of and agenda items for Board meetings will vary depending on the state of affairs, requirements for approvals and opportunities available to us and the risks and issues which we face. The agenda for meetings places priority and focuses on key issues for us, which are identified by the chair of our Board. Routine business is dealt with after substantive discussions on the key issues.

Under the Board of directors' internal rules and our articles of association, the Board can validly consider any matters and make decisions provided at least a majority of the members are in attendance in person or by representation. The Board of directors' internal rules further provides that each member is entitled to one vote either in person or where duly represented as required by the Board's internal rules. In fiscal year 2025, our Board of directors held ten meetings, in which the rate of attendance in person or by representation was 100%. In addition, we had (i) six Audit Committee meetings, (ii) nine Finance Committee meetings, (iii) four CNG committee meetings, and (iv) five SCP committee meetings.

Director	Board Meetings	Meetings Attended	Overall % Attendance
Jaime Ardila	10	10	100
Daniella Dimitrov	10	10	100
Edward Ruiz	10	10	100
Gianfranco Castagnola	10	10	100
Hilmar Rode	10	10	100
Jane Sadowsky	10	10	100
Flavio Aidar	10	10	100
Luís Ermírio de Moraes	10	10	100
Paulo Ermírio de Moraes Macedo	10	10	100

As set forth in the Board of directors' internal rules, the independent directors may hold meetings in which members of the management team and the non-independent directors are not present. In 2025, our directors held *in camera* sessions without members of the management team prior and/or at the conclusion of each Board meeting.

Committees of our Board of directors

Our Board of directors has an Audit Committee, a Finance Committee, a CNG committee and an SCP committee. Our Board of directors may have other committees as it may determine from time to time. Each of the standing committees of our Board of directors has the composition and responsibilities assigned to them by the meeting of the Board of directors that created such committee and as set forth in their respective committee charters. These charters set out, among other things, the roles and responsibilities of the chair of each committee. As set forth in the respective charters of the committees, each of the committees may meet with or without the management, as the case may be, at the discretion of the committee. The charter for each of the committees of our Board of directors is available on our website.

Audit Committee

Our Audit Committee is a standing committee established by our Board of directors in March 2017, to assist the Board of directors in fulfilling certain of its oversight responsibilities. The Audit Committee may be composed of three to five members, each appointed by our Board of directors for a term of one year. Daniella Dimitrov, Edward Ruiz, and Jane Sadowsky currently serve as its members. These individuals are independent under Rule 10A-3 and applicable NYSE standards, as well as Canadian securities regulators' National Instrument 52-110 *Audit Committees*. In addition, each of them satisfies the financial literacy requirement under applicable rules. Our Board of directors has determined that Mr. Edward Ruiz qualifies as an "audit committee financial expert."

Our Audit Committee's primary responsibilities are to assist the Board of directors' oversight of: (i) quality and integrity of our financial reporting and related financial disclosure; (ii) the effectiveness of our internal control over financial reporting and disclosure controls and procedures; (iii) our compliance with legal and statutory requirements as they relate to financial statements and related financial disclosures; (iv) the monitoring of risk management controls and processes, according to the ERM policy, and the oversight of financial reporting and related compliance, internal control over financial reporting and fraud risks; (v) the compliance and ethics program; (vi) review of all related party transactions; (vii) the qualifications, performance and independence of our independent auditors and performance of the internal audit function; and (viii) our internal controls and processes to ensure ESG and cybersecurity disclosures and policies are accurate, transparent and in compliance with applicable laws, regulations and rules.

We have established policies and procedures that require any engagement of our independent auditor for audit or non-audit services to be submitted to and pre-approved by the Audit Committee. In addition, our Audit Committee may delegate the authority to pre-approve non-audit services to one or more of its members. All non-audit services that are pre-approved pursuant to such delegated authority must be presented to the full Audit Committee at its first scheduled meeting following such pre-approval. Our Audit Committee shall pre-approve all audit and non-audit services to be provided to us by our independent auditor and also has the authority to recommend pre-approval policies and procedures to our Board of directors and for the engagement of our independent auditor's services.

Finance committee

Our Finance Committee is a standing committee established by our Board of directors in March 2017, to assist the Board of directors in fulfilling certain of its oversight responsibilities. The Finance Committee may be composed of three to five members, each appointed by our Board of directors for a term of one year. Gianfranco Castagnola, Paulo Macedo, Flávio Aidar and Edward Ruiz currently serve as its members. It is also the Finance Committee attribution to support the Board in its monitoring of the enterprise risk management in matters related to the responsibility of this committee.

Our Finance Committee's primary responsibilities are to assist the Board of directors in fulfilling its oversight responsibilities with respect to monitoring our balance sheet and by providing recommendations on our capital management strategy and capital structure, including indebtedness, investments, and returns, support the Board in its monitoring of the enterprise risk management in matters related to the responsibilities of the committee, among others.

CNG committee

Our CNG committee is a standing committee established by our Board of directors in March 2017, to assist the Board of directors in fulfilling certain of its oversight responsibilities. The CNG committee may be composed of two to five members, each appointed by our Board of directors for a term of one year. Jaime Ardila, Jane Sadowsky, Luís Ermírio de Moraes, and Flavio Aidar currently serve as its members. One of the four members of the compensation, nominating and governance committee is an independent director.

Our CNG committee is responsible for: (1) new compensation models and changes to compensation models currently used by us, in order to guide and influence our actions; (2) the compensation of the executive officers, of the members of the Board of directors and of the members of the committees of the Board of directors; (3) the administration the policy for the recovery of erroneously awarded compensation with the support of the Audit Committee and/or the Finance Committees where applicable, and the proposal of changes to such policy if necessary; (4) the proposal of candidates to the chair of chief executive officer, when applicable, or any serious restrictions on the candidates proposed by the chief executive officer to the other chairs of the executive officers; (5) development of corporate governance guidelines and principles; (6) the governance structure related to our ESG strategy as it applies to us and our value chain; (7) identification of individuals qualified to be nominated as members of the Board of directors and suggesting nominees to fill any vacancies on the Board of directors; (8) the structure and composition of Board committees; (9) evaluation of the performance and effectiveness of the Board of directors, the chief executive officer and each of the Board's standing committees; (10) the supervision and approval of our social responsibility plans and policies (other than community-related aspects which are overseen by the SCP committee), including, but not limited to, our ESG strategy; (11) the supervision of our people strategy; (12) the monitoring of our relationship with unions; (13) support the Board in its monitoring of the enterprise risk management in matters related to the responsibilities of the committee; and (14) any related matters required by applicable laws. For more information regarding our corporate governance policies, see "Information on the Company—Environmental, Social and Governance (ESG)—Materiality Matrix—Governance."

SCP committee

Our SCP committee is a standing committee established by our Board of directors in April 2019, to assist the Board of directors in fulfilling certain of its oversight responsibilities. The SCP committee may be composed of at least three and no more than five members, each appointed by our Board of directors for a term of one year. Daniella Dimitrov, Hilmar Rode, Jaime Ardila and Luís Ermírio de Moraes currently serve as its members.

Our SCP committee’s primary responsibilities are to assist the Board of directors by supporting safe and sustainable business practices in the conduct of our activities in respect of environmental, health, safety and social matters, including relationships with local communities, tailings management, water, waste, biodiversity, and GHG emissions, as well as with respect to the estimation and disclosure of mineral resources and reserves at all operations and projects (collectively “Sustainability Matters”). The committee also assists the Board with the oversight of our ESG strategy, including its revision and implementation, in connection with the Sustainability Matters and all related applicable laws.

The SCP committee is also responsible for assisting the Board with the review of technical, economic, and social matters with respect to our projects, including exploration, development, permitting, construction, and operation of our mining and smelting assets, which are core to our strategy and growth. For more information regarding our sustainability policies, see “Information on the Company—Environmental, Social and Governance (ESG)—Materiality Matrix—Environmental” and “Information on the Company—Environmental, Social and Governance (ESG)—Materiality Matrix—Social.”

Orientation and continuing education

We implemented an orientation program for new directors under which each new director meets with the chair of our Board of directors and our executives. New directors are provided with comprehensive orientation and education as to our business, operations, and corporate governance (including the role and responsibilities of the Board of directors and each committee).

The chair of our Board of directors is responsible for overseeing directors’ continuing education and ensure that it is designed to maintain or enhance the skills and abilities of our directors and to ensure that their knowledge and understanding of our business remains current. The chair of each committee is responsible for coordinating orientation and continuing director development programs relating to the committee’s mandate.

Our ongoing director education programs entail site visits, presentations from outside experts and consultants, discussions on ongoing governance trends and guidelines for public companies, briefings from staff and management, and reports on issues relating to our projects and operations, sustainability and social matters, competitive factors, reserves, legal issues, economic, accounting and financial disclosure, mineral and hydrocarbon education and other initiatives intended to keep the Board abreast of new developments and challenges that we may face. As part of the education session, certain directors obtained international certifications related to the competencies necessary for their activities, such as National Association of Corporate Directors (“NACD”) Directorship Certification.

Evaluation of directors

Our CNG committee established a framework for the implementation and administration of processes to assess the effectiveness of the Board and each of its members. This includes peer reviews of each director’s performance and self-assessments, as well as full Board and committee review of the Board and the respective committees, by way of questionnaires, interviews, and sessions with the chair. In addition to hiring external advisors to develop and undertake this assessment, the CNG committee is also responsible for overseeing the process and evaluating the results, with the objective of improving the performance of each director and the Board of directors as a whole.

Considerations in evaluating director nominees

Our Board of directors is responsible for nominating members for election to the Board and for filling vacancies on the Board that may occur between annual meetings of shareholders. The process for nominating a new director initiates with our CNG committee, which evaluates our current circumstances and establishes a profile for a director candidate. Such profile is then shared with a specialized external executive search firm, who assists the CNG committee in selecting candidates for interviews. Prior to the interview, the specialized external firm is responsible for a background check with former employers and colleagues of the respective candidates.

Following the interview(s), our CNG committee recommends the nomination of the director candidate to our Board of directors based upon an assessment of the independence, skills, qualifications and experience of such candidate. Specifically, the Board seeks members from diverse professional and personal backgrounds who combine a broad spectrum of experience and expertise with a reputation for integrity.

Plurality

We value plurality in our operations. We believe that having a plural Board of directors can offer a breadth and depth of perspectives that enhance our performance. Recommendations concerning director nominees are based on merit and past performance as well as other factors, as we believe that having a plural and inclusive organization overall is beneficial to our success.

Compensation-setting process

Our CNG committee is responsible for assisting our Board of directors in fulfilling its governance and supervisory responsibilities and advising our Board of directors with respect to evaluation and monitoring of compensation models and policies performed every two years, which takes into account peer companies and the challenges and opportunities we face. The committee's responsibilities also include administering and determining our compensation objectives and programs, reviewing, and making recommendations to our Board of directors concerning the level and type of the compensation payable, evaluating performance, implementing evaluation and improvement processes, and ensuring that policies and processes are consistent with our philosophy and the objectives of our compensation program.

Share ownership

Luís Ermírio de Moraes, a member of our Board of directors, indirectly owns approximately 2,356,402 or approximately 1.79% of our common shares or options on the company's shares. As of December 31, 2025, none of our executive officers own, beneficially or of record, any of our common shares.

EXECUTIVE OFFICERS AND MANAGEMENT COMMITTEE

Executive officers

We have global executives and management teams for our main subsidiaries. Each subsidiary team has a management structure that adheres to our corporate governance rules. Our executives currently are as follows:

Name	Age	Principal Residence	Position
Ignacio Rosado	56	São Paulo, Brazil	President and Chief Executive Officer
José Carlos del Valle	56	Lima, Peru	Senior Vice President of Finance and Group Chief Financial Officer; Chief Executive Officer of Nexa Peru
Mauro Davi Boletta	65	São Paulo, Brazil	Senior Vice President of Smelting Operations and Commercial
Leonardo Nunes Coelho	48	Lima, Peru	Senior Vice President of Mining Operations
Jones Aparecido Belther	58	São Paulo, Brazil	Senior Vice President of Technical Services & Business Development
Carlos Alberto Hilário de Andrade	60	São Paulo, Brazil	Vice President of Human Resources and Corporate Affairs
Renata Penna Moreira Gunzburger	42	São Paulo, Brazil	Vice President of Legal & Governance
Felipe Lana De Almeida	44	São Paulo, Brazil	Projects, Engineering, and Energy Officer
Fernando Demuner da Silva	46	São Paulo, Brazil	Smelting Operations Officer
Neuma Eufrazio Braz Moreira	41	São Paulo, Brazil	Internal Audit, Compliance & Internal Controls Officer

The business address of our executives is Avenida Engenheiro Luís Carlos Berrini, n° 105, 6th floor, São Paulo, State of São Paulo, Brazil.

A brief biographical description of each of our executives is presented below:

Ignacio Rosado. Mr. Rosado has been our Chief Executive Officer since January 2022. He has more than 16 years of experience in the metals and mining industry, and extensive board experience in different countries. Mr. Rosado led the initial public offering of Hochschild Mining Plc, and its acquisition strategy on Canadian Mining Assets. He also led the reorganization and transformation of Volcan Compañía Minera S.A.A. (“Volcan”) which included the construction of two new polymetallic mines and the issuance of bonds for more than US\$1 billion. Prior to joining Nexa Resources, Mr. Rosado was the CEO of Volcan since 2014 and its Deputy CEO since 2010. Prior to Volcan, he served as Director and Chief Financial Officer at Hochschild Mining Plc. since 2005 and as a Senior Project Manager at McKinsey & Company since 2000. During his career, he also served on the board of directors of Lake Shore Gold Corp., Zincore Metals, Cordoba Minerals, and Kaizen Discovery. Mr. Rosado graduated with a degree in Economics in 1992 from Universidad del Pacifico and an MBA from the Ross School of Business, University of Michigan in 2000.

José Carlos del Valle. Mr. del Valle has been our Senior Vice President of Finance and Group Chief Financial Officer since October 2022, and he also serves as Chief Executive Officer of Nexa Peru since November 2022. He has extensive knowledge of the metals and mining industry and more than 25 years of experience in finance and planning. Mr. del Valle joined us after spending nine years as CFO at Compañía Minera Antamina, where he led a successful company-wide transformation program and a US\$1 billion syndicated loan financing initiative, among other key efforts. Before Antamina, he was the CFO of Volcan Compañía Minera and he held various leadership positions at well-known companies, including McKinsey & Company, Standard Chartered Bank, and Wells Fargo Bank, among others. Mr. del Valle holds a Business Administration degree from California State University, as well as an MBA from The Wharton School. He also graduated from the Advanced Management Program at Harvard Business School.

Mauro Davi Boletta. Mr. Boletta has been our Senior Vice President of Smelting Operations and Commercial since 2016. Mr. Boletta has over 30 years of experience with operations. He joined Votorantim Metais S.A. in 1986, having served in several production areas. Between 2010 and 2011, he was responsible for the design review of an aluminum smelter in Trinidad and Tobago. Mr. Boletta graduated with a degree in electrical engineering from the Federal University of Itajubá, UNIFEI in 1985 and holds an MBA from FGV.

Leonardo Nunes Coelho. Mr. Coelho has been our Senior Vice President of Mining Operations since 2017. Mr. Coelho has over 20 years of experience managing mining operations with focus at gold and zinc. Prior to joining us, Mr. Coelho worked for Anglo Gold Ashanti Ltd. for 15 years, where he initiated his career as a Trainee. In Anglo Gold Ashanti Ltd., Mr. Coelho has led mining operations and the expansion of mining projects and served as General Manager of the Cuiabá and Lamego complexes as his last position at this company. Mr. Coelho graduated with a degree in Mine Engineering in 2001 from the Federal University of the State of Minas Gerais ("UFMG") and has obtained graduate degrees from the Kellogg Graduate School of Management in 2015 in the United States, the Dom Cabral Foundation in 2009 in Brazil and the University of Cape Town in 2005 in South Africa as well as a qualification at INSEAD in digital transformation in 2018 and MIT in 2019.

Jones Aparecido Belther. Mr. Belther has been our Senior Vice President of Technical Services & Business Development since October 2024. Prior to this role, he served as Senior Vice President of Mineral Exploration & Business Development since 2014. He has over 28 years of experience in the area. He held the same position at Votorantim Metais S.A. between 2004 and 2014. Prior to joining us, he was country manager at Vale in Peru between 2002 and 2004. He has worked in Brazil and abroad in companies such as Rio Tinto Brasil, Golden Star Resources, in Suriname, Phelps Dodge in Brazil and Chile, Vale in Brazil and Peru, and other companies. Mr. Belther graduated with a degree in Geology in 1991 from the São Paulo State University, UNESP, in Brazil, where he also obtained a Master's degree in 2000 in Mineral Exploration.

Carlos Alberto Hilário de Andrade. Mr. Hilario became our Vice President of Human Resources and Corporate Affairs in April 2025. With over 25 years of experience in people management, he has built his career in leadership roles at major companies in the mining, steel, and forestry sectors, with an international track record across multiple countries, including Brazil, the United States, Argentina, and Trinidad and Tobago. Prior to joining, he served as Executive Director of Human Resources at Anglo American and held several senior leadership positions at ArcelorMittal. Throughout his career, he has led initiatives focused on cultural transformation, leadership development, labor relations, health, safety, and the environment, in addition to experience in social management and institutional relations. He holds degrees in Psychology and Business Administration, a PhD in Business Administration from Pontificia Universidad Católica Argentina, and a Master's in Business Administration from Fundação Getulio Vargas (FGV).

Renata Penna Moreira Gunzburger. Ms. Penna has been our Vice President of Legal & Governance since April 2023. Ms. Penna joined us as Chief Legal Counsel and Head of Governance in 2017. With more than 20 years of experience, Ms. Penna has focused on M&A, project finance and capital market transactions and she served as counsel and project manager on our initial public offering in October 2017. As of 2024, she also serves as a member of the board of directors of FUNSEJEM and as of May 2025 she serves as a member of the board of directors of Instituto Votorantim. Prior to Nexa, she led LATAM, M&A and Finance divisions within the Legal Department of Votorantim Cimentos for six years, as well as worked for law firms such as Linklaters, Lobo & de Rizzo and Barbosa Mussnich & Aragão Advogados. Ms. Penna has a Bachelor from Pontificia Universidade Católica de São Paulo and a Master of Law Degree (LL.M.) from the University of Chicago Law School, an Executive MBA from Instituto de Ensino e Pesquisa ("INSPER"), completed an Executive Education Program on Women on Board from Harvard Business School and a qualification at INSEAD in Transition to General Management.

Felipe Lana De Almeida. Mr. Almeida has been with Nexa since 2017 and was recently appointed as Projects, Engineering, and Energy Officer. He brings over 20 years of experience in the Automotive, Steel, and Mining Industries. Throughout his career, Mr. Almeida has held various roles focused on Engineering Development, Construction, Capital Projects, Portfolio Management, and Project Management Office. He has worked for well-known companies such as Fiat Powertrain Technologies, ArcelorMittal Long Carbon Americas, Anglo American Nickel, Niobium and Phosphates, and CMOC, where he had the opportunity to collaborate with different cultures and contribute to important strategic business growth initiatives. Mr. Almeida holds a degree in Mechatronic Engineer from PUC Minas and a postgraduate degree in Project Management from IBMEC Business School.

Fernando Demuner da Silva. Mr. Demuner has been our Smelting Operations Officer since January 2025, bringing over 22 years of experience in zinc smelting operations. He joined Nexa (formerly Votorantim Metais S.A.) in 2003, holding various leadership roles in operations and corporate areas in Brazil and Peru. Prior to his current position, he served as the General Manager of the Cajamarquilla Smelter and as Corporate General Manager of Smelting Operations and Development. He graduated in Metallurgical Engineering from the Federal University of Ouro Preto ("UFOP") in 2002. Additionally, he holds multiple qualifications, including an MBA from Fundação Getúlio Vargas ("FGV"), a Leadership Course from Harvard University, an Executive Development Program at Fundação Don Cabral ("FDC") and Kellogg School of Management. He also completed international specializations in Corporate Finance from ESAN Graduate School of Business and Mining Business Management from Universidad del Pacifico, both in Peru.

Neuma Eufrazio Braz Moreira. Ms. Moreira has been a member of our Leadership Team since October 2023. She brings over 20 years of leadership experience in building and managing Corporate Governance, Internal Controls, Risks and Internal Audit, Crisis Management and Compliance functions. Neuma has extensive experience in the mining industry, collaborating with companies involved in Iron Ore, Nickel, Phosphates, Niobium, and Copper. She has also worked across various cultures and regions, including Europe, South Africa, Chile, Peru, Australia, and the United States, with experience at the Board level. Before joining Nexa, Neuma led Anglo American Brazil's Governance, Internal Controls, Risks & Crisis Management, and Compliance division for 10 years, reporting directly to the CEO. From April 2022 to October 2023, she served as board member of the Fiscal Council for Fundambras, representing Anglo American. She has also held key roles at Ferrous Resources and Fir Capital / DJF Fund and has been a graduate and postgraduate professor at the Anima Group, teaching subjects such as calculation, statistics, internal audit, and corporate governance. Neuma holds a Bachelor's degree in IT and Business from PUC Minas and SEBRAE, a postgraduate degree in Business and Finance from IBMEC Business School, and a postgraduation in Data Privacy from Fundação Dom Cabral. She is certified as Leader Auditor in Antibribery System by RINA, a certified Board Director and Governance Officer by the Brazilian Institute of Corporate Governance and earned a Master's degree in Math and Computer Modelling from the Federal Centre of Technological Education of Minas Gerais in December 2013. She is also currently pursuing a Master's in Compliance from IMF Business School. In 2020, Neuma was recognized as one of the Top 100 Global Inspirational Women in Mining by Women in Mining UK.

Evaluation of executive officers

On an annual basis, the performance of our executive officers is evaluated by the chief executive officer, the CNG committee and ultimately, the Board of directors. We strive to create a strong ethical and high-performance culture, as well work to ensure an appropriate succession plan that ensures the continuity of our business. In addition to future business needs, we consider the core skills, experience, and personal attributes necessary to conduct our strategy.

Each year, our chief executive officer presents to the Board of directors a report on potential successors to his position, which considers the ability of succession candidates to succeed the chief executive officer in an emergency, on an interim or permanent basis, as well as critical experiences and other attributes required in order for each candidate to enhance his or her readiness for succession. Our Board of directors discusses potential successors with the chief executive officers, as well as potential successors to each member of the management team.

Management committee

In accordance with our articles of association, the Board of directors may delegate its powers to conduct our management and affairs, as well as its representation of us with respect to such matters, to a Management committee. The Management committee consists of at least three, and a maximum of eleven, members. The members are not required to be our shareholders or directors. The Board of directors may not delegate its powers related to general guidance of our business or acts reserved to the Board of directors pursuant to the 1915 Law.

The following table sets forth the current members of our Management committee, and their respective positions. The term of the members of our Management committee expires on the day of the first Board meeting held after the 2026 general shareholders' meeting.

Name	Age	Principal Residence	Position
Ignacio Rosado	56	São Paulo, Brazil	President and Chief Executive Officer
José Carlos del Valle	56	Lima, Peru	Senior Vice President of Finance and Group Chief Financial Officer
Mauro Davi Boletta	65	São Paulo, Brazil	Senior Vice President of Smelting Operations and Commercial
Leonardo Nunes Coelho	48	Lima, Peru	Senior Vice President of Mining Operations
Jones Aparecido Belther	58	São Paulo, Brazil	Senior Vice President of Technical Services & Business Development

Conduct Committee

Our Conduct committee reports to the Chief Executive Officer and was created on January 1, 2014. Its internal rules were revised and updated on December 2, 2019.

The Conduct committee may be composed of at least seven members, such members being necessarily the Chief Executive Officer, the Vice President of Human Resources and Corporate Affairs, the Vice President of Legal & Governance, the Head of Internal Audit, Compliance and Internal Controls, the Ethics Line Manager and two representatives of the Ethics Line program, a confidential reporting system managed by a qualified and independent external entity available to internal and external parties designed to allow anonymous reporting of violations of our Code of Conduct, policies and internal procedures or applicable laws.

Our Conduct committee's primary responsibilities are to assist the Management committee in enforcing the Code of Conduct, reviewing any claims raised through the Ethics Line program, and identifying claims that should be rated as critical. The Conduct committee also assists our Audit Committee by ensuring that any claim filed through the Ethics Line program and rated as critical is properly elevated to the Audit Committee for further review.

Family relationships among executives

Our executives do not have any family relationships among themselves or with any other of our employees.

EXECUTIVE AND DIRECTOR COMPENSATION

The following discussion describes the significant elements of the compensation of our executive officers and directors for the year ending December 31, 2025.

In 2025 our executive compensation program includes cash compensation in the form of base salary, short-term incentives, and long-term incentives. We provide base salary to compensate executives for their day-to-day responsibilities, which is aligned to a market reference based on industry analysis. We evaluate our total compensation practices on an annual basis to ensure that our compensation remains competitive in light of market and industry trends.

Our CNG committee is responsible for assisting our Board of directors in fulfilling its governance and supervisory responsibilities and advising our Board of directors with respect to evaluation and monitoring of compensation models and policies and other related matters. The committee's responsibilities also include administering and determining our compensation objectives and programs, reviewing, and making recommendations to our Board of directors concerning the level and type of the compensation payable, evaluating performance, implementing evaluation and improvement processes, and ensuring that policies and processes are consistent with our philosophy and the objectives of our compensation program.

Compensation framework

Our compensation is comprised of three principal components: (i) base salary, (ii) short-term incentive and (iii) long-term incentive.

Base salary

Base salaries for executive officers are established based on the scope of their responsibilities and competencies and taking into consideration the median market reference. Adjustments to base salaries are expected to be determined annually and may be increased based on performance, as well as to maintain market competitiveness. Additionally, base salaries may be adjusted as warranted throughout the year to reflect promotions or other changes in the scope or breadth of roles or responsibilities.

Short-term incentive program / bonuses

The annual bonus or short-term incentive program aims to align short-term priorities with our strategic planning by rewarding achievement of our goals and targeted annual results, resulting in an alignment with our interests. Each named executive officer has a panel of individual goals, with scales of minimum performance, target and surpass results. Measurement in these panels is based on financial and non-financial indicators. These indicators represent the specific goals and challenges attributable to the position in alignment with our performance and strategic planning.

Long-term incentive program

Our long-term incentive ("LTI") program is designed to provide strong incentives for making decisions with a view to creating value for shareholders by linking cash compensation to our long-term performance, and by guiding executive actions towards the achievement of our strategic goals and growth plans.

The LTI program aligns interests among our executives and shareholders to ensure continued value creation. This incentive system is also intended to engage management in developing and delivering a consistent strategic plan, as well to attract and retain executive officers.

Our LTI program is based on a three to five-year vesting period and is comprised of two parts providing for cash payments based on specific performance conditions: (i) restricted grant and (ii) absolute performance grant. Both grants are defined amounts approved by the Board of directors to be paid out at the end of the third, fourth and fifth year, considering one third of the total payment to be made on each of the three payments. The restricted grant amount provides for certain payments variable according to the total shareholder return ("TSR") over each payment period, a performance metric that reflects the return to our shareholders (based on share prices and dividend payments in the period). For more details about our dividend payments, see "Liquidity and Capital Resources—Distributions." The payment of the absolute performance grant is based on a targeted Company TSR combined with a performance curve, over each payment period, both approved by our Board of directors at each granting period. The performance curve determines the amount to be paid in case of a performance equal or lower than expected in the targeted TSR. If the targeted TSR is achieved, the payment is fully due. If the performance of the TSR is greater than expected, the supplementary grant to be paid will be adjusted by up to 100%. At the end of the five-year vesting period, the amount paid on the previous two payments will be adjusted with the fifth year TSR result. The plan contains specific rules in case of change of control, which may be adjusted by the CNG Committee and/or Board in special cases.

Insider trading policies

Our insider trading policy prohibits directors, officers, and employees from improper trading in our securities, including shares, convertible securities, debt instruments, options, warrants, and derivative securities, whether issued by us or not. The policy also prohibits purchasing financial instruments designed to hedge or offset a decrease in market value of our securities, such as prepaid variable forward contracts, equity swaps, or collars. The policy applies to all securities owned directly or indirectly by directors, officers, and employees, or over which they exercise control. Our policy is made available to directors, officers and employees and applies even after termination of employment or service. Violations may result in disciplinary action, including termination.

2025 executive compensation

During the fiscal year of 2025, our executive officers received cash compensation in an aggregate amount of approximately US\$6.6 million which includes compensation paid to any officers whose terms ended on the first business day of 2025. The following table summarizes compensation we paid to our executive officers during the fiscal year of 2025, including base salary, short-term incentive programs or bonuses, long-term incentive programs and pension value, in addition to severance payments.

	Compensation for the year ended December 31, 2025 (US\$)
Annual fixed compensation	2,261,291.00
In-kind benefits and pension plans	82,454.00
Variable compensation	3,874,572.00
Total amount recognized to active executive officers	6,218,216.00
Severance	401,234.83
Total amount recognized to active and former executive officers	6,616,450.82

For the year ended on December 31, 2025, the highest individual compensation paid to a member of our management team was composed as set forth in the table below.

	Compensation for the year ended December 31, 2025 (US\$)
Annual fixed compensation	628,390.00
In-kind benefits and pension plans	33,568
Variable compensation	1,107,177.00
Highest total amount recognized in 2025	1,769,136.00

2025 director compensation

During the fiscal year ended on December 31, 2025, our directors received total compensation in an aggregate amount of approximately US\$2.3 million for their services as members of our Board of directors. In 2025, the average base compensation for each Director was US\$235,000 which remains as the current base compensation. In addition, each director is entitled to reimbursement for reasonable travel and other expenses incurred in connection with attending Board meetings and meetings for any committee on which he or she serves.

We have no service contracts with members of our Board of directors providing for benefits upon termination of employment.

Retirement benefit plans

All executive officers participate in FUNSEJEM, a private pension fund for Votorantim group employees. The plan is a defined contribution plan, voluntary and supplemental to Brazil's mandatory social security system. The plan's assets correspond to 100% of liabilities, with annual actuarial assessments. We match participant contributions between 1.5% and 6.0% monthly, depending on the participant's chosen contribution percentage.

Recovery analysis of incentive-based compensation

Our employee incentive compensation recovery policy (the “Clawback Policy”) provides that if we are required to prepare an accounting restatement, our Compensation, Nominating and Governance Committee must determine whether there has been any erroneously awarded compensation for each of our executive officers in connection with such accounting restatement. The Clawback Policy is incorporated by reference as Exhibit 97.1 to this report.

No excess incentive compensation was received by executive officers in 2025.

EMPLOYEES

As of December 31, 2025, we had 5,615 employees and 9,983 independent contractors. The following tables show the number of employees and contractors as of December 31, 2025, 2024 and 2023.

Number of Employees			
	As of December 31,		
	2025	2024	2023
Brazil	3,532	3,247	3,658
Peru	2,065	1,989	2,095
United States and Luxembourg	15	17	18
Total	5,612	5,253	5,771

Number of Independent Contractors ⁽¹⁾⁽²⁾			
	As of December 31,		
	2025	2024	2023
Brazil	3,224	2,497	3,035
Peru	6,759	6,665	6,963
Total	9,983	9,162	9,998

(1) Refers to fixed-term contracts only.

(2) Independent contractors were reclassified based on the length of their contracts. Fixed contractors are considered as those with contract terms longer than six months and access to operational or corporate unit for more than 12 days per month.

Of our total employees as of December 31, 2025, approximately 45.5% were engaged in mining operations, 25.4% in smelting operations, and 29.0% in corporate and administrative functions. Women held 25.5% of leadership positions (coordinator level and above) as of December 31, 2025, an increase compared to 23.7% as of December 31, 2024. We have set a target of achieving 30% female representation in leadership by 2030.

The increase in independent contractors in 2025 reflects operational requirements. In both Peru and Brazil, the increase in independent contractors was primarily driven by higher mining development needs mainly at Cerro Lindo, Cerro Pasco, and Aripuanã, which required additional specialized contractor support. In 2025 we reclassified independent contractors based on contract duration (longer than six months) and frequency of site access (more than 12 days per month), with figures presented from prior periods adjusted to ensure comparability.

Most of our employees are represented by labor unions. On June 26, 2025, operations at the Cajamarquilla smelter were partially and temporarily suspended, as operator employees, represented by their labor union, initiated a strike on June 25, 2025. On June 30, 2025, operations at the Cajamarquilla smelter fully resumed at normal capacity utilization levels, following the successful conclusion of negotiations. The temporary suspension lasted three days. We negotiate collective bargaining agreements, relative to salaries, working conditions and welfare, with the various unions that represent our employees. Although we believe our present labor relations are good, there can be no assurance that further work slowdowns, stoppages or strikes will not occur prior to or upon the expiration of the current collective bargaining agreements, and we are unable to estimate the effect of any such work slowdowns, stoppages or strikes on our production levels, in spite of an established contingency plan.

We invest in employee development programs designed to maintain and strengthen the technical capabilities and operational competitiveness of our workforce. In 2025, we delivered 203,744 total training hours across the organization, or approximately 32.8 hours per employee, compared to 175,086 hours and 31.2 hours per employee in 2024. Our programs include technical and operative training, a mentoring program, a leadership development program, young professional training, and individualized development plans. In 2025, 89.5% of eligible employees completed our annual performance and career development review. In addition, we participate in the Academy of Excellence, a leadership development program administered by Votorantim.

In 2025, 1,148 new employees joined Nexa and 720 employees departed, resulting in a voluntary turnover rate of 5.4% and a total turnover rate of 17.0%, compared to a total turnover rate of approximately 18.6% in 2024. In our mining operations specifically, where retention of experienced technical personnel is critical to safe and efficient production, the voluntary turnover rate was 6.1% in 2025. We continue to invest in competitive compensation structures, including fixed and variable pay components and long-term incentive programs, to support talent retention across our operations.

V. ADDITIONAL INFORMATION

LEGAL PROCEEDINGS

As of December 31, 2025, we were party to various legal and administrative proceedings relating to labor, civil, environmental and tax matters in which the disputed amount for probable and possible claims was an aggregate of US\$711.1 million. It is our policy to make provisions for legal contingencies when, based upon our judgment and the advice of our legal counsel, the risk of loss is probable. As of December 31, 2025, we had established a net provision in the amount of US\$148.7 million to cover contingencies for proceedings for which the risk of loss was deemed probable.

The following tables summarize judicial and administrative proceedings to which we are a party, the amounts in dispute in these proceedings in which a loss is considered probable or possible and the aggregate amount of the net provision established for losses that may arise from these proceedings.

	As of December 31, 2025	
	Total Proceedings ⁽¹⁾	Total Net Provisions ⁽²⁾
	(in millions of US\$)	
Civil and environmental ⁽³⁾	160.9	22.5
Tax	493.8	101.1
Labor	56.3	25.1
Total	711.1	148.7

(1) Does not include claims with expectation of loss classified as remote.

(2) Only includes claims with expectation of loss classified as probable, net of judicial deposits.

(3) Includes environmental legal and administrative proceedings.

Civil and environmental liabilities and contingencies

As of December 31, 2025, we were party to civil judicial proceedings and environmental administrative proceedings, with a probable or possible chance of loss in the aggregate amount of US\$160.9 million, for which we have recorded a net provision in the amount of US\$22.5 million for proceedings with probable losses. The civil and environmental judicial claims filed against us primarily relate to pollution and collection lawsuits, repossession actions and indemnity actions related to contract disputes.

Tax liabilities and contingencies

As of December 31, 2025, we were party to tax related judicial proceedings, with a probable or possible chance of loss in the aggregate amount of US\$493.8 million, for which we have recorded a net provision in the amount of US\$101.1 million for proceedings with probable losses.

The tax-related judicial and administrative claims filed against us primarily relate to (i) value added tax on Sales and Services ("VAT"), (ii) corporate income tax and social contribution on net profit ("CIT"), (iii) Brazilian mining royalty ("CFEM"), (iv) Social Contributions ("PIS" and "COFINS").

Labor liabilities and contingencies

As of December 31, 2025, we were party to labor judicial proceedings related to employment benefits, with a probable or possible chance of loss of a total amount of US\$56.3 million, for which we have recorded a net provision in the amount of US\$25.1 million for proceedings with probable losses. The judicial and administrative claims related to labor benefits that were filed against us are mainly related to (i) overtime payments, (ii) compensation for illness-related damages, and (iii) payment of social benefits.

Other legal proceedings***VAT investigation***

Throughout 2023 and 2024, we cooperated with an investigation by the Fiscal Office of the State of Minas Gerais and the Public Ministry of Minas Gerais (the “MG Authorities”) regarding VAT-related practices of certain former customers and our relationship with them. In the third quarter of 2023 and in February 2024, we entered into resolutions with the MG Authorities, without admitting primary responsibility, agreeing to make tax payments on behalf of certain customers and, in one instance, an additional ESG-related contribution. We recognized total liabilities of US\$105.9 million, recorded primarily as other income and expenses and financial expenses. The amounts will be funded through a combination of VAT credit offsets, limited upfront cash payments, judicial deposit offsets and installment payments adjusted by the Brazilian federal funds rate. These resolutions conclude the investigation as it relates to us and we do not expect further developments or provisions, but we reserve our right to seek recovery from certain customers for amounts paid on their behalf, to be recognized only upon recovery.

Cerro Lindo stability agreement

To promote investments in Peru, investors and Peruvian companies can enter into an agreement with the Peruvian government, known as a Legal Stability Agreement, which provides a stable legal and tax regime for a specified period. In March 2002, Nexa Peru entered into a guarantee and investment protection contract, referred to as the stability agreement. Pursuant to this stability agreement, Nexa Peru applied a special income tax rate of 20.0% from 2007 through 2021. We are engaged in ongoing tax-related discussions with the Peruvian tax authorities SUNAT related to the stability agreement of Cerro Lindo’s operations. The Peruvian tax authority issued revised the tax audits for the years-ended December 31, 2014, 2015, 2016 and 2017, arguing that the stability income tax rate (20%) granted by the stability agreement applies only to the income generated from 5,000 tons per day of its production (i.e., income exclusively related to the investments informed in the Cerro Lindo Feasibility Study), and not from Cerro Lindo’s entire production capacity expanded over time. The total amount estimated for the contingency from 2014 to 2017 is US\$213.3 million.

In October 2025, the tax court issued unfavorable decisions for the 2014 and 2015 years, and in December 2025, we initiated judicial proceedings seeking partial annulment of these tax court decisions with respect to SUNAT’s disregard of the 20% stabilized tax regime applicable to the Cerro Lindo Project.

In January 2026, we were notified of the tax court resolutions regarding the 2016 and 2017 years, in which the tax court declared the SUNAT’s tax stability assessment null, considering that SUNAT did not adequately assess the documentation submitted by Nexa during the administrative process and that it failed to define a clear criterion for the segregation of results. Consequently, the TC recognized that SUNAT should not have applied the 29.5% non-stabilized tax rate to our total results and ordered the cases to return to the audit stage.

In the fourth quarter of 2024, SUNAT completed its audit of the 2018 tax period, recognizing that a portion of our income was subject to the tax stability regime. In January 2025, we paid US\$18.3 million to obtain a 60% reduction in penalties and interests.

In the fourth quarter of 2025, SUNAT also concluded its audit of the 2019 tax period, applying the same criteria used in the 2018 audit. In January 2026, we paid US\$12.2 million to obtain 60% reduction in penalties and interest.

For both payments related to the 2018 and 2019 tax periods, we maintain our legal position and do not consider such payments as an acknowledgement of liability and will continue pursuing its legal defense before the competent authorities. SUNAT is currently auditing the 2020 and 2021 tax years, which are the last fiscal years covered by the stability agreement.

Cajamarquilla Transfer Pricing litigation

We are engaged in transfer pricing discussions in Peru, relating to the discount and premium applied by Nexa CJM in the export of refined zinc to its related parties, Votorantim and Nexa Resources. In December 2024, Cajamarquilla received a new tax assessment related to the fiscal year 2018 (“CJM 2018”) in the amount of US\$31.2 million. In the same month, SUNAT released a decision for Nexa CJM’s transfer pricing practices related to fiscal year 2017 (“CJM 2017”), denying defenses we filed and maintaining its previous position. In January 2025, Nexa CJM paid the corresponding tax amounts and obtained a reduction of 60% for fines related to CJM 2018, US\$18.3 million, and 40% for fines related to CJM 2017, US\$24.0 million. These payments do not represent a recognition of the tax debt and Nexa CJM will continue to proceed with its defenses where applicable.

ARTICLES OF ASSOCIATION

Company objectives and purposes

We were incorporated in Luxembourg as a public limited liability company (*société anonyme*) on February 26, 2014. Our articles of association provide that our corporate purpose is to, among others, (i) carry out any trade, business or commercial activities whatsoever, including but not limited to the purchase, exchange and sale of goods and/or services to third parties; (ii) take participations and interests, in any form whatsoever, in any commercial, industrial, financial or other, Luxembourg or foreign companies or enterprises; (iii) acquire through participations, contributions, underwriting, purchases or options, negotiation or in any other way any securities, rights, patents and licenses and other property, rights and interest in property as we shall deem fit; (iv) generally to hold, manage, develop, sell or dispose of the same, in whole or in part, for such consideration as Nexa Resources may deem fit, and in particular for shares or securities of any company purchasing the same; (v) enter into, assist or participate in financial, commercial and other transactions; (vi) grant to any holding company, subsidiary or sister company, or any other company that belongs to the same group as Nexa Resources, any assistance, loans, advances or guarantees (in the latter case, even in favor of a third-party lender of any affiliates); (vii) borrow and raise money in any manner and to secure the repayment of any money borrowed; and (viii) generally to do all such other things as may appear to Nexa Resources to be incidental or conducive to the attainment of the above objects or any of them. We can perform all commercial, technical, and financial operations, connected directly or indirectly in all areas as described above, in order to facilitate the accomplishment of its purpose, provided always that Nexa Resources will not enter into any transaction that would constitute a regulated activity of the financial sector without due authorization under Luxembourg law.

Our common shares are governed by Luxembourg law and our articles of association. Our articles of association were amended in May 2025. The following is a summary of the material terms of our common shares based on our articles of association and Luxembourg law. These rights may differ from those typically provided to shareholders of U.S. companies under the corporation laws of some states of the United States. We encourage you to read the complete form of our articles of association, filed as Exhibit 1 of this annual report on Form 20-F.

Common shares

As of December 31, 2025, our issued share capital was US\$132,438,611 represented by 132,438,611 common shares fully paid, with par value of US\$1.00 per share. In addition to our issued share capital, we have an authorized share capital of US\$231,924,819, represented by 231,924,819 common shares.

Distributions

Pursuant to our articles of association, the general meeting of shareholders may approve dividends, and the Board of directors may declare interim dividends, in each case to the extent permitted by Luxembourg law. Pursuant to our articles of association, the Board of directors may also declare distributions to our shareholders in the form of reimbursement of share premium to the extent permitted by Luxembourg law. Each common share entitles the holder to participate equally in any distributions, if and when declared by the general meeting of shareholders or, in the case of interim dividends or reimbursements of share premium, the Board of directors, out of funds legally available for such purposes.

Declared and unpaid distributions held by us for the account of the shareholders shall not bear interest. Under Luxembourg law, claims for unpaid distributions will lapse in our favor five years after the date such distribution has been declared.

For additional information regarding our policy on distributions, including procedures provided by Luxembourg law, see “Share Ownership and Trading—Distributions.”

Voting rights

There are no restrictions on the rights of Luxembourg or non-Luxembourg residents to vote our shares. All our shareholders, including our public shareholders, hold common shares with identical voting rights, preferences, and privileges. Each common share entitles the shareholder to attend a general meeting of shareholders in person or by proxy, to address the general meeting of shareholders and to vote. Each common share entitles the holder to one vote at the general meeting of shareholders.

The Board of directors may also decide to allow shareholders to vote by correspondence by means of a proxy form providing for a positive or negative vote or an abstention on each agenda item. The conditions for voting by correspondence are set out in the articles of association and in the convening notice.

The Board of directors may decide to arrange for shareholders to be able to participate in the general meeting by conference call, video conference or similar means of communication, whereby (i) the shareholders attending the meeting can be identified, (ii) all persons participating in the meeting can hear and speak to each other, (iii) the transmission of the meeting is performed on an ongoing basis and (iv) the shareholders can properly deliberate without the need for them to appoint a proxyholder who would be physically present at the meeting.

General meeting of shareholders

In accordance with Luxembourg law and our articles of association, any regularly constituted general meeting of our shareholders has the power to order, conduct or ratify acts relating to our operations to the extent that such decisions are the domain of the shareholders and not the Board of directors.

Our annual general meeting of shareholders shall be held at our registered office, or at such other place in Luxembourg as may be specified in the notice of the meeting, within six months after the end of the relevant financial year. Except as otherwise specified in our articles of association, resolutions at a general meeting of shareholders are adopted by a simple majority of shares present or represented and voting at such meeting.

A shareholder entitled to vote may act at any general meeting of shareholders by appointing another person (who need not be a shareholder) as his proxy, which proxy shall be in writing and comply with such requirements as determined by our Board with respect to the attendance at the general meeting, and proxy forms in order to enable shareholders to exercise their right to vote. All proxies must be received by us (or our agents) no later than the day determined by our Board of directors.

Issuance of shares and preferential subscription rights

Our shares may be issued pursuant to a resolution of the general meeting of shareholders. The general meeting of shareholders may also delegate the authority to issue shares to the Board of directors for a renewable period of five years. The Board of directors has been authorized to issue up to 231,924,819 common shares. Such authorization will expire five years after the date publication in the Luxembourg legal gazette (*Recueil Electronique des Sociétés et Associations*) of the minutes of the of the general meeting of shareholders held on May 8, 2025 (unless amended or extended by the general meeting of shareholders).

Each holder of shares has preferential subscription rights to subscribe for any issue of shares pro rata to the aggregate amount of such holder's existing holding of the shares. Each shareholder shall, however, have no preferential subscription right on shares issued for a contribution in kind.

Preferential subscription rights may be restricted or excluded by a resolution of the general meeting of shareholders, or by the Board of directors if the shareholders delegate. The general meeting of shareholders has delegated to the Board of directors the power to cancel or limit the preferential subscription rights of the shareholders when issuing new shares, so long as the issuance of new shares is conducted through a public offering.

If we decide to issue new shares in the future and do not exclude the preferential subscription rights of existing shareholders, we will publish the decision by placing an announcement in the Luxembourg official journal *Recueil Electronique des Sociétés et Associations* and in a newspaper published in Luxembourg. The announcement will specify the period in which the preferential subscription rights may be exercised. Such period may not be shorter than 14 days after the publication of the offer. The announcement will also specify details regarding the procedure for exercise of the preferential subscription rights. Under Luxembourg law preferential subscription rights are transferable and tradable property rights.

Repurchase of shares

Nexa Resources is prohibited by the 1915 Law from subscribing for its own shares. Nexa Resources may, however, repurchase its own shares or have another person repurchase shares on its behalf, subject to certain conditions, including:

- prior authorization of the general meeting of shareholders setting out the terms and conditions of the proposed repurchase, including the maximum number of shares to be repurchased, the duration of the period for which the authorization is given (which may not exceed five years) and the minimum and maximum consideration per share;
- the repurchase may not reduce the net assets of Nexa Resources on a non-consolidated basis to a level below the aggregate of the issued share capital and the reserves that Nexa Resources must maintain pursuant to the 1915 Law or our articles of association;
- only fully paid-up shares may be repurchased; and
- the acquisition offer is made on the same terms and conditions to all the shareholders who are in the same position; however, listed companies may repurchase their own shares on the stock exchange without making an acquisition offer to the shareholders.

As of December 31, 2025, there were no authorized share buyback programs. For more information, see “Share Ownership and Trading—Purchases of equity securities by the issuer and affiliated purchasers.”

Form and transfer of shares

Our shares are issued in registered form only and are freely transferable. Luxembourg law does not impose any limitations on the rights of Luxembourg or non-Luxembourg residents to hold or vote our shares.

Under Luxembourg law, the ownership of registered shares is generally evidenced by the inscription of the name of the shareholder, the number of shares held by him or her in the shareholders’ register, which is maintained at our registered office. Each transfer of shares is made by a written declaration of transfer recorded in our shareholders’ register, dated and signed by the transferor and the transferee or by their duly appointed agent. We may accept and enter into its shareholders’ register any transfer based on an agreement between the transferor and the transferee provided a true and complete copy of the agreement is provided to us.

Our articles of association provide that, in case our shares are recorded in the register of shareholders on behalf of one or more persons in the name of a securities settlement system or the operator of such a system, or in the name of a professional depository of securities or any other depository or of a sub-depository designated by one or more depositories, we —subject to a confirmation in proper form received from the depository—will permit those persons to exercise the rights attaching to those shares, including admission to and voting at general meetings of shareholders. The Board of directors may determine the requirements with which such confirmations must comply. Shares held in such manner generally have the same rights and obligations as any other shares recorded in our shareholder register(s).

TAXATION

Luxembourg tax considerations***Scope of Discussion***

This summary is based on the laws of Luxembourg, including the Income Tax Law of December 4, 1967, as amended, the Municipal Business Tax Act of December 1, 1936, as amended and the Net Wealth Tax Act of October 16, 1934, as amended, to which we jointly refer as the “Luxembourg tax law”, existing and proposed regulations promulgated thereunder, and published judicial decisions and administrative pronouncements, each as in effect on the date of this report or with a known future effective date. This discussion does not generally address any aspects of Luxembourg taxation other than income tax, corporate income tax, municipal business tax, withholding tax and net wealth tax. This discussion, while not being a complete analysis or listing of all of the possible tax consequences of holding and disposing of shares in Nexa Resources, addresses the material tax issues. Also, there can be no assurance that the Luxembourg tax authorities will not challenge any of the Luxembourg tax consequences described below; in particular, changes in law and/or administrative practice, as well as changes in relevant facts and circumstances, may alter the tax considerations described below.

For purposes of this discussion, a “Luxembourg shareholder” is any beneficial owner of shares that for Luxembourg income tax purposes is:

- § an individual resident of Luxembourg under article 2 of the Luxembourg Income Tax Law (“LITL”), as amended; or
- § a corporation or other entity taxable as a corporation that is organized under the laws of Luxembourg or effectively managed from Luxembourg under article 159 of the Income Tax Law, as amended.

This discussion does not constitute tax advice and is intended only as a general guide. Shareholders should also consult their own tax advisors as to the Luxembourg tax consequences of the ownership and disposition of our common shares. The summary applies only to shareholders who will own our common shares as capital assets and does not apply to other categories of shareholders, such as dealers in securities, trustees, insurance companies, collective investment schemes, and shareholders who have, or who are deemed to have, acquired their shares in the capital of Nexa Resources by virtue of an office or employment.

Shareholders***Luxembourg income tax on dividends and similar distributions***

A non-Luxembourg shareholder will not be subject to Luxembourg income taxes on dividend income and similar distributions in respect of our common shares, other than a potential Luxembourg withholding tax as described below, unless the shares are attributable to a permanent establishment, or a fixed place of business maintained in Luxembourg by such non-Luxembourg shareholder.

An individual Luxembourg shareholder will be subject to Luxembourg income tax on dividend income and similar distributions in respect of its shares in Nexa Resources at the applicable progressive rates. Such payments may benefit from a 50.0% exemption set forth in Article 115 15a of the LITL, subject to the conditions set out therein. If the 50.0% exemption applies, the applicable income tax will be levied on 50% of the gross amount of the dividends at the applicable progressive rates. Taxable dividends are also subject to dependence insurance contribution levied at a rate of 1.4% on the net income where certain Luxembourg shareholders are affiliated to the Luxembourg social security administration.

A corporate Luxembourg shareholder is subject to Luxembourg CIT (including an unemployment fund contribution) and municipal business tax (“MBT”) at the aggregate rate of 23.87% in 2025 for entities having their statutory seat in Luxembourg City. The taxable basis of a corporate Luxembourg shareholder will, in principle, correspond to its accounting results, unless a specific treatment is provided for by the LITL. A corporate Luxembourg shareholder may benefit from the Luxembourg participation exemption regime with respect to dividends received if the following two conditions are met: (a) the shareholder holds or commits itself to hold at least 10.0% of the share capital of Nexa Resources or a participation with an acquisition price of at least €1.2 million for an uninterrupted period of at least twelve months and (b) the shareholder is a Luxembourg fully taxable corporation. If these cumulative conditions are met, dividends received by the corporate Luxembourg shareholder should be fully exempt from CIT and MBT at the level of the corporate Luxembourg shareholder.

If the conditions of the Luxembourg participation exemption regime with respect to dividends are not met, the corporate Luxembourg shareholders can still benefit from the aforementioned 50.0% exemption set forth in Article 115 15a of the LITL, subject to the conditions set out therein.

Luxembourg withholding tax—Share capital reductions or share premium reimbursements

Share capital reductions or share premium reimbursements made by Nexa Resources to the Luxembourg and non-Luxembourg shareholders, and stemming from contributions made by the shareholders, are in principle subject to a 15% Luxembourg withholding tax, unless they have been motivated by genuine economic reasons and provided that Nexa Resources does not have distributable reserves or profits available. Although genuine economic reasons are not defined by law, Luxembourg tax authorities may examine the given reasons. We do not intend to make capital reductions in the near future. Nexa Resources discloses distributable reserves, retained earnings and profits in its chart of accounts according to Decree dated June 10, 2009. As of December 31, 2025, we had the ability to pay dividends and share premiums. The share premium, if any, may be distributed to the shareholders in accordance with Luxembourg Commercial Companies Act by a resolution of the Board of directors. See “Share Ownership and Trading—Distributions.”

Luxembourg withholding tax—Distributions to shareholders

A Luxembourg withholding tax of 15.0% is due on dividends and similar distributions made by Nexa Resources to its Luxembourg and non-Luxembourg shareholders unless a Luxembourg domestic dividend withholding tax exemption or a double tax treaty reduction or exemption is applicable, as described below. The tax will be withheld by Nexa Resources and remitted to the Luxembourg tax authorities within 8 days as of the date the income is made available to the Luxembourg and non-Luxembourg shareholders.

Exemption from Luxembourg withholding tax—Distributions to shareholders

Dividends paid by Nexa Resources will be exempt from Luxembourg withholding tax provided that the following cumulative conditions are met (or domestic exemption):

- at the date of the distribution, the shareholder holds at least 10% of the share capital of Nexa Resources or a participation with an acquisition price of at least €1.2 million for an uninterrupted period of at least twelve months; and
- the dividend is paid to a (i) fully taxable company resident in Luxembourg, (ii) a company resident in a EU Member State fulfilling the conditions of Article 2 of the Parent Subsidiary Directive and listed in the appendix to this directive as well as a Luxembourg permanent establishment of such a company, (iii) a company resident in a country with which Luxembourg has concluded a double tax treaty and which is fully subject to income tax comparable to the Luxembourg corporate income tax as well as a Luxembourg permanent establishment of such a company, (iv) a company resident of Switzerland and subject to tax without being exempt, (v) a company or a cooperative company resident in a Member State of the European Economic Area, other than a Member State of the EU, and that is fully subject to tax equivalent to the Luxembourg corporate income tax, or (vi) a Luxembourg permanent establishment of a company under (ii) or (v).

For a shareholder to benefit from such exemption upon a distribution date, Nexa Resources must file a properly completed form 900 with the Luxembourg tax authorities within 8 days following the earlier of (a) the payment date set in the distribution decision or (b) the day following the distribution decision date in case no payment date is fixed. Luxembourg tax authorities may request all relevant documentation showing fulfillment of the above-mentioned conditions (*e.g.*, including a tax residency certificate). We make no representation that this exemption procedure will be practicable with respect to shares held through a clearing system such as DTC (in the United States).

Alternatively, a shareholder may file a refund request (form 901bis, stamped and validated by the tax authorities of the State of residency of the shareholder) with the Luxembourg tax authorities before December 31 of the year following the taxable event (*i.e.*, the distribution). We make no representation that this refund procedure will be practicable for a shareholder residing in the United States or any other specific jurisdiction.

A shareholder that does not meet the twelve-month holding period described in the first bullet above can request a refund when the twelve-month period has elapsed. The refund request (form 901bis, stamped and validated by the tax authorities of the State of residency of the shareholder) has to be filed with the Luxembourg tax authorities before December 31 of the year following the taxable event.

Forms 900 and 901bis are generally made available on the website of the Luxembourg tax authorities (*Administration des contributions directes*).

The application of the dividend withholding tax exemption to taxable companies' residents in other EU member states or to their EU permanent establishments is not granted if the income allocated is part of a tax avoidance scheme.

Reduction of Luxembourg withholding tax—Distributions to shareholders

As mentioned above, pursuant to the provisions of certain bilateral treaties for the avoidance of double taxation concluded between Luxembourg and other countries, and if certain conditions are met, the aforementioned Luxembourg dividend withholding tax may be reduced or an exemption may apply. Many such treaties, including the double tax treaty with the United States, provide for a tax rate lower than 15 percent only for a shareholder that holds a substantial (generally, 10 percent or 25 percent) portion of a Luxembourg company's shares. Shareholders that hold such shares should consult their tax advisors to determine how to benefit from the reduction in withholding tax rates.

A shareholder that is a company resident in a country that has entered a double tax treaty with Luxembourg may qualify for the domestic exemption even if the treaty would not reduce the withholding tax rate applicable to dividends paid to that shareholder.

Luxembourg NWT

A non-Luxembourg shareholder will not be subject to Luxembourg net wealth tax ("NWT") unless the shares are attributable to a permanent establishment, or a fixed place of business maintained in Luxembourg by such non-Luxembourg shareholder.

Luxembourg individual shareholders are not subject to Luxembourg NWT. A Luxembourg fully taxable corporate shareholder should be subject to Luxembourg NWT in respect of the shares held in the capital of Nexa Resources unless it holds more than 10% or €1.2 million of our common shares.

Luxembourg capital gains tax upon disposal of shares

Capital gains derived by a non-Luxembourg shareholder on the sale of our common shares will not be subject to taxation in Luxembourg, unless one of the following conditions applies:

- the shareholder does not benefit from a double tax treaty and (i) holds shares in Nexa Resources representing more than 10% of the share capital of Nexa Resources and such shares were held for less than six months prior to their sale or (ii) has been a resident taxpayer in Luxembourg for at least fifteen years and had acquired nonresident status less than five years prior to the disposal; or
- our common shares are attributable to a permanent establishment, or a fixed place of business maintained in Luxembourg by such non-Luxembourg shareholder. In such case, the non-Luxembourg shareholder is required to recognize capital gains or losses on the sale of such shares, which will be subject to CIT and MBT, unless the Luxembourg participation exemption regime with respect to capital gains applies.

Capital gains realized upon the sale of our common shares by a Luxembourg resident individual will be subject to Luxembourg income tax at the level of the Luxembourg resident individual only in case of (i) speculation gains or (ii) gains realized on a substantial participation.

Speculation gains

Capital gains realized upon the sale of our common shares within a shareholding period not exceeding six months will be subject to personal income taxation (unless such capital gain does not exceed €500) in the hands of a Luxembourg resident individual.

Substantial participation

In case where the Luxembourg resident individual has held the shares for at least six months and had a substantial participation, the capital gains realized will be subject to income tax at a rate equal to half the normal progressive rate applicable. A participation is considered as a substantial participation when a Luxembourg resident individual, jointly with his/her spouse and children under the age of 18, holds or has held, directly or indirectly, at any time during the five years prior to the date of the sale, 10.0% or more of the share capital of Nexa Resources. A participation is also considered as a substantial participation when a Luxembourg resident individual acquired free of charge, within the five-year period preceding the transfer, a participation that was constituting a substantial participation in the hands of the alienator (or the alienators in case of successive transfers free of charge within the same five-year period).

Capital gains realized by the Luxembourg corporate shareholder (*société de capitaux*) should be exempt from capital gains tax in Luxembourg if at the date of the disposal, the Luxembourg shareholder has held or undertakes to hold, for an uninterrupted period of at least 12 months, a direct participation which represents at least 10.0% of the share capital of Nexa Resources, or which acquisition price was at least €6.0 million. If these conditions are not met, the Luxembourg corporate shareholder would be fully taxed on the capital gains realized upon the sale of the common share. The exempt amount of the capital gains realized will be, however, reduced by the amount of any expenses related to the participation, including decreases in the acquisition cost that could have previously reduced such shareholder's Luxembourg taxable income.

ATAD rules

The European Council has adopted two Anti-Tax Avoidance Directives: Council Directive (EU) 2016/1164 of 12 July 2016 laying down rules against tax avoidance practices that directly affect the functioning of the internal market ("ATAD I") and Directive 2017/952/EU of 29 May 2017 amending ATAD I as regards hybrid mismatches with third countries ("ATAD II") that address many of the issues mentioned above. The measures included in ATAD I were implemented into Luxembourg law on December 21, 2018, and almost all of them have been applicable since January 1, 2019. The measures included in ATAD II were implemented into Luxembourg law on December 19, 2019, and almost all of them have been applicable since January 1, 2020, subject to certain exceptions. ATAD I and ATAD II may have a material impact on how returns to shareholders are taxed.

Pillar Two

Pillar Two is focused on implementing a global minimum tax designed to ensure that large multinationals pay a minimum effective tax rate of 15% in every jurisdiction they operate. Pillar Two is expected to apply to multinational groups with turnover in excess of €750 million. The Pillar Two proposals involve a framework of complex rules which, broadly, would impose top-up taxes on certain entities within a multinational group where the overall tax paid on the group's profit in any jurisdiction falls below the minimum 15% effective tax rate. The proposed rules for determining whether a top-up tax is required in respect of the group's profits in a jurisdiction and the allocation of any such top-up tax between the members of the group are detailed and are designed to prevent multinational groups from being able to structure around the rules. It should be noted that a group's effective tax rate in a jurisdiction may fall below the minimum 15% rate, and therefore a top-up tax may be required, even if that jurisdiction's statutory headline tax rate is over 15%. On December 14, 2022, the EU Member States adopted a Council Directive (2022/2523) on ensuring a global minimum level of taxation for multinational enterprise ("MNE") groups and large-scale domestic groups in the EU ("Minimum Tax Directive"). EU Member States had the obligation to implement the Minimum Tax Directive into their national laws before December 31, 2023. The Minimum Tax Directive was implemented into Luxembourg national law on December 22, 2023, and applies to fiscal years starting on or after December 31, 2023.

Peruvian tax considerations

The following is a general summary of material Peruvian tax matters, as in effect on the date of this report, and describes our understanding of the principal tax consequences of an investment in our common shares by a person or entity who is not considered a resident of Peru for tax purposes. This summary is not intended to be a comprehensive description of all the tax considerations that may be relevant to a decision to make an investment in the offered shares.

This summary is based on provisions of the Peruvian income tax law and its regulations in force as of the date hereof. No rulings from the Peruvian tax authorities or judicial rulings address the tax treatment of instruments similar to the shares of Nexa Resources. Accordingly, no assurance can be given that the Peruvian tax authorities will agree with the conclusions described below. If the Peruvian tax authorities were to take a position different from the conclusions described below, the Peruvian income tax consequences of investing in Nexa Resources may differ from those summarized below.

Sale, exchange or disposition of the shares or a beneficial interest therein

Investors who decide to invest in the shares of Nexa Resources hold the shares in book-entry form, in the name of a nominee holding such shares for the investors' benefit. Any future trading of such shares will be effected through a conveyance of the beneficial interest held by the investors thereupon through the designated clearing mechanism. Because the conveyance of such beneficial interest does not imply the actual transfer of shares, any capital gains resulting from the conveyance of the beneficial interest in such shares, obtained by a person or entity who is not considered a resident of Peru for Peruvian tax purposes, should not be subject to taxation in Peru.

Contrary to the conclusion stated above, if the sale of our common shares were to qualify as an "indirect transfer of Peruvian shares" (and the transfer of the beneficial interest in the shares were to be considered as an actual transfer of such shares), different rules would apply.

According to Peruvian income tax law, an "indirect transfer of Peruvian shares" is deemed to occur when there is a transfer of shares issued by a non-resident company which, in turn, owns—directly or through one or more companies—shares issued by a Peruvian company, and the following two conditions are concurrently met:

- (i) during any of the 12 months preceding the transfer, the fair market value ("FMV") of the shares issued by the Peruvian company held directly or indirectly by the nonresident company which shares are being sold, is equivalent to 50% or more of the FMV of all the shares issued by said non-resident company; and
- (ii) during any 12-month period, the shares transferred by a party, including those transferred by its related parties, represent at least 10% of the shares issued by such non-resident company.

Due to modifications to Peruvian income tax law, as of January 1, 2019, even if the abovementioned conditions are not met, an indirect transfer of Peruvian shares will also be deemed to exist if the "total value" of shares of the Peruvian company indirectly transferred within any 12-month period is equivalent to or higher than 40,000 Peruvian tax units (S/176 million or US\$50.0 million approximately). Said "total value" is determined by multiplying: i) the "percentage" that the FMV of the shares issued by the Peruvian company held (directly or indirectly) by the non-resident company which shares are being transferred, represents with regard to the FMV of all the shares issued by said non-resident company; and ii) the price agreed for the shares issued by the non-resident company directly transferred. To determine the "total value" threshold, transfers made by those parties which qualify as related to the transferor should also be considered. Nonetheless, the "taxable base" shall be determined, in any case, per party, considering the transfers made by the latter within the abovementioned 12-month period, but excluding those transfers previously taxed.

In case the sale of the shares were to qualify as an "indirect transfer of Peruvian shares" (and the transfer of the beneficial interest on the shares were to be considered as an actual transfer of such shares), any capital gain resulting therefrom will be subject to a 30% tax rate in Peru.

In case the corporate investor that makes the indirect transfer of Peruvian shares has a branch or a permanent establishment with assigned assets in Peru, said corporation will be jointly and severally liable for any income tax that resulted from the transfer of Peruvian shares; it will also be obligated to present to the Peruvian tax authority all the information related to the Peruvian shares of the non-resident investor that are being sold, particularly the information referred to the FMV; participation percentages; capital increase or reduction; issuance and placement of shares or participations; reorganization processes; patrimonial values and balance sheets; etc. Investors should consult their own tax advisors about the consequences of the acquisition, ownership, and disposition of their investment in the offered shares or any beneficial interest therein, including the possibility that the tax consequences of investing in the offered shares may differ from the description above.

United States federal income tax considerations

The following is a summary of certain U.S. federal income tax considerations that are likely to be relevant to the purchase, ownership, and disposition of our common shares by a U.S. Holder (as defined below).

This summary is based on provisions of the Internal Revenue Code of 1986, as amended (the “Code”), and U.S. Treasury regulations (“Regulations”), rulings, and judicial interpretations thereof, in force as of the date hereof, and the U.S.-Luxembourg Treaty dated December 20, 2000 (as amended by any subsequent protocols) (the “Treaty”). Those authorities may be changed at any time, perhaps retroactively, so as to result in U.S. federal income tax consequences different from those summarized below.

This summary is not a comprehensive discussion of all of the tax considerations that may be relevant to a particular investor’s decision to purchase, hold, or dispose of our common shares. In particular, this summary is directed only to U.S. Holders that hold common shares as capital assets and does not address tax consequences to U.S. Holders who may be subject to special tax rules, such as banks, brokers or dealers in securities or currencies, traders in securities electing to mark to market, financial institutions, life insurance companies, tax exempt entities, entities that are treated as partnerships for U.S. federal income tax purposes (or partners therein), holders that own or are treated as owning 10% or more of our common shares by vote or value, persons holding common shares as part of a hedging or conversion transaction or a straddle, nonresident alien individuals present in the United States for more than 182 days in a taxable year, or persons whose functional currency is not the U.S. dollar. Moreover, this summary does not address state, local or foreign taxes, U.S. federal estate and gift taxes, or the Medicare contribution tax applicable to net investment income of certain non-corporate U.S. Holders, or any alternative minimum tax consequences of acquiring, holding, or disposing of common shares.

For purposes of this summary, a “U.S. Holder” is a beneficial owner of common shares that is a citizen or resident of the United States, a U.S. domestic corporation or that otherwise is subject to U.S. federal income taxation on a net income basis in respect of such common shares.

U.S. Holders should consult their tax advisors about the consequences of the acquisition, ownership, and disposition of the common shares, including the relevance to their particular situation of the considerations discussed below and any consequences arising under foreign, state, local or other tax laws.

Taxation of dividends

Subject to the discussion below under “Passive Foreign Investment Company Status,” the gross amount of any distribution of cash or property with respect to our common shares that is paid out of our current or accumulated earnings and profits (as determined for U.S. federal income tax purposes) will generally be includible in a U.S. Holder’s taxable income as ordinary dividend income on the day on which the U.S. Holder receives the dividend and will not be eligible for the dividends received deduction allowed to corporations under the Code.

We do not expect to maintain calculations of our earnings and profits in accordance with U.S. federal income tax principles. U.S. Holders therefore should expect that distributions generally will be treated as dividends for U.S. federal income tax purposes.

Dividends received by an individual with respect to the common shares will be subject to taxation at a preferential rate if the dividends are “qualified dividends.” Subject to certain exceptions for short-term positions, dividends paid on the common shares will be treated as qualified dividends if:

- the common shares are readily tradable on an established securities market in the United States; and

- we were not, in the year prior to the year in which the dividend was paid, and are not, in the year in which the dividend is paid, a passive foreign investment company (“PFIC”).

The common shares are listed on the NYSE and will qualify as readily tradable on an established securities market in the United States so long as they are so listed. Based on our consolidated financial statements and certain estimates of our gross income and gross assets and relying on the Commodity Exception (as defined below under “Passive Foreign Investment Company Status”), we do not believe that we were a PFIC for our 2025 or 2024 taxable years, and we do not anticipate becoming a PFIC for our current taxable year or in the foreseeable future. Accordingly, we expect that dividends paid on the common shares will be treated as qualified dividends. U.S. Holders should consult their tax advisors regarding the availability of the reduced dividend tax rate in light of their own particular circumstances.

Subject to generally applicable limitations and conditions, Luxembourg dividend withholding tax paid at the appropriate rate applicable to the U.S. Holder may be eligible for a credit against such U.S. Holder’s U.S. federal income tax liability. These generally applicable limitations and conditions include requirements adopted by the U.S. Internal Revenue Service (“IRS”) in Regulations promulgated in December 2021, and any Luxembourg tax will need to satisfy these requirements in order to be eligible to be a creditable tax for a U.S. Holder. In the case of a U.S. Holder that either (i) is eligible for, and properly elects, the benefits of the Treaty, or (ii) consistently elects to apply a modified version of these rules under temporary guidance issued in July 2023 and complies with specific requirements set forth in such guidance, the Luxembourg tax on dividends will be treated as meeting these requirements and therefore as a creditable tax. In the case of all other U.S. Holders, the application of these requirements to the Luxembourg tax on dividends is uncertain, and we have not determined whether these requirements have been met. If the Luxembourg dividend tax is not a creditable tax for a U.S. Holder or the U.S. Holder does not elect to claim a foreign tax credit for any foreign income taxes paid or accrued in the same taxable year, the U.S. Holder may be able to deduct the Luxembourg tax in computing such U.S. Holder’s taxable income for U.S. federal income tax purposes. Dividend distributions will constitute income from sources without the United States and, for U.S. Holders that elect to claim foreign tax credits, generally will constitute “passive category income” for foreign tax credit purposes.

The availability and calculation of foreign tax credits and deductions for foreign taxes depend on a U.S. Holder’s particular circumstances and involve the application of complex rules to those circumstances. The temporary guidance discussed above also indicates that the Treasury and IRS are considering proposing amendments to the December 2021 Regulations and that the temporary guidance can be relied upon until additional guidance is issued that withdraws or modifies the temporary guidance. U.S. Holders should consult their own tax advisors regarding the application of these rules to their particular situations.

U.S. Holders that receive distributions of additional common shares or rights to subscribe for common shares as part of a pro rata distribution to all our shareholders generally will not be subject to U.S. federal income tax in respect of the distributions.

Taxation of dispositions of common shares

Subject to the discussion below under “Passive Foreign Investment Company Status,” a U.S. Holder generally will recognize gain or loss on the sale, exchange or other disposition of common shares in an amount equal to the difference, if any, between the amount realized upon the sale, exchange or other disposition and the U.S. Holder’s adjusted tax basis in the common shares. A U.S. Holder’s adjusted tax basis in its common shares generally will equal the purchase price for the common shares. Any gain or loss will be capital gain or loss and generally will be long-term capital gain or loss if the common shares have been held for more than one year. Long-term capital gain realized by a U.S. Holder that is an individual generally is subject to taxation at a preferential rate. The deductibility of capital losses is subject to limitations. Gain, if any, realized by a U.S. Holder on the sale or other disposition of the common shares generally will be treated as U.S. source income for U.S. foreign tax credit purposes.

Passive foreign investment company status

Special U.S. tax rules apply to investors in companies that are considered to be PFICs. We will be classified as a PFIC in a particularly taxable year if either:

- 75 percent or more of our gross income for the taxable year is passive income; or

- the average percentage of the value of our assets that produce or are held for the production of passive income is at least 50 percent.

Passive income generally includes dividends, interest, royalties, rents, annuities, net gains from the sale or exchange of property producing such income, net foreign currency gains, and gains from commodities transactions other than gains that are active business gains from the sale of commodities or arise from “commodity hedging transactions,” within the meaning of the applicable rules (“Commodity Exception”).

Based on our consolidated financial statements and certain estimates of our gross income and gross assets, and relying on the Commodity Exception, we do not believe that we were a PFIC for our 2025 or 2024 taxable years, and we do not anticipate becoming a PFIC for our current taxable year or in the foreseeable future. However, since PFIC status will be determined by us on an annual basis and since such status depends upon the composition of our income and assets, and the nature of our activities (including our ability to qualify for the Commodity Exception or any similar exceptions), from time to time, there can be no assurance that we will not be considered a PFIC for any taxable year. In the event that, contrary to our expectation, we are classified as a PFIC in any year, and a U.S. Holder does not make a mark-to-market election, as described in the following paragraph, the U.S. Holder will be subject to a special tax at ordinary income tax rates on “excess distributions” (generally, any distributions that a U.S. Holder receives in a taxable year that are greater than 125 percent of the average annual distributions that the U.S. Holder has received in the preceding three taxable years, or the U.S. Holder’s holding period, if shorter), and gain that the U.S. Holder recognizes on the sale of the U.S. Holder’s shares. Under these rules, (a) the excess distribution or gain will be allocated ratably over the U.S. Holder’s holding period, (b) the amount allocated to the current taxable year and any taxable year prior to the first taxable year in which we are a PFIC will be taxed as ordinary income, and (c) the amount allocated to each of the other taxable years will be subject to tax at the highest rate of tax in effect for the applicable class of taxpayer for that year, and an interest charge for the deemed deferral benefit will be imposed with respect to the resulting tax attributable to each such other taxable year. Classification as a PFIC may also have other adverse tax consequences.

A U.S. Holder may be able to mitigate some of the unfavorable rules described in the preceding paragraph by electing to mark the common shares to market. If a U.S. Holder makes this mark-to-market election, the U.S. Holder will be required in any year in which we are a PFIC to include as ordinary income the excess of the fair market value of the U.S. Holder’s common shares at year-end over the U.S. Holder’s basis in those shares. If a U.S. Holder’s basis in the common shares exceeds the shares’ fair market value at the end of the U.S. Holder’s taxable year, the U.S. Holder will be entitled to deduct the excess as an ordinary loss, but only to the extent of its net mark-to-market gains from previous years. The U.S. Holder’s basis in the shares will be adjusted to reflect the gain or loss. In addition, any gain that the U.S. Holder recognizes upon the sale of the common shares will be taxed as ordinary income in the year of sale.

A U.S. Holder that owns an equity interest in a PFIC must annually file IRS Form 8621 and may be required to file other IRS forms. A failure to file one or more of these forms as required may toll the running of the statute of limitations in respect of each of the U.S. Holder’s taxable years for which such form is required to be filed. As a result, the taxable years with respect to which the U.S. Holder fails to file the form may remain open to assessment by the IRS indefinitely, until the form is filed.

U.S. Holders should consult their tax advisors regarding the potential application of the PFIC rules to an investment in the common shares.

Foreign financial asset reporting

Individual U.S. Holders that own “specified foreign financial assets” with an aggregate value in excess of US\$50,000 on the last day of the taxable year or US\$75,000 at any time during the taxable year are generally required to file an information statement along with their tax returns, currently on Form 8938, with respect to such assets. “Specified foreign financial assets” include any financial accounts held at a non-U.S. financial institution, as well as securities issued by a non-U.S. issuer that are not held in accounts maintained by financial institutions. Higher reporting thresholds apply to certain individuals living abroad and to certain married individuals. Regulations extend this reporting requirement to certain entities that are treated as formed or availed of to hold direct or indirect interests in specified foreign financial assets based on objective criteria. U.S. Holders who fail to report the required information could be subject to substantial penalties. In addition, the statute of limitations for assessment of tax would be suspended, in whole or part. Prospective investors are encouraged to consult with their tax advisors regarding the possible application of these rules, including the application of the rules to their particular circumstances.

Backup withholding and information reporting

Dividends paid on, and proceeds from the sale or other disposition of, the common shares to a U.S. Holder generally may be subject to the information reporting requirements of the Code and may be subject to backup withholding unless the U.S. Holder provides an accurate taxpayer identification number and makes any other required certification or otherwise establishes an exemption. Backup withholding is not an additional tax. The amount of any backup withholding from a payment to a U.S. Holder will be allowed as a refund or credit against the U.S. Holder's U.S. federal income tax liability, provided the required information is furnished to the IRS in a timely manner.

A holder that is a foreign corporation or a non-resident alien individual may be required to comply with certification and identification procedures in order to establish its exemption from information reporting and backup withholding.

EXCHANGE CONTROLS AND OTHER LIMITATIONS AFFECTING SECURITY HOLDERS

We are not aware of any governmental laws, decrees, regulations or other legislation in Luxembourg that restrict the export or import of capital, including the availability of cash and cash equivalents for use by our affiliated companies, or that affect the remittance of dividends, interest or other payments to non-resident holders of our securities, except for regulations restricting the remittance of dividends and other payments in compliance with United Nations and EU sanctions.

EVALUATION OF DISCLOSURE CONTROLS AND PROCEDURES

Our management, with the participation of our chief executive officer and chief financial officer, has evaluated the effectiveness of our disclosure controls and procedures as of December 31, 2025. There are inherent limitations to the effectiveness of any system of disclosure controls and procedures, including the possibility of human error and the circumvention or overriding of the controls and procedures. Accordingly, effective disclosure controls and procedures can only provide reasonable assurance of achieving their control objectives.

We have evaluated, with the participation of our chief executive officer and chief financial officer, the effectiveness of our disclosure controls and procedures as of December 31, 2025. Based on our evaluation, our chief executive officer and chief financial officer concluded that our disclosure controls and procedures were effective as of December 31, 2025.

INTERNAL CONTROL OVER FINANCIAL REPORTING

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting and for assessing its effectiveness.

Our internal control over financial reporting is a process designed by, or under the supervision of, our chief executive officer and our chief financial officer, and effected by our Board of directors, management and other employees, and it is designed to provide reasonable assurance regarding the reliability of financial reporting and of the preparation of our consolidated financial statements, in accordance with International Financial Reporting Standards as issued by the International Accounting Standards Board ("IFRS Accounting Standards").

Due to its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. In addition, projections of any evaluation of the effectiveness of internal control over financial reporting to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with our policies or procedures may deteriorate.

Our management has assessed the effectiveness of our internal control over financial reporting as of December 31, 2025, based upon the criteria established in *Internal Controls—Integrated Framework* (2013), issued by the Committee of Sponsoring Organizations of Treadway Commission ("COSO"). Based on this assessment and criteria, our management has concluded that our internal control over financial reporting was effective as of December 31, 2025.

Audit of the effectiveness of internal control over financial reporting

Our independent registered public accounting firm, PricewaterhouseCoopers Auditores Independientes Ltda., has audited the effectiveness of our internal control over financial reporting, as stated in their report as of December 31, 2025.

Changes in internal control over financial reporting

There were no changes in our internal controls over financial reporting during the fiscal year of 2025, which have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PRINCIPAL ACCOUNTANT FEES AND SERVICES

The following table summarizes the fees billed to us by our independent auditors PricewaterhouseCoopers Auditores Independientes Ltda. for professional services in 2025 and 2024.

	For the Year Ended December 31,	
	2025	2024
	(US\$ thousand)	
Audit fees	1,832.7	1,695.2
Audit-related fees	31.4	371.5
Tax fees	-	-
Other fees	-	-
Total fees	1,864.1	2,066.7

“Audit fees” are the aggregate fees billed by PricewaterhouseCoopers Auditores Independientes Ltda. for the audit of our annual financial statements, the audit of the statutory financial statements of our subsidiaries, and reviews of interim financial statements and attestation services that are provided in connection with statutory and regulatory filings or engagements. They also include fees for services that only the independent auditor can reasonably provide, including the provision of comfort letters and consents in connection with statutory and regulatory filings and the review of documents filed with the SEC and other capital markets or local financial reporting regulatory bodies. “Audit-related fees” are fees charged by PricewaterhouseCoopers Auditores Independientes Ltda. for assurance and related services that are reasonably related to the performance of the audit or review of our consolidated financial statements and are not reported under “Audit fees.” “Tax fees” are the aggregate fees billed by PricewaterhouseCoopers Auditores Independientes Ltda. for services rendered for tax compliance, tax advice, and tax planning. “Other fees” are the aggregate fees billed by PricewaterhouseCoopers Auditores Independientes Ltda. for services related with assurance and review procedures not related with regulatory or financial reporting of our consolidated financial statements.

We have established policies and procedures that require any engagement of our independent auditor for audit or non-audit services to be submitted to and pre-approved by the Audit Committee. In addition, our Audit Committee may delegate the authority to pre-approve non-audit services to one or more of its members. All non-audit services that are pre-approved pursuant to such delegated authority must be presented to the full Audit Committee at its first scheduled meeting following such pre-approval. Our Audit Committee also has the authority to recommend pre-approval policies and procedures to our Board of directors and for the engagement of our independent auditor’s services.

INFORMATION FILED WITH SECURITIES REGULATORS

We are subject to various information and disclosure requirements in those countries in which our securities are traded, and we file financial statements and other periodic reports with the SEC and Canadian securities regulatory authorities.

- *United States.* We are subject to the information requirements of the Securities Exchange Act of 1934, as amended, and accordingly file reports and other information with the SEC. Our SEC filings are available to the public from the SEC at <http://www.sec.gov>. You may also inspect Nexa Resources' reports and other information at the offices of the New York Stock Exchange, 11 Wall Street, New York, New York 10005, on which our common shares are listed. For further information on obtaining copies of Nexa Resources' public filings at the NYSE, you should call (212) 656-5060.
- *Canada.* We must comply with certain Canadian periodic and ongoing disclosure rules under applicable Canadian provincial and territorial securities laws. However, with respect to the rules under applicable Canadian provincial and territorial securities laws, we are able to rely on certain exemptions from many of the requirements under such laws through our compliance with U.S. disclosures given our status in the U.S. as a foreign private issuer. Our Canadian filings are available to the public from the website maintained by the Canadian Securities Administrators at www.sedarplus.ca.

GLOSSARY

Brownfields project: An exploration or development project near or within an existing operation, which can share infrastructure and management.

Concentration: The process by which crushed, and ground ore is separated into metal concentrates and reject material through processes such as flotation.

Concentrate plant: A plant where metal concentration occurs.

Cut-off grade: is the grade (*i.e.*, the concentration of metal or mineral in rock) that determines the destination of the material during mining.

Development: The process of constructing a mining facility and the infrastructure to support the facility is known as mine development.

Diamond drilling: A method of drilling that uses a diamond bit, which rotates at the end of a drill rod or pipe.

Exploration: Activities associated with ascertaining the existence, location, extent, or quality of a mineral deposit.

Exploration stage property: is a property that has no mineral reserves disclosed.

Greenfields project: An exploration or development project that is located outside the area of influence of existing mine operations and/or infrastructure and will be independently developed and managed.

Indicated Mineral Resource: is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of adequate geological evidence and sampling. The level of geological certainty associated with an indicated mineral resource is sufficient to allow a qualified person to apply modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit.

Inferred Mineral Resource: is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. The level of geological uncertainty associated with an inferred mineral resource is too high to apply relevant technical and economic factors likely to influence the prospects of economic extraction in a manner useful for evaluation of economic viability.

km: kilometer.

ktpd: thousand tonnes per day.

LBMA: The London Bullion Market Association.

LME: London Metal Exchange.

LOM: life of mine.

Measured Mineral Resource: is that part of a Mineral Resource for which quantity and grade or quality, are estimated on the basis of conclusive geological evidence and sampling. The level of geological certainty associated with a measured mineral resource is sufficient to allow a qualified person to apply modifying factors, as defined in this section, in sufficient detail to support detailed mine planning and final evaluation of the economic viability of the deposit.

Metal concentrate: The crushed and ground material obtained after concentration, including zinc, lead and copper concentrates. This is the product from our mining operations. Most of the zinc concentrate we produce is used in our smelting operations and the remaining portion, along with our lead and copper concentrates, is sold to our customers.

Metallic zinc: Pure metal (99.995% zinc) obtained from the electrodeposition of a zinc sulfate solution, free of impurities, through the Roaster-Leaching-Electrolysis (“RLE”) process.

Mineralization: The process or processes by which a mineral or minerals are introduced into a rock, resulting in a potentially valuable or valuable deposit.

Mineralized material: Mineral bearing material that has been physically delineated by one or more methods, including drilling and underground work, and is supported by sampling and chemical analysis. This material has been found to contain a sufficient amount of mineralization of an average grade of metal or metals to have economic potential that warrants further exploration evaluation. While this material is not currently or may never be classified as ore reserves, it is reported as mineralized material only if the potential exists for reclassification into the reserves category. This material cannot be classified in the reserves category until final technical; economic and legal factors have been determined. Under the SEC’s standards, a mineral deposit does not qualify as a reserve unless it can be economically and legally extracted at the time of reserve determination, and it constitutes a proven or probable reserve (as defined below).

Mineral Reserve: is an estimate of tonnage and grade or quality of indicated and measured mineral resources that, in the opinion of the qualified person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a measured or indicated mineral resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted.

Mineral Resource: is a concentration or occurrence of material of economic interest in or on the Earth’s crust in such form, grade or quality, and quantity that there are reasonable prospects for eventual economic extraction. A mineral resource is a reasonable estimate of mineralization, taking into account relevant factors such as cut-off grade, likely mining dimensions, location, or continuity that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable.

Mine site: An economic unit comprised of an underground and/or open pit mine, a treatment plant and equipment and other facilities necessary to produce metals concentrates, in existence at a certain location.

NSR: Net Smelter Return is the net revenue that the owner of a mining property receives from the sale of the mine’s metal/nonmetal products, less transportation and refining costs.

Open pit: Surface mining in which the ore is extracted from a pit. The geometry of the pit may vary with the characteristics of the ore body.

Ore: A mineral or aggregate of minerals from which metal can be economically mined or extracted.

Ore grade: The average amount of metal expressed as a percentage, grams per tonne or in ounces per tonne.

Ounces or oz: Unit of weight. A troy ounce equals 31.1034 grams. All references to ounces in this report are to troy ounces unless otherwise specified.

Probable Mineral Reserve: is the economically mineable part of an indicated and, in some cases, a measured mineral resource.

Production stage property: is a property with material extraction of mineral reserves.

Proven Mineral Reserve: is the economically mineable part of a measured mineral resource and can only result from conversion of a measured mineral resource.

Qualified Person: An individual who is a mineral industry professional with at least five years of relevant experience in the type of mineralization and type of deposit under consideration in the specific type of activity that person is undertaking on behalf of the registrant and an eligible member or licensee in good standing of a recognized professional organization at the time the technical report is prepared.

Reclamation: The process of stabilizing, contouring, maintaining, conditioning, and/or reconstructing the surface of disturbed land (*i.e.*, used or affected by the execution of mining activities) to a state of “equivalent land capability.” Reclamation standards vary widely, but usually address issues of ground and surface water, topsoil, final slope gradients, overburden, and revegetation.

Refining: The process of purifying an impure metal; the purification of crude metallic substances.

Secondary feed materials: By-products of industrial processes such as smelting and refining that are then available for further treatment/recycling. It can cover foundry ashes, zinc oxides from brass and bronze production, electric arc furnace (“EAF”) dust, and slags.

SHG: Special High Grade.

Skarn: Metamorphic zone developed in the contact area around igneous rock intrusions when carbonate sedimentary rocks are invaded by substantial amounts of silicon, aluminum, iron and magnesium. The minerals commonly present in a skarn include iron oxides, calc-silicates, andradite and grossularite garnet, epidote, and calcite. Many skarns also include ore minerals. Several productive deposits of copper or other base metals have been found in and adjacent to skarns.

Tailings: Finely ground rock from which valuable minerals have been extracted by concentration.

Tonne: A unit of weight. One metric tonne equals 2,204.6 pounds or 1,000 kilograms. One short tonne equals 2,000 pounds. Unless otherwise specified, all references to “tonnes” in this report refer to metric tonnes.

Zinc equivalent: A metric used to compare mineralization that is comprised of different metals in terms of zinc. Copper, lead, silver and gold contents in our concentrate production have been converted to a zinc equivalent grade at the average benchmark prices for 2025, namely, US\$2,869.66 per tonne (US\$1.30 per pound) for zinc, US\$9,944.94 per tonne (US\$4.51 per pound) for copper, US\$1,963.44 per tonne (US\$0.89 per pound) for lead, US\$40.03 per ounce for silver and US\$3,431.54 per ounce for gold.

Zinc oxide: A chemical compound that results from the sublimation of zinc (Zn-metal) by oxygen in the atmosphere. Zinc oxide is in the form of powder or fine grains that is insoluble in water but very soluble in acid solutions.

EXHIBITS

Exhibit Number	
<u>1</u>	<u>Amended and Consolidated Articles of Association of Nexa Resources S.A., dated as of May 8, 2025.</u>
<u>2.1</u>	<u>Indenture with respect to the 6.500% Notes due 2028, dated June 18, 2020, among Nexa Resource S.A., as issuer, Nexa Resources Cajamarquilla S.A., Nexa Resources Peru S.A. and Nexa Recursos Minerais S.A., as guarantors, and The Bank of New York Mellon, as trustee, registrar, paying agent and transfer agent (incorporated by reference to Exhibit 2.1 to our annual report on Form 20-F (file no. 001-38256) filed with the SEC on March 22, 2021).</u>
<u>2.2</u>	<u>Indenture with respect to the 6.750% Notes due 2034, dated April 9, 2024, among Nexa Resources S.A., as issuer, Nexa Resources Cajamarquilla S.A., and Nexa Recursos Minerais S.A., as guarantors, and The Bank of New York Mellon, as trustee, registrar, paying agent and transfer agent (incorporated by reference to Exhibit 2.3 to our annual report on Form 20-F (file no. 001-38256) filed with the SEC on March 27, 2025).</u>
<u>2.3</u>	<u>Indenture with respect to the 6.600% Notes due 2037, dated April 8, 2025, among Nexa Resources S.A., as issuer, Nexa Resources Cajamarquilla S.A., and Nexa Recursos Minerais S.A., as guarantors, and The Bank of New York Mellon, as trustee, registrar, paying agent and transfer agent.</u>
<u>2.4</u>	<u>Description of Securities</u>
<u>8</u>	<u>List of Subsidiaries</u>
<u>11</u>	<u>Insider Trading Policies and Procedures of Nexa Resources S.A. (incorporated by reference to Exhibit 11 to our annual report on Form 20-F (file no. 001-38256) filed with the SEC on March 27, 2025).</u>
<u>12.1</u>	<u>Certification of Chief Executive Officer of Nexa Resources S.A. pursuant to Rules 13a-14 and 15d-14 under the Securities Exchange Act of 1934, as amended.</u>
<u>12.2</u>	<u>Certification of Chief Financial Officer of Nexa Resources S.A. pursuant to Rules 13a-14 and 15d-14 under the Securities Exchange Act of 1934, as amended.</u>
<u>13.1</u>	<u>Certification of Chief Executive Officer and Chief Financial Officer of Nexa Resources S.A., pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.</u>
<u>15.1</u>	<u>Technical Report Summary on the Cerro Lindo Mine, Department of Ica, Peru – S-K 1300 Report (incorporated by reference to Exhibit 15.1 to our annual report on Form 20-F/A filed with the SEC on November 4, 2021).</u>
<u>15.2</u>	<u>Technical Report Summary on the Cerro Pasco Complex Integration, Pasco Province, Peru – S-K 1300 Report (incorporated by reference to Exhibit 15.2 to our annual report on Form 20-F filed with the SEC on March 27, 2024).</u>
<u>15.3</u>	<u>Technical Report Summary on the Vazante Polymetallic Operations, Minas Gerais, Brazil – S-K 1300 Report (incorporated by reference to Exhibit 15.3 to our annual report on Form 20-F/A filed with the SEC on November 4, 2021).</u>
<u>15.4</u>	<u>Technical Report Summary on the Aripuanã Zinc Project, State of Mato Grosso, Brazil – S-K 1300 Report (incorporated by reference to Exhibit 15.4 to our annual report on Form 20-F/A filed with the SEC on November 4, 2021).</u>
<u>15.5</u>	<u>Consent letter of Nexa’s Qualified Persons.</u>
<u>97</u>	<u>Policy Relating to Recovery of Erroneously Awarded Compensation of Nexa Resources S.A. (incorporated by reference to Exhibit 97 to our annual report on Form 20-F filed with the SEC on March 27, 2024).</u>
101.INS	XBRL Instance Document – the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document

SIGNATURES

The registrant hereby certifies that it meets all of the requirements for filing on Form 20-F and that it has duly caused and authorized the undersigned to sign this annual report on its behalf.

NEXA RESOURCES S.A.

By: /s/ Ignacio Rosado
Name: Ignacio Rosado
Title: *President and Chief Executive Officer*

By: /s/ José Carlos del Valle
Name: José Carlos del Valle
Title: *Senior Vice President of Finance and Group Chief Financial Officer*

Date: March 26, 2026

NEXA RESOURCES S.A. FINANCIAL STATEMENTS

Nexa Resources S.A.

**Consolidated financial statements at December 31, 2025, and report of independent
registered public accounting firm**

Contents

Consolidated financial statements

Consolidated income statement	3
Consolidated statement of comprehensive income	4
Consolidated balance sheet	5
Consolidated statement of cash flows	6
Consolidated statement of changes in shareholders' equity	7
1 General information	10
2 Information by business segment	10
3 Basis of preparation of the consolidated financial statements	13
4 Principles of consolidation	13
5 Changes in the main accounting policies and disclosures	16
6 Net revenues	18
7 Expenses by nature	20
8 Mineral exploration and project evaluation	21
9 Other income and expenses, net	22
10 Net financial results	22
11 Current and deferred income tax and uncertain tax position	23
12 Financial risk management	27
13 Financial instruments	33
14 Fair value estimates	35
15 Cash and cash equivalents	38
16 Other financial instruments	38
17 Trade accounts receivables	42
18 Inventory	44
19 Other assets and other liabilities	44
20 Related parties	45
21 Property, plant and equipment	47
22 Intangible assets	51
23 Right-of-use assets and lease liabilities	52
24 Loans and financings	54
25 Trade Payables	57
26 Confirming Payables	57
27 Asset retirement, restoration and environmental obligations	58
28 Provisions	59
29 Contractual obligations	61
30 Shareholders' equity	63
31 Impairment of long-lived assets	66
32 Long-term commitments	70
33 Events after the reporting period	71
Report of Independent Registered Public Accounting Firm (PCAOB ID: 1351).	74

Nexa Resources S.A.

Consolidated income statement

Years ended on December 31

All amounts in thousands of US dollars, unless otherwise stated



	Note	2025	2024	2023
Net revenues	6	3,002,055	2,766,481	2,573,233
Cost of sales	7	(2,289,159)	(2,228,410)	(2,274,357)
Gross profit		712,896	538,071	298,876
Operating expenses				
Selling, general and administrative	7	(145,452)	(127,328)	(126,599)
Mineral exploration and project evaluation	8	(81,696)	(67,976)	(99,612)
Impairment reversal (loss) of long-lived assets	31	91,706	(32,870)	(114,643)
Other income and expenses, net	9	(79,483)	(33,511)	(110,584)
Operating income (loss)		(214,925)	(261,685)	(451,438)
Results from associates' equity				
Share in the results of associates		21,143	21,223	23,536
		21,143	21,223	23,536
Net financial results	10			
Financial income		29,900	24,028	25,793
Financial expenses		(306,496)	(245,828)	(213,473)
Other financial items, net		89,231	(147,660)	20,622
		(187,365)	(369,460)	(167,058)
Income (loss) before tax		331,749	(71,851)	(296,084)
Income tax (expense) benefit	11 (a)	(108,605)	(115,556)	4,274
Net income (loss) for the year		223,144	(187,407)	(291,810)
Attributable to NEXA's shareholders		132,626	(205,030)	(291,968)
Attributable to non-controlling interests		90,518	17,623	158
Net income (loss) for the year		223,144	(187,407)	(291,810)
Weighted average number of outstanding shares - in thousands		132,439	132,439	132,439
Basic and diluted earnings (losses) per share - USD	30 (f)	1.00	(1.55)	(2.20)

Consolidated statement of comprehensive income
Years ended on December 31
All amounts in thousands of US dollars, unless otherwise stated



	Note	2025	2024	2023
Net income (loss) for the year		223,144	(187,407)	(291,810)
Other comprehensive income (loss), net of income tax - items that can be reclassified to the income statement				
Cash flow hedge accounting	16 (c)	(5,150)	(872)	732
Deferred income tax	11 (c)	1,349	981	(1,269)
Translation adjustment of foreign subsidiaries	30 (e)	79,357	(184,446)	81,413
		75,556	(184,337)	80,876
Other comprehensive income (loss), net of income tax - items that cannot be reclassified to the income statement				
Changes in fair value of financial liabilities related to changes in the Company's own credit risk	24 (c)	(328)	(1,572)	(583)
Deferred income tax	11 (c)	110	535	198
Changes in fair value of investments in equity instruments	14 (c)	126	(1,256)	(1,466)
		(92)	(2,293)	(1,851)
Other comprehensive income (loss) for the year, net of income tax		75,464	(186,630)	79,025
Total comprehensive income (loss) for the year		298,608	(374,037)	(212,785)
Attributable to NEXA's shareholders		201,891	(378,759)	(217,840)
Attributable to non-controlling interests		96,717	4,722	5,055
Total comprehensive income (loss) for the year		298,608	(374,037)	(212,785)

Nexa Resources S.A.

Consolidated balance sheet Years ended on December 31

All amounts in thousands of US dollars, unless otherwise stated



	Note	2025	2024
Assets			
Current assets			
Cash and cash equivalents	15 (a)	515,871	620,537
Financial investments		5,687	19,693
Other financial instruments	16 (a)	18,643	5,279
Trade accounts receivables	17 (a)	228,588	140,793
Inventory	18 (a)	414,395	325,196
Recoverable income tax		11,812	7,575
Other assets	19 (a)	77,225	88,195
		1,272,221	1,207,268
Non-current assets			
Investments in equity instruments	14 (c)	5,219	5,093
Other financial instruments	16 (a)	18,124	3
Deferred income tax	11 (c)	307,293	236,887
Recoverable income tax		6,592	5,540
Other assets	19 (a)	211,427	135,726
Investments in associates		32,274	29,488
Property, plant and equipment	21 (a)	2,433,672	2,097,508
Intangible assets	22 (a)	877,928	834,687
Right-of-use assets	23 (a)	110,167	85,265
		4,002,696	3,430,197
Total assets		5,274,917	4,637,465
Liabilities and shareholders' equity			
Current liabilities			
Loans and financings	24 (a)	55,415	50,883
Lease liabilities	23 (b)	45,516	32,747
Other financial instruments	16 (a)	32,233	8,523
Trade payables	25 (a)	500,025	443,288
Confirming payables	26 (a)	415,388	268,175
Dividends payable		26,918	3,707
Asset retirement, restoration and environmental obligations	27 (a)	39,326	47,561
Provisions	28 (a)	23,558	13,481
Contractual obligations	29 (a)	18,166	31,686
Salaries and payroll charges		83,597	70,234
Tax liabilities		83,368	54,772
Other liabilities	19 (b)	143,834	120,236
		1,467,344	1,145,293
Non-current liabilities			
Loans and financings	24 (a)	1,650,569	1,711,750
Lease liabilities	23 (b)	75,618	63,152
Other financial instruments	16 (a)	71,660	28,611
Asset retirement, restoration and environmental obligations	27 (a)	281,107	231,825
Tax liabilities		96,333	96,563
Provisions	28 (a)	29,913	32,151
Deferred income tax	11 (c)	177,945	132,535
Contractual obligations	29 (a)	72,596	69,272
Other liabilities	19 (b)	62,269	66,020
		2,518,010	2,431,879
Total liabilities		3,985,354	3,577,172
Shareholders' equity			
Attributable to NEXA's shareholders	30	1,002,934	813,930
Attributable to non-controlling interests		286,629	246,363
		1,289,563	1,060,293
Total liabilities and shareholders' equity		5,274,917	4,637,465

Consolidated statement of cash flows

Years ended on December 31

All amounts in thousands of US dollars, unless otherwise stated



	Note	2025	2024	2023
Cash flows from operating activities				
Income (loss) before tax		331,749	(71,851)	(296,084)
Depreciation and amortization	7	288,996	330,198	310,475
Impairment (reversal) loss of long-lived assets	31	(91,706)	32,870	114,643
Share in the results of associates		(21,143)	(21,223)	(23,536)
Interest, foreign exchange and other financial effects		261,559	224,096	137,405
Gain on sale and write-off of property, plant and equipment	9	1,649	16,183	3,734
Gain on divestments		(7,736)	(9,028)	-
Other restoration obligations		-	-	6,960
Tax voluntary disclosure - VAT discussions		-	-	102,939
Changes in provisions and other assets impairments		27,241	(15,512)	(37,800)
Changes in fair value of loans and financings	24 (c)	(2,052)	3,627	525
Debt modification gain	24 (c)	-	(3,142)	-
Loss on bonds repurchase	24 (c)	1,905	3,348	-
Changes in fair value of derivative financial instruments	16 (c)	(4,116)	(194)	(12,514)
Changes in fair value of energy forward contracts	16 (d)	(9,608)	(81)	15,663
Changes in fair value of offtake agreement	16 (e)	49,254	3,347	(2,268)
Contractual obligations	29 (a)	24,637	21,084	10,121
Price cap realized in offtake agreement	16 (e)	(5,011)	(3,246)	-
Decrease (increase) in assets				
Trade accounts receivables		(110,790)	(85,208)	58,067
Inventory		(83,929)	(34,728)	127,002
Other financial instruments		(1,687)	(4,762)	13,271
Other assets		(94,749)	(117,318)	(70,948)
Increase (decrease) in liabilities				
Trade payables		(8,174)	139,089	(451)
Confirming payables		126,846	38,335	17,074
Other liabilities		(39,502)	82,979	(42,785)
Cash provided by operating activities		633,633	528,863	431,493
Interest paid on loans and financings	24 (c)	(139,271)	(128,068)	(113,018)
Interest paid on lease liabilities	23 (b)	(9,807)	(11,645)	(6,086)
Premium paid on bonds repurchase	24 (b)	(15,046)	(1,989)	-
Income tax paid		(104,552)	(35,776)	(56,191)
Net cash provided by operating activities		364,957	351,385	256,198
Cash flows from investing activities				
Additions of property, plant and equipment	21 (a)	(351,869)	(259,010)	(310,150)
Additions of intangible assets	22 (a)	(1,994)	(5,748)	(3,087)
Net sales of financial investments		27,320	(663)	19,556
Payment for acquisition of subsidiary, net of cash acquired		997	-	-
Proceeds from the sale of property, plant and equipment		1,667	738	1,229
Proceeds from the sale of divestments and restructuring		3,000	2,078	-
Investments in equity instruments	14 (c)	-	(700)	-
Dividends received	30 (g)	23,835	25,185	22,100
Net cash used in investing activities		(297,044)	(238,120)	(270,352)
Cash flows from financing activities				
New loans and financings	24 (c)	542,414	799,439	56,408
Debt issue costs	24 (c)	(4,931)	(7,577)	(74)
Payments of loans and financings	24 (c)	(632,856)	(681,475)	(27,087)
Payments of lease liabilities	23 (b)	(43,616)	(32,056)	(15,170)
Dividends paid	30 (g)	(34,267)	(15,529)	(23,713)
Payments of share premium	30 (b)	(13,400)	-	(25,000)
Purchase of non-controlling interest shares		(513)	-	-
Purchase of stake in subsidiary by non-controlling shareholders		-	510	-
Capital contribution of non-controlling interest to capital		-	(866)	-
Capital contribution of non-controlling interest to subsidiary		1,864	-	-
Net cash (used in) provided by financing activities		(185,305)	62,446	(34,636)
Foreign exchange effects on cash and cash equivalents		12,726	(12,433)	8,223
Increase (decrease) in cash and cash equivalents		(104,666)	163,278	(40,567)
Cash and cash equivalents at the beginning of the period		620,537	457,259	497,826
Cash and cash equivalents at the end of the year		515,871	620,537	457,259

Consolidated statement of cash flows
Years ended on December 31
All amounts in thousands of US dollars, unless otherwise stated



Non-cash investing and financing transactions				
Additions to right-of-use assets	23 (a)	(50,011)	(64,955)	(68,428)
Consolidation effect on subsidiary acquisition		210	-	-
Additions to property, plant and equipment		-	(18,851)	-
Write-offs of property, plant and equipment	21 (a)	3,316	16,579	4,089
Write-offs of intangible assets	22 (a)	1	342	-
Write-offs of right of use assets	23 (a)	-	(5,348)	(7,374)

Nexa Resources S.A.

Consolidated statement of changes in shareholders' equity
At and for the years ended on December 31
All amounts in thousands of US dollars, unless otherwise stated



	Capital	Share premium	Additional paid in capital	Retained earnings (cumulative deficit)	Accumulated other comprehensive loss	Total NEXA's shareholders	Non-controlling interests	Total shareholders' equity
At January 1, 2023	132,438	1,037,629	1,245,418	(739,357)	(235,964)	1,440,164	268,009	1,708,173
Net (loss) income for the year	-	-	-	(291,968)	-	(291,968)	158	(291,810)
Other comprehensive income for the year	-	-	-	-	74,128	74,128	4,897	79,025
Total comprehensive income for the year	-	-	-	(291,968)	74,128	(217,840)	5,055	(212,785)
Share premium distribution to NEXA's shareholders - USD 0.19 per share	-	(25,000)	-	-	-	(25,000)	-	(25,000)
Dividends distribution to non-controlling interests	-	-	-	-	-	-	(18,351)	(18,351)
Total contributions by and distributions to shareholders	-	(25,000)	-	-	-	(25,000)	(18,351)	(43,351)
At December 31, 2023	132,438	1,012,629	1,245,418	(1,031,325)	(161,836)	1,197,324	254,713	1,452,037
Net (loss) for the year	-	-	-	(205,030)	-	(205,030)	17,623	(187,407)
Other comprehensive loss for the year	-	-	-	-	(173,729)	(173,729)	(12,901)	(186,630)
Total comprehensive loss for the year	-	-	-	(205,030)	(173,729)	(378,759)	4,722	(374,037)
Dividends distribution to non-controlling interests	-	-	-	-	-	-	(17,351)	(17,351)
Acquisition of non-controlling interests	-	-	-	(4,635)	-	(4,635)	3,769	(866)
Purchase of shares in subsidiary from non-controlling shareholders	-	-	-	-	-	-	510	510
Total contributions by and distributions to shareholders	-	-	-	(4,635)	-	(4,635)	(13,072)	(17,707)
At December 31, 2024	132,438	1,012,629	1,245,418	(1,240,990)	(335,565)	813,930	246,363	1,060,293

Nexa Resources S.A.

Consolidated statement of changes in shareholders' equity At and for the years ended on December 31 All amounts in thousands of US dollars, unless otherwise stated



	Capital	Share premium	Additional paid in capital	Retained earnings (cumulative deficit)	Accumulated other comprehensive loss	Total NEXA's shareholders	Non-controlling interests	Total shareholders' equity
At January 1, 2025	132,438	1,012,629	1,245,418	(1,240,990)	(335,565)	813,930	246,363	1,060,293
Net income for the year	-	-	-	132,626	-	132,626	90,518	223,144
Other comprehensive income for the year	-	-	-	-	69,265	69,265	6,199	75,464
Total comprehensive income for the year	-	-	-	132,626	69,265	201,891	96,717	298,608
Dividends distribution to non-controlling interests	-	-	-	-	-	-	(57,289)	(57,289)
Share premium distribution premium to NEXA's shareholders - USD 0.10 per share - note 30 (g)	-	(13,400)	-	-	-	(13,400)	-	(13,400)
Effects of transactions with non-controlling interest in subsidiary - note 30 (h)	-	-	-	1,005	-	1,005	(1,016)	(11)
Capital contribution of non-controlling interest to subsidiary - note 30 (h)	-	-	-	-	-	-	1,864	1,864
Purchase of non-controlling shares - note 30 (h)	-	-	-	(492)	-	(492)	(10)	(502)
Total contributions by and distributions to shareholders	-	(13,400)	-	513	-	(12,887)	(56,451)	(69,338)
At December 31, 2025	132,438	999,229	1,245,418	(1,107,851)	(266,300)	1,002,934	286,629	1,289,563



1 General information

Nexa Resources S.A. (“NEXA” or “Parent Company”) is a public limited liability company (société anonyme) incorporated and domiciled in the Grand Duchy of Luxembourg. Its shares are publicly traded on the New York Stock Exchange (“NYSE”).

The Company’s registered office is located at 37A, Avenue J. F. Kennedy in the city of Luxembourg in the Grand Duchy of Luxembourg.

NEXA and its subsidiaries (the “Company”) operate large-scale, mechanized underground and open pit mines, as well as smelters. The Company owns and operates three polymetallic mines in Peru and two polymetallic mines in Brazil. Additionally, the Company owns and operates a zinc smelter in Peru and two zinc smelters in Brazil.

NEXA’s majority shareholder is Votorantim S.A. (“VSA”), which holds 64.68% of its equity. VSA is a Brazilian privately-owned industrial conglomerate that holds ownership interests in metal, steel, cement, and energy companies, among others.

(a) Impact of new United States tariff decisions

On April 2, 2025, the President of the United States issued an Executive Order imposing a 10% tariff on imports from most countries and up to 50% on selected nations, pursuant to the International Emergency Economic Powers Act (IEEPA). In addition, an investigation was initiated into the potential imposition of tariffs on critical minerals, including zinc and copper. However, the United States remains highly dependent on imports of refined zinc, which reduces the likelihood of the application of significant tariffs on this metal.

During the 2025 fiscal year and up to the issuance date of these financial statements, no further developments occurred regarding the imposition of tariffs on critical minerals. Accordingly, the Company has not identified any material impacts arising from trade measures adopted by the United States or from the potential imposition of import tariffs on zinc or copper. The primary impact observed continues to be exchange rate volatility, driven by U.S. economic policy announcements and ongoing geopolitical tensions.

2 Information by business segment

Business segment definition

The Company’s Chief Executive Officer has been identified as the chief operating decision maker (“CODM”) since the role encompasses authority over resource allocation decisions and performance assessment, mainly analyzing performance from the production obtained in the operations. The Company has identified two operating segments:

- Mining: consists of five long-life polymetallic mines, three located in the Central Andes of Peru and two located in Brazil (One in the state of Minas Gerais and one in the state of Mato Grosso). In addition to zinc, the Company produces substantial amounts of copper, lead, silver, and gold as by-products, which reduce the overall cost to produce mined zinc.
- Smelting: consists of three operating units, one located in Cajamarquilla in Peru and two located in the state of Minas Gerais in Brazil. The facilities recover zinc from concentrates and produce metallic zinc (mainly Special High-Grade “SHG” zinc and zinc alloys), zinc oxide and by-products, such as sulfuric acid, copper cement among others.

Accounting policy

Segment performance is assessed based on Adjusted EBITDA, since net financial results, comprising financial income and expenses and other financial items, and income tax are managed at the corporate level and are not allocated to operating segments.

Notes to the consolidated financial statements
At and for the year ended on December 31, 2025

All amounts in thousands of US dollars, unless otherwise stated

The Company defines Adjusted EBITDA as follows: net income (loss) for the year, adjusted by (i) share in the results of associates, depreciation and amortization, net financial results and income tax; (ii) addition of cash dividends received from associates; (iii) non-cash events and non-cash gains or losses that do not specifically reflect its operational performance for the specific period, such as: gain (loss) on sale of investments; impairment and impairment reversals; gain (loss) on sale of long-lived assets; write-offs of long-lived assets; remeasurement in estimates of asset retirement obligations; and other restoration obligations; and (iv) pre-operating and ramp-up expenses incurred during the commissioning and ramp-up phases of greenfield projects.

In addition, management may adjust the effect of certain types of transactions that in its judgment are (i) events that are non-recurring, unusual or infrequent, and (ii) other specific events that, by their nature and scope, do not reflect Nexa's operational performance for the year.

The adjusted EBITDA is derived from internal information prepared in accordance with the International Financial Reporting Standards ("IFRS Accounting Standards") and based on accounting measurements and management reclassifications between income statement lines items, which are reconciled to the consolidated financial statements in the column "Adjustments", as shown in the tables below. These adjustments include reclassifications of certain overhead costs and revenues from "Other income and expenses, net" to "Net Revenues, Cost of sales and/or Selling", "General and administrative expenses".

The Company uses customary market terms for intersegment sales. The Company's corporate headquarters' expenses are allocated to the operating segments to the extent they are included in the measures of performance used by the Chief operating decision maker (CODM).

The presentation of segments' results and reconciliation to income before income tax in the consolidated income statement is as follows:

	2025				
	Mining	Smelting	Intersegment sales	Adjustments	Consolidated
Net revenues	1,569,883	2,057,071	(669,298)	44,399	3,002,055
Cost of sales	(938,273)	(1,975,060)	669,298	(45,124)	(2,289,159)
Gross profit	631,610	82,011	-	(725)	712,896
Selling, general and administrative	(73,365)	(72,158)	-	71	(145,452)
Mineral exploration and project evaluation	(75,804)	(6,561)	-	670	(81,696)
Impairment reversal of long-lived assets	91,706	-	-	-	91,706
Other income and expenses, net	(87,752)	11,859	-	(3,590)	(79,483)
Operating (loss) income	486,395	15,151	-	(3,574)	497,971
Depreciation and amortization	189,670	95,497	-	3,829	288,996
Miscellaneous adjustments	(17,771)	2,683	-	-	(15,088)
Adjusted EBITDA	658,292	113,332	-	255	771,879
Changes in fair value of offtake agreement - note 16 (e) / (i)					(44,243)
Impairment reversal of long-lived assets - note 31					91,706
Loss on sale of property, plant and equipment					(1,649)
Asset retirement obligations remeasurement estimate - note 27 (a)					(7,710)
Change in fair value of energy forward contracts - note 16 (d) / (ii)					9,608
Reversal of other restoration obligations - note 27 (a) / (iii)					8,112
Divestment and restructuring gains					7,736
Dividends received in cash - note 30 (g) / (v)					(23,835)
Remeasurement adjustment of streaming agreement - note 29 / (iv)					(24,637)
Miscellaneous adjustments					15,088
Depreciation and amortization					(288,996)
Share in results of associates					21,143
Net financial results					(187,365)
Income before income tax					331,749

Notes to the consolidated financial statements

At and for the year ended on December 31, 2025

All amounts in thousands of US dollars, unless otherwise stated

	2024				
	Mining	Smelting	Intersegment sales	Adjustments	Consolidated
Net revenues	1,349,666	1,997,341	(604,034)	23,508	2,766,481
Cost of sales	(1,011,742)	(1,799,773)	604,034	(20,929)	(2,228,410)
Gross profit	337,924	197,568	-	2,579	538,071
Selling, general and administrative	(66,307)	(57,197)	-	(3,824)	(127,328)
Mineral exploration and project evaluation	(60,939)	(7,887)	-	850	(67,976)
Impairment loss of long-lived assets	(32,870)	-	-	-	(32,870)
Other income and expenses, net	(41,714)	7,984	-	219	(33,511)
Operating (loss) income	136,094	140,468	-	(176)	276,386
Depreciation and amortization	243,111	86,458	-	629	330,198
Miscellaneous adjustments	84,866	22,630	-	-	107,496
Adjusted EBITDA	464,071	249,556	-	453	714,080
Changes in fair value of offtake agreement - note 16 (e) / (i)					(102)
Impairment loss of long-lived assets - note 31					(32,870)
Impairment of other assets					(307)
Aripuanã ramp-up impacts					(25,158)
Loss on sale and write-off of property, plant and equipment					(16,183)
Asset retirement obligations remeasurement estimate - note 27 (a)					5,310
Remeasurement adjustment of streaming agreement (iv)					(21,084)
Change in fair value of energy forward contracts - note 16 (d) / (ii)					81
Other restoration obligations - note 27 (a) / (iii)					(1,026)
Divestment and restructuring					9,028
Dividends received in cash - (v)					(25,185)
Miscellaneous adjustments					(107,496)
Depreciation and amortization					(330,198)
Share in results of associates					21,223
Net financial results					(369,460)
Loss before income tax					(71,851)

	2023				
	Mining	Smelting	Intersegment sales	Adjustments	Consolidated
Net revenues	1,090,276	1,946,661	(468,250)	4,546	2,573,233
Cost of sales	(1,026,178)	(1,726,271)	468,250	9,842	(2,274,357)
Gross profit	64,098	220,390	-	14,388	298,876
Selling, general and administrative	(61,690)	(61,097)	-	(3,812)	(126,599)
Mineral exploration and project evaluation	(90,238)	(9,374)	-	-	(99,612)
Impairment loss of long-lived assets	(109,347)	(5,296)	-	-	(114,643)
Other income and expenses, net	(67,876)	(26,412)	-	(16,296)	(110,584)
Operating (loss) income	(265,053)	118,211	-	(5,720)	(152,562)
Depreciation and amortization	229,153	80,471	-	851	310,475
Miscellaneous adjustments	196,529	51,599	-	-	248,128
Adjusted EBITDA	160,629	250,281	-	(4,869)	406,041
Changes in fair value of offtake agreement (i)					2,268
Impairment loss of long-lived assets					(114,643)
Aripuanã ramp-up impacts					(15,494)
Loss on sale and write-off of property, plant and equipment					(3,734)
Asset retirement obligations remeasurement estimate					3,125
Remeasurement adjustment of streaming agreement (iv)					(10,121)
Change in fair value of energy forward contracts (ii)					(15,663)
Tax voluntary disclosure - VAT matters					(86,906)
Other restoration obligations (iii)					(6,960)
Miscellaneous adjustments					(248,128)
Depreciation and amortization					(310,475)
Share in results of associates					23,536
Net financial results					(167,058)
Loss before income tax					(296,084)

(i) This amount represents the change in the fair value of the offtake agreement described in note 16 (e), which is being measured at Fair value through profit and loss ("FVTPL"). This change in fair value is a non-cash item and has not been considered in the Company's Adjusted EBITDA calculation.

**Notes to the consolidated financial statements****At and for the year ended on December 31, 2025****All amounts in thousands of US dollars, unless otherwise stated**

(ii) This amount corresponds to the change in fair value and any adjustment of the energy surplus arising from electric energy purchase contracts of NEXA's subsidiary, Pollarix and Nexa Energy Comercializadora de Energia Ltda, as disclosed in note 16 (d). This change in fair value is a non-cash item and has been excluded from the Company's Adjusted EBITDA calculation.

(iii) During the years of 2023 and 2025, changes were recognized in the provision related to estimated costs of additional obligations associated with five (5) inactive industrial waste containment structures in Brazil, which have remained non-operational for more than 20 years and do not contain mining tailings, water, or liquid waste, as disclosed in Note 27(a). In 2025, following the completion of an engineering study, the competent environmental authority confirmed the classification of these structures as dry stacks and the absence of any remediation requirement, resulting in the reversal of the related provision. As these structures did not contribute to the Company's operating performance, the effects of these movements were excluded from the calculation of Adjusted EBITDA.

(iv) Annual remeasurement adjustment of the Company's silver streaming revenues given the changes in long-term prices and in the mine plan for the Cerro Lindo mining unit.

(v) Refers to dividends received from associate company Campos Novos Energia S.A – Enercan, an entity focused on electric energy generation. As the purpose of Nexa's investment in Enercan is to secure long-term energy supply for its operations in Brazil, the chief operating decision maker (CODM) considers Nexa's energy costs for a given period together with dividends received from Enercan during such period. Nexa recognized its share of the assets, liabilities, revenues and expenses for its interest in Enercan until November 2022, when it ceased to be a jointly controlled operation. Beginning in 2024, Nexa includes these dividends in its segment Adjusted EBITDA, as the CODM considers them jointly with Nexa's energy costs.

3 Basis of preparation of the consolidated financial statements

These consolidated financial statements have been prepared in accordance with the IFRS Accounting Standards as issued by the International Accounting Standards Board (IASB).

The consolidated financial statements have been prepared under the historical cost convention, except for certain financial assets and financial liabilities (including other financial instruments) measured at fair value at the end of each reporting period.

The consolidated financial statements of the Company for the year ended December 31, 2025, were approved for issue in accordance with a resolution of the Board of Directors on February 26, 2026.

4 Principles of consolidation

The consolidated financial statements comprise the financial statements of NEXA and its direct and indirect subsidiaries ("subsidiaries"), which reflect the assets, liabilities and transactions of the Parent Company and its subsidiaries. Intercompany balances and transactions, which include unrealized profits, are eliminated. A list of the most relevant companies, including subsidiaries, associates and joint operations, and the accounting policies applied in the preparation of the consolidated financial statements are described below.



	Percentage of shares		Company Controls	Headquarter	Functional Currency	Activities
	2025	2024				
Subsidiaries						
Nexa Recursos Minerais S.A. - "NEXA BR"	100	100	Directly	Brazil	Real – BRL	Mining / Smelting
Nexa Resources Cajamarquilla S.A. - "NEXA CJM"	99.91	99.91	Directly	Peru	US Dollar – USD	Smelting
Nexa Resources US, Inc.	100	100	Directly	United States	US Dollar – USD	Trading
Exploraciones Chimborazo Metals & Mining	100	100	Directly	Ecuador	US Dollar – USD	Holding and others
L.D.O.S.P.E. Geração de Energia e Participações Ltda. – "L.D.O.S.P.E."	100	100	Indirectly	Brazil	Real – BRL	Energy
L.D.Q.S.P.E. Geração de Energia e Participações Ltda. – "L.D.Q.S.P.E."	100	100	Indirectly	Brazil	Real – BRL	Energy
L.D.R.S.P.E. Geração de Energia e Participações Ltda. – "L.D.R.S.P.E."	100	100	Indirectly	Brazil	Real – BRL	Energy
Mineração Santa Maria Ltda. (i)	100	99.99	Indirectly	Brazil	Real – BRL	Mining projects
Pollarix S.A. - "Pollarix" (ii)	33.33	33.33	Indirectly	Brazil	Real – BRL	Energy
Karmin - Holding Ltda.	100	100	Indirectly	Brazil	Real - BRL	Holding and others
Mineração Rio Aripuaña Ltda.	100	100	Indirectly	Brazil	Real – BRL	Holding and others
Votorantim Metals Canada Inc.	100	100	Indirectly	Canada	Canadian dollar – CAD	Holding and others
Nexa Resources El Porvenir S.A.C.	99.99	99.99	Indirectly	Peru	US Dollar – USD	Mining
Nexa Resources Perú S.A.A. - "NEXA Peru"	83.37	83.37	Indirectly	Peru	US Dollar – USD	Mining
Votorantim Internacional CSC S.A.C. (iii)	100	-	Indirectly	Peru	US Dollar – USD	Others
Nexa Resources Atacocha S.A.A. - "NEXA Atacocha" (iv)	83.00	86.65	Indirectly	Peru	US Dollar – USD	Mining
Nexa Resources UK Ltd. - "NEXA UK"	100	100	Indirectly	United Kingdom	US Dollar – USD	Mining
Nexa Energy Comercializadora de Energia Ltda.	100	100	Indirectly	Brazil	Real – BRL	Energy
Associates						
Campos Novos Energia S.A. - "Enercan"	22.44	22.44		Brazil	Real – BRL	Energy

- (i) During 2025, one (1) share was transferred free of charge from Votorantim S.A. to Nexa Recursos Minerais S.A. As a result of this transaction, Nexa Recursos Minerais S.A. came to hold 100% of the share capital of Mineração Santa Maria Ltda.
- (ii) Nexa, through its wholly owned subsidiary NEXA BR, holds 100% of the common shares of Pollarix, representing 33% of the total shares outstanding, which carry all voting rights. Auren, a subsidiary of VSA, holds 100% of the preference shares outstanding, representing 67% of the total shares outstanding, which entitles it to receive dividends 93% higher than the amount received by the common shareholder.
- (iii) In January 2025, the subsidiary Nexa Peru acquired 100% of the equity interest in a new subsidiary, Votorantim CSC S.A.C., a provider of shared administrative, tax, and accounting services, from its majority shareholder Votorantim S.A. The acquisition included a net asset value of USD 949, with a purchase price of USD 924, resulting in a gain of USD 25 recognized in profit or loss. The transaction had a net positive cash effect of USD 997, calculated as the difference between the cash and cash equivalents of the acquired subsidiary and the amount paid at the acquisition date.
- (iv) For further details about this change refer to note 30 (h).

(a) Subsidiaries

Subsidiaries include all entities over which the Company has control. The Company controls an entity when it (i) has the power over the entity; (ii) is exposed, or has the right, to variable returns from its involvement with the entity; and (iii) has the ability to affect those returns through its power over the entity. Subsidiaries are fully consolidated from the date on which control is transferred to the Company, except when the predecessor basis of accounting is applied. Subsidiaries are unconsolidated from the date that control ceases.



Accounting policies of subsidiaries are usually consistent with the policies adopted by the Company. If there are differences, an adjustment is made in the consolidation process.

Non-controlling interests in the subsidiaries' equity and results are shown separately in the consolidated balance sheet, income statement, statement of comprehensive income and statement of changes in shareholders' equity. A change in a subsidiary's ownership interest, without loss of control, is accounted for as an equity transaction.

If the Company loses control over a subsidiary, it derecognizes the related assets, liabilities, non-controlling interests and other equity components and any resultant gain or loss is recognized in the income statement. Any investment retained is recognized at fair value.

In general, there is a presumption that a majority of voting rights results in control. When the Company has less than a majority of the voting rights of an investee, it considers all relevant facts and circumstances to determine whether it has control over the investee. This may include contractual arrangements with the other holders of voting rights in the investee; rights arising from other contractual arrangements; and the Company's voting rights and potential voting rights that will give it the practical ability to direct the relevant activities of the investee unilaterally.

Intercompany transactions, balances, and unrealized gains on transactions between companies in the consolidated group are eliminated in full on consolidation. Unrealized losses are also eliminated unless the transaction indicates impairment of the transferred asset.

(b) Associates

Associates are initially recognized at cost and adjusted thereafter by the equity method of accounting. An entity is considered to be an associate when the Company is able to exercise significant influence over the financial and operating policy decisions of the entity, without having control of the entity.

(c) Transaction with non-controlling interests

Transactions with non-controlling interests that do not result in a loss of control are recognized within shareholders' equity as transactions with equity owners of the consolidated group. A change in ownership interest results in an adjustment between the carrying amounts of the controlling and non-controlling interests to reflect their relative interests in the subsidiary. Any difference between the amount of adjustment to non-controlling interests and any consideration paid or received is recognized in Additional paid in capital within shareholders' equity.

(d) Foreign currency translation

(i) Functional and presentation currency

Items included in the financial statements of each of the Company's entities are measured using the currency of the primary economic environment in which each entity operates ("the functional currency"). The Company's consolidated financial statements are presented in US Dollars ("USD"), which is NEXA's functional currency and the Company's reporting currency.

(ii) Transactions and balances

Foreign currency transactions are initially recorded by each of the Company's entities at their respective functional currency spot rates at the date the transaction is recognized. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation of monetary assets and liabilities denominated in foreign currencies at the functional currency spot rate at the end of each reporting period are recognized in the income statement. Non-monetary items that are measured at historical cost in a foreign currency are translated using the exchange rate at the date of the initial transaction. Translation differences on assets and liabilities carried at fair value are reported as part of the fair value gain or loss.



(iii) Consolidated entities

The results of operations and financial position of the Company's entities that have a functional currency different from the Company's reporting currency, are translated into the reporting currency as follows:

- Assets and liabilities for each balance sheet presented are translated at the closing rate at the date of that balance sheet;
- Income and expenses for each income statement and statement of comprehensive income presented are translated at average exchange rates for the annual period of that income statement and statement of comprehensive income, which are a reasonable approximation of the cumulative effect of the rates prevailing on the transaction dates; and

All resulting exchange differences are recognized in other comprehensive income and accumulated in a separate component of shareholders' equity. When a foreign operation is totally or partially disposed, the translation adjustments that were previously recorded in equity are reclassified to the income statement.

5 Changes in the main accounting policies and disclosures

(a) New standards and amendments - applicable as of January 1, 2025

There was a new amendment to IAS 21 related to lack of exchangeability, effective for annual periods beginning on January 1, 2025. The adoption of this new amendment did not have a material impact on the Company's financial statements.

(b) New standards and interpretations not yet adopted

Certain new standards and amendments have been issued but are not yet effective. The Company is currently evaluating the potential impact of these pronouncements on its financial statements.

New standard - IFRS 18 - Presentation and Disclosure in Financial Statements

In April 2024, the IASB issued IFRS 18, *Presentation of Financial Statements*, which replaces IAS 1 *Presentation of Financial Statements*. IFRS 18 introduces new requirements for presentation within the statement of profit or loss, including specified totals and subtotals. Furthermore, entities are required to classify all income and expenses within the statement of profit or loss into one of five categories: operating, investing, financing, income taxes and discontinued operations, of which the first three are new.

The standard also requires disclosures of newly defined management-defined performance measures that represent subtotals of income and expenses not specified by IFRS but used by management in public communications and includes enhanced requirements for the aggregation and disaggregation of financial information based on the defined 'roles' of the primary financial statements (PFS) and the notes.

In addition, IFRS 18 includes amendments to IAS 7 *Statement of Cash Flows*, which change the starting point for determining cash flows from operating activities under the indirect method from 'profit or loss' to 'operating profit or loss', and removes certain classification options related to interest and dividends. As a result of these changes, consequential amendments have been made to other IFRS Accounting Standards.

IFRS 18 and the related amendments are effective for annual reporting periods beginning on or after 1 January 2027. Earlier application is permitted and must be disclosed. The standard will be applied retrospectively.

IFRS 18 is expected to affect the presentation and disclosure of information in the financial statements, particularly the structure of the statement of profit or loss and the disclosure of management performance measures. The standard is not expected to have an impact on the recognition and

measurement of the Group's assets and liabilities. At the date of these financial statements, the Group has not early adopted IFRS 18 and has not yet completed its assessment of the impact of the standard.



Amendments to IFRS 9 and IFRS 7 - Classification and Measurement of Financial Instruments

In May 2024, the IASB issued targeted amendments to IFRS 9 and IFRS 7 to respond to recent questions arising in practice, and to include new requirements not only for financial institutions but also for corporate entities. These amendments should clarify the date of recognition and derecognition of some financial assets and liabilities, with a new exception for some financial liabilities settled through an electronic cash transfer system, include further guidance for assessing whether a financial asset meets the payments of principal and interest (SPPI) criterion, define additional disclosures for certain instruments with contractual terms that can change cash flows (such as some financial instruments with features linked to the achievement of environment, social and governance targets), and update the disclosures for equity instruments designated at fair value through other comprehensive income (FVOCI).

The amendments will become effective for annual periods starting on or after January 1, 2026. Early adoption is permitted, with the option to adopt the amendments early for contingent features only.

The Company does not expect impacts on its consolidated financial statements arising from this new standard and the related consequential amendments to other standards.

Amendments to IFRS 9 and IFRS 7 - Classification and disclosure of own use and hedge accounting in 'Contracts Referencing Nature-dependent Electricity'

In December 2024, the IASB amended IFRS 9 and IFRS 7 to address the classification and disclosure of own use and hedge accounting in 'Contracts Referencing Nature-dependent Electricity'. The amendments pertain to own-use requirements, and hedge accounting requirements, together with related disclosures. The scope of the amendments is narrow and applies only to contracts meeting the specified scoping characteristics.

The effective date of the amendments is for annual reporting periods beginning on or after January 1, 2026, with early application permitted.

The Company does not expect impacts on its consolidated financial statements arising from this new standard and the related consequential amendments to other standards.

(c) Critical estimates, assumptions and judgments

The preparation of the Company's consolidated financial statements requires the use of estimates, assumptions, and judgments that affect the reported amounts of revenues, expenses, assets, and liabilities, as well as the accompanying disclosures and the disclosure of contingent liabilities as of the reporting date. Critical estimates, assumptions, and judgments seldom equal the actual results and are continually evaluated to reflect changing expectations about future events. Management must also exercise judgment when applying the Company's accounting policies.

This note provides an overview of the areas that involve a higher degree of judgment or complexity, and of items which are more likely to be materially adjusted due to estimates and assumptions turning out to be wrong due to their uncertainty. Detailed information about each of these estimates, assumptions and judgments is included in other notes together with information about the basis of calculation for each affected item in the financial statements.

The critical accounting estimates, assumptions and judgments applied by the Company in the preparation of these financial statements are as follows:

- estimation of current and deferred income taxes and uncertain tax positions - note 11
- estimation of fair value of financial instruments - note 14
- estimation of impairment of trade accounts receivables - note 17
- estimation of the net realizable value of inventories - note 18
- estimation of quantification of mineral reserves and resources for useful life calculation - note 22
- estimation of asset retirement, restoration and environmental obligations - note 27
- estimation of provisions for legal claims - note 28
- estimation of contractual obligations - note 29
- estimation of impairment of long-lived assets - note 31



Notes to the consolidated financial statements
At and for the year ended on December 31, 2025
All amounts in thousands of US dollars, unless otherwise stated

Estimates, assumptions and judgments are continuously evaluated. They are based on historical experience and other factors, including expectations of future events that may have a financial impact on the Company and that are believed to be reasonable under the circumstances.

6 Net revenues

Accounting policy

Revenues represent the amount of the consideration received or receivable for the sale of goods in the ordinary course of the Company’s activities. Revenues are shown net of value-added tax, returns, rebates and discounts, after eliminating sales between the consolidated companies.

The Company recognizes revenue when a performance obligation is satisfied by transferring the promised goods or service to a customer. The asset is transferred when the customer obtains control of that asset.

To determine the point in time at which a customer obtains control of a promised asset the Company considers the following indicators: (i) the Company has a present right to payment for the asset; (ii) the customer has legal title to the asset; (iii) the Company has transferred physical possession of the asset; (iv) the customer has the significant risks and rewards of ownership of the asset; (v) the customer has accepted the asset.

Identification and timing of satisfaction of performance obligations

The Company has two distinct performance obligations included in certain sales contracts:

(i) the promise to provide goods to its customers; and (ii) the promise to provide freight and to contract insurance services to its customers.

Promise to provide goods: this performance obligation is satisfied when the control of such goods is transferred to the final customer, which is substantially determined based on the Incoterm agreed upon in each of the contracts with customers.

Promise to provide freight and contracting insurance services: this performance obligation is satisfied when the freight and insurance services contracted to customers are completed.

As a result of the distinct performance obligations identified, part of the Company’s revenues is presented as revenues from services. Cost related to revenues from services is presented as Cost of sales.

Revenues from the sale of goods and from freight and contracting insurance services are recognized at a point in time when control is transferred and when contracted services are provided. It is at this point that a trade receivable is recognized because only the passage of time is required before consideration is due. The Company does not have any contract assets, which give right to consideration in exchange for goods or services that the Company has transferred to the customer, since all rights to consideration of the contracts are unconditional.

In 2025, revenues of USD 744,166 approximately 24% of the total gross revenues are derived from two main customers (2024: USD 718,272 approximately 24%; and 2023: USD 773,230 approximately 27%). These revenues are attributed to both segments, mining and smelting.

Contractual obligations are an entity’s obligation to transfer goods or services to a customer for which the entity has received consideration from the customer (or the payment is due) but the transfer has not yet been completed. For contracts where performance obligations are satisfied over a period of time, the stage of completion is required to calculate how much revenue should be recognized to date and revenue shall be deducted from the prepayment to the extent that performance obligations are delivered. Refer to note 29 for the specific accounting policy and information related to NEXA’s contractual obligations.



Determining the transaction price and the amounts allocated to performance obligations

The Company considers the terms of the contract and its customary business practices to determine the transaction price. The transaction price is the amount of consideration that the Company expects to be entitled to receive in exchange for transferring promised goods or services to its customers. Transaction price is allocated to each performance obligation on a relative standalone selling price basis.

The transaction prices included in the Company's sales contracts are mainly based on international prices references and subject to price adjustments based on the market price at the end of the relevant quotation period stipulated in the sales contract. These are referred to as provisional pricing arrangements which are subject to a monthly price adjustment as per the London Metal Exchange (LME) quotational periods. As of December 31, 2025, the sales with pending price adjustments to be concluded at the final price were not material.

Additionally, the Company has a contractual obligation related to a long-term silver streaming arrangement linked to specific production of its Cerro Lindo mine. The Company received an upfront payment in advance of this specific production. The transaction price is linked to the silver production and spot market prices, which change over time and, therefore, it is accounted for as variable consideration. For more details about this streaming transaction see note 29.

- (a) Composition
- (i) Gross billing reconciliation

	2025	2024	2023
Gross billing	3,286,668	3,018,937	2,839,597
Billing from products	3,194,857	2,925,797	2,731,872
Billing from freight, contracting insurance services and others	91,811	93,140	107,725
Taxes on sales	(282,378)	(249,202)	(263,979)
Return of products sales	(2,235)	(3,254)	(2,385)
Net revenues	3,002,055	2,766,481	2,573,233

- (ii) Net revenues breakdown

	2025	2024	2023
Zinc	1,590,330	1,687,043	1,682,711
Lead	538,946	364,613	321,803
Copper	504,967	359,935	263,376
Silver	107,915	80,167	61,594
Other products	168,086	181,583	136,024
Freight, insurance services and others	91,811	93,140	107,725
Net revenues	3,002,055	2,766,481	2,573,233
Taxes on sales	282,378	249,202	263,979
Return of products sales	2,235	3,254	2,385
Gross billing	3,286,668	3,018,937	2,839,597

- (b) Information on geographical areas in which the Company operates

The geographical areas are determined based on the location of the Company's customers. The net revenues of the Company, classified by geographical location and currency, are as follows:



(i) Net revenues by geographical location

	2025	2024	2023
Peru	965,501	833,918	654,216
Brazil	654,337	601,041	559,786
United States	233,387	166,904	168,965
Singapore	208,650	234,846	229,278
Switzerland	136,132	224,292	209,312
South Korea	99,208	60,423	39,985
Chile	94,785	78,215	83,459
United Kingdom	85,203	62,589	14,815
Argentina	79,698	81,503	94,144
Luxembourg	66,523	71,285	78,474
Austria	47,390	42,758	47,919
Taiwan	39,045	30,455	26,901
Colombia	38,570	31,209	36,066
South Africa	36,462	39,446	41,350
Turkey	30,877	20,593	26,606
Germany	20,983	23,222	16,274
Belgium	19,782	9,011	19,824
Ecuador	14,515	11,088	14,554
China	13,114	7,570	65,910
France	11,989	3,395	7,129
Sweden	11,821	842	-
Japan	11,248	39,712	32,054
Netherlands	9,055	5,457	16,045
Vietnam	9,010	18,724	5,006
Other	64,770	67,983	85,161
Net revenues	3,002,055	2,766,481	2,573,233

(ii) Net revenues by currency

	2025	2024	2023
USD	2,432,165	2,239,869	2,050,053
Brazilian Real ("BRL")	569,890	526,612	523,180
Net revenues	3,002,055	2,766,481	2,573,233

7 Expenses by nature

Accounting policy

Cost of sales mainly consists of the cost of manufacturing the products sold by the Company and is recognized in the income statement on the date of delivery to the customer at the same time revenue is recognized from the related sale.

Selling, general and administrative expenses are recognized on an accrual basis and, if applicable, in the same period in which the income they are related to is recognized.

	2025
	Total
Cost of sales (i)	
Raw materials and consumables used (ii)	(1,279,041)
Third-party services	(474,079)
Depreciation and amortization	(284,226)
Employee benefit expenses	(219,165)
Other expenses	(32,648)
(2,289,159)	(2,289,159)
Selling, general and administrative	
	-
	(56,706)
	(3,847)
	(68,086)
	(16,813)
(145,452)	(145,452)
Mineral exploration and project evaluation	
	-
	(60,620)
	(923)
	(13,219)
	(6,934)
(81,696)	(81,696)
(2,516,307)	(2,516,307)

	2024
	Total
Cost of sales (i)	
Raw materials and consumables used (ii)	(1,187,542)
Third-party services	(481,942)
Depreciation and amortization	(322,135)
Employee benefit expenses	(209,526)
Other expenses	(27,265)
(2,228,410)	(2,228,410)
Selling, general and administrative	
	-
	(43,170)
	(7,375)
	(60,124)
	(16,659)
(127,328)	(127,328)
Mineral exploration and project evaluation	
	-
	(49,197)
	(688)
	(9,630)
	(8,461)
(67,976)	(67,976)
(2,423,714)	(2,423,714)



				2023
	Cost of sales	Selling, general and administrative	Mineral exploration and project evaluation	Total
Raw materials and consumables used	(1,228,138)	-	-	(1,228,138)
Third-party services	(508,556)	(44,441)	(73,210)	(626,207)
Depreciation and amortization	(306,251)	(4,025)	(199)	(310,475)
Employee benefit expenses	(204,269)	(53,534)	(13,786)	(271,589)
Other expenses	(27,143)	(24,599)	(12,417)	(64,159)
	(2,274,357)	(126,599)	(99,612)	(2,500,568)

(i) As of December 31, 2025, the Company recognized USD 2,888 in cost of sales related to idle-capacity costs in Juiz de Fora, due to the temporary shutdown of the emissions control system, and USD 2,475 in El Porvenir, mainly due to lower production levels resulting from adverse weather conditions and temporary suspensions of mining operations during the second and fourth quarters, respectively.

As of December 31, 2024, the Company recognized idle capacity costs totaling USD 34,591 related to the Aripuanã mine and plant during its ramp-up phase (including depreciation of USD 9,092), as well as USD 3,661 related to idle capacity at El Porvenir.

As of December 31, 2023, the Company recognized idle capacity costs totaling USD 12,455, mainly arising from temporary production interruptions at Cerro Lindo, Atacocha and Cajamarquilla due to adverse weather conditions, social unrest and unplanned maintenance activities.

(ii) The increase in raw materials and consumables used for the year ended December 31, 2025, compared with the same period in 2024, was primarily driven by higher average LME prices for zinc and copper, which increased the unit cost of concentrate consumed during the year. This effect was primarily due to Cajamarquilla, where higher production and processing volumes led to increased consumption of concentrates and related operating inputs.

8 Mineral exploration and project evaluation

Accounting policy

Mineral exploration and project evaluation costs are expensed in the year in which they are incurred.

Mineral exploration activities involve the search for mineral resources from potential areas up to the determination of commercial viability and technical feasibility of an identified resource. Mineral exploration costs include gathering exploration data through geological and geophysical studies, conducting exploration drilling and sampling, and determining and examining the volume and grade of the identified resources.

Project evaluation costs are mainly related to scoping, pre-feasibility and feasibility studies for greenfield and brownfield projects. Additionally, these evaluation costs could also include costs incurred for studies related to other corporate projects, research, innovation, automation, and information technology projects.

Note 21 describes when mineral exploration and project evaluation costs begin to be capitalized.

Composition

	2025	2024	2023
Mineral exploration	(63,132)	(48,855)	(57,988)
Project evaluation	(18,564)	(19,121)	(41,624)
	(81,696)	(67,976)	(99,612)

Notes to the consolidated financial statements
At and for the year ended on December 31, 2025

All amounts in thousands of US dollars, unless otherwise stated

9 Other income and expenses, net

	2025	2024	2023
Changes in fair value of energy forward contracts – note 16 (d)	9,608	81	(15,663)
Divestment and restructuring	7,736	9,028	-
Changes in fair value of derivative financial instruments – note 16 (c)	201	746	(1,385)
Changes in asset retirement, restoration and environmental obligations – note 27	(174)	13,750	(10,125)
Loss on sale and write-off of property, plant and equipment	(1,649)	(16,183)	(3,734)
Provision for legal claims	(15,160)	1,908	(13,892)
Penalties and fines on income tax (i)	(11,365)	-	-
Slow moving and obsolete inventory	(10,383)	(10,897)	(4,372)
Contribution to communities	(12,911)	(14,554)	(13,134)
Changes in fair value of offtake agreement – note 16 (e)	(49,254)	(3,347)	2,268
ICMS tax incentives	-	-	32,338
Tax voluntary disclosure	-	-	(86,906)
Others	3,868	(14,043)	4,021
	(79,483)	(33,511)	(110,584)

(i) Penalties and fines arising from adoption of SUNAT's Tax Amnesty Program in the first quarter of 2025, which led to the withdrawal of amounts related to 2017 and 2018 uncertain income tax positions of Nexa El Porvenir and Nexa Atacocha, as well as the reassessment of matters related to the Cerro Lindo Tax Stability Agreement in the third quarter 2025, as further explained in note 11(d).

10 Net financial results

Accounting policy

(i) *Financial expenses* of obligations are recognized in the income statement when accrued, except for those directly attributable to the acquisition or the construction of qualifying assets, that is, assets that require a substantial amount of time to be ready for use, which are capitalized within property, plant and equipment and/or intangibles assets.

(ii) *Financial income* is mainly composed of interest income and is recognized on an accrual basis to reflect the asset's effective yield under the effective interest rate method.

(iii) *Other financial items, net* is composed of the net of the income and expenses related to the fair value of loans and financings, derivative financial instruments, and foreign exchange gains or losses.

	2025	2024	2023
Financial income			
Monetary adjustments	13,890	9,102	9,022
Interest income on financial investments and cash equivalents	11,825	11,853	11,622
Interest on tax credits	1,161	357	1,012
Other financial income	3,024	2,716	4,137
	29,900	24,028	25,793
Financial expenses			
Interest in loans and financings	(133,310)	(130,268)	(110,734)
Interest on other liabilities	(13,898)	(6,152)	(5,114)
Interest related to uncertain tax positions (ii)	(55,134)	(9,193)	(4,365)
Interest on asset retirement and environmental obligations – note 27 (a)	(26,587)	(27,734)	(26,969)
Interest on factoring operations and confirming payables	(17,726)	(16,391)	(16,624)
Bond repurchase premium – note 24 (b)	(15,046)	(1,989)	-
Interest on lease liabilities – note 23 (b)	(9,989)	(13,517)	(6,134)
Interest on contractual obligations – note 29	(6,744)	(6,424)	(5,329)
Transaction costs related to bond repurchase and early redemption – note 24 (b)	(2,814)	(5,080)	-
Interest on VAT discussions	(5,093)	(1,203)	(16,033)
Other financial expenses	(20,155)	(27,877)	(22,171)
	(306,496)	(245,828)	(213,473)
Other financial items, net			
Changes in fair value of derivative financial instruments – note 16 (c)	12,806	1,371	(606)
Changes in fair value of loans and financings – note 24 (c)	2,052	(3,627)	(525)
Debt modification gain	-	3,142	-
Foreign exchange (losses) gains (i)	74,373	(148,546)	21,753
	89,231	(147,660)	20,622
Net financial results	(187,365)	(369,460)	(167,058)

**Notes to the consolidated financial statements****At and for the year ended on December 31, 2025****All amounts in thousands of US dollars, unless otherwise stated**

(i) The amounts for 2025 and prior years are mainly related to exchange-rate variations on USD-denominated accounts receivable and payable between Nexa BR with NEXA, as well as on intercompany loans between Nexa BR and its related parties, for which the exchange variation is not eliminated in consolidation, and on foreign-currency denominated loans. These transactions were affected by the volatility of the Brazilian Real ("BRL"), which strengthened against the USD during 2025, while depreciating during 2024.

(ii) As of December 31, 2025, interest related to uncertain tax positions increased primarily due to changes in estimates under IFRIC 23 related to Cerro Lindo's tax stability agreement.

11 Current and deferred income tax and uncertain tax positions**Accounting policy**

The current income tax is calculated based on the tax laws enacted or substantively enacted as of the balance sheet date in the countries where the Company's entities operate and generate taxable income. Management periodically evaluates positions taken by the Company in the taxes on income returns with respect to situations in which the applicable tax regulations are subject to interpretation.

The Company establishes provisions or records a liability, where appropriate, and when the Company has a present obligation, considering amounts expected to be paid to the tax authorities.

The current income tax is presented net, separated by tax paying entity, in liabilities when there are amounts payable, or in assets when the amounts prepaid exceed the total amount due on the reporting date.

Deferred income tax is provided in full, using the balance sheet liability method, on temporary differences arising between the tax bases of assets and liabilities and their carrying amounts for financial reporting purposes at the reporting date. However, deferred tax liabilities are not recognized if they arise from the initial recognition of goodwill. Deferred income tax is determined using tax rates (and laws), of the Company's entities, that have been enacted or substantially enacted at the end of the reporting period and that are expected to be applied when the related deferred income tax asset is realized, or the deferred income tax liability is settled.

Deferred tax assets are recognized only to the extent it is probable that future taxable income will be available against which the temporary deductible differences and/or tax losses can be utilized. Deferred tax assets and liabilities are offset when there is a legally enforceable right and an intention to offset them in the calculation of current taxes, generally when they are related to the same legal entity and the same tax authority. Accordingly, deferred tax assets and liabilities in different entities or in different countries are generally presented separately, and not on a net basis.

Deferred tax liabilities and assets are not recognized for temporary differences between the carrying amounts and tax bases of investments in foreign operations where the Company is able to control the timing of the reversal of the temporary differences and it is probable that the differences will not be reversed in the foreseeable future.

Current and deferred taxes are recognized in profit or loss, unless they relate to items recognized in other comprehensive income or directly in equity. In this case, the tax is also recognized in other comprehensive income or directly in equity, respectively.

There are discussions and ongoing disputes with tax authorities related to uncertain tax positions adopted by the Company in the calculation of its income tax, and for which management, supported by its legal advisors, has concluded that it is more-likely-than-not that its positions will be sustained upon examination. In such cases, income tax effects of these uncertain tax positions are not recognized.

When the Company concludes that it is not more-likely-than-not that its positions will be sustained upon examination, the Company recognizes an income tax liability measured at the present value of the expenditure expected to be required to settle the obligation. The increase in the provision due to the passage of time is recognized as "Financial Expenses" and any penalties and fines are recognized as "Other income and expenses, net" in the profit and loss.

Notes to the consolidated financial statements
At and for the year ended on December 31, 2025

All amounts in thousands of US dollars, unless otherwise stated

The Company may have to pay income tax under discussion to continue the legal process either at the local judicial level or international arbitration, even though these taxes have not been provisioned considering the Company's risk assessment. Such payments may be made in multiple installments provided that a guarantee is provided for the whole installment period. These amounts are recognized as outstanding under "other assets" as "Tax claim payments", for potential future recovery in cash or compensation of the future provisions if the Company loses the discussions or if the risk assessment is later revised leading the Company to conclude that it would no longer be more likely than not that its tax positions would be sustained upon examination.

Critical accounting estimates, assumptions and judgments

The Company is subject to income tax in all countries in which it operates where uncertainties arise in the application of complex tax regulations. Significant estimates, assumptions and judgments are required to determine the amount of deferred tax assets that would be recovered since this amount may be affected by factors including, but not limited to: (i) internal assumptions on the projected taxable income, which are based on production and sales planning, commodity prices, operational costs and planned capital costs; (ii) macroeconomic environment; and (iii) trade and tax scenarios.

In addition, there are many transactions and calculations for which the ultimate tax determination is uncertain. The Company also exercises judgment in the identification of these uncertainties over income tax treatments which could impact the consolidated financial statements as the Company operates in a complex multinational environment.

The Company and its subsidiaries are subject to reviews of income tax filings and other tax payments, and disputes can arise with the tax authorities over the interpretation of the applicable laws and regulations.

The Company is involved in ongoing discussions and disputes with tax authorities related to tax matters. For this discussion, in which the Company concluded that its positions will not be sustained upon examination, the Company estimates income tax liability based on management's assessment and this requires a high level of judgment as well as expectations of cash outlays to settle the obligation, which are supported by the positions of external legal counsel and case law from other similar cases.

(a) Reconciliation of income tax (expense) benefit

	2025	2024	2023
Income (loss) before income tax	331,749	(71,851)	(296,084)
Luxembourg statutory income tax rate (i)	23.87%	24.94%	24.94%
Expected income tax benefit (expense) at statutory rate	(79,188)	17,920	73,843
Tax effects of translation of non-monetary assets/liabilities to functional currency	53,683	(1,323)	13,686
Uncertain income tax treatment (ii)	23,221	(94,764)	(5,194)
Special mining levy and special mining tax	(22,133)	(7,868)	(5,366)
Difference in tax rate of subsidiaries outside Luxembourg	(23,480)	12,591	24,665
Unrecognized deferred tax on net operating losses(iii)	(48,226)	(25,515)	(52,091)
Other tax differences	(12,482)	(16,597)	(45,269)
Income tax (expense) benefit	(108,605)	(115,556)	4,274
Current	(106,415)	(205,674)	(80,935)
Deferred	(2,190)	90,118	85,209
Income tax (expense) benefit	(108,605)	(115,556)	4,274

(i) On December 11, 2024, the Luxembourg Parliament approved a reduction in the aggregate corporate income tax rate from 24.94% to 23.87%, effective January 1, 2025. As NEXA's standalone net operating losses do not meet the recognition criteria, no deferred tax assets were recognized. Therefore, the tax rate reduction has no impact on the consolidated interim income statement.

(ii) Primarily related to income tax provision of Cerro Lindo Stability Agreement for the years 2014 to 2021. For further details, please refer to note 11 (d).

(iii) As of December 31, 2025, the Company did not record deferred tax assets on USD 188,087 net operating losses (2024: USD 93,385) after an assessment made by management considering the future recoverability of these net operating losses. As of December 31, 2025, the Company has an accumulated amount of USD 1,166,839 not recognized as deferred taxes on net operating losses. From the total amount of unused tax losses, USD 106 have an expiration limit of 5 years, USD 884,617 of 17 years, USD 14,907 of 20 years, and USD 267,209 can be carried forward indefinitely.



(b) Changes on deferred tax income tax assets and liabilities

	2025	2024	2023
Balance at the beginning of the year	104,352	68,667	(24,886)
Effect on income (loss) for the year	(2,190)	90,118	85,209
Effect on other comprehensive income – fair value adjustment	110	535	198
Effect on other comprehensive loss – hedge accounting	1,349	981	(1,269)
Effects of consolidation of acquired subsidiary – note 4(iii)	1,997	-	-
Effect on other comprehensive income (loss) – translation effect included in cumulative translation adjustment	23,730	(50,565)	9,415
Others	-	(5,384)	-
Balance at the end of year	129,348	104,352	68,667

(c) Analysis of deferred income tax assets and liabilities

	2025	2024
Tax credits on net operating losses	320,929	242,278
Tax credits on temporary differences		
Asset retirement obligations	25,556	22,498
Foreign exchange gains	22,159	14,222
Inventory provisions	15,268	10,903
Environmental liabilities	12,108	10,847
Tax, labor and civil provisions	11,169	7,886
Provision for employee benefits	6,910	5,196
Revaluation of derivative financial instruments	1,913	36
Others	13,756	10,773
Tax debits on temporary differences		
Capitalized interest	(18,085)	(17,054)
Depreciation, amortization and asset impairment	(129,435)	(70,985)
Added value of assets (i)	(134,916)	(131,663)
Others	(17,984)	(585)
	129,348	104,352
Deferred income tax assets	307,293	236,887
Deferred income tax liabilities	(177,945)	(132,535)
	129,348	104,352

(i) This tax debit balance mainly relates to the value added on the acquisition of mining rights from Nexa Peru and its subsidiaries. While the underlying assets are amortizable for accounting purposes, the related amortization is not deductible for tax purposes.

(d) Summary of uncertain tax positions on income tax

As of December 31, 2025, the Company's main uncertain tax positions are related to: (i) the interpretation of the application of the Cerro Lindo tax stability agreement; (ii) litigation of transfer pricing adjustments over transactions made with related parties; and (iii) the deductibility of certain costs and expenses.

The estimated amount of contingent liabilities related to these uncertain tax positions that have not been provisioned at the balance sheet as of December 31, 2025, amounts to USD 362,147 (USD 430,567 on December 31, 2024). Of this amount, USD 167,190 corresponds to matters related to the Cerro Lindo tax stability agreement and the deductibility of certain costs and expenses. The decrease compared to the prior year of USD 233,336 is mainly explained by favorable final resolutions issued by the Peruvian Tax Court in January 2026 (Subsequent Event), regarding the 2016 and 2017 tax stability matters, as well as favorable decisions related to discussions on the deductibility of certain expenses associated with these tax contingencies.

With respect to Cerro Lindo tax stability agreement, the Company had a tax stability agreement in force until 2021. On 2020, SUNAT initiated income tax inspections focused on the applicability of the stabilized income tax rate to Cerro Lindo's operations.

**Notes to the consolidated financial statements****At and for the year ended on December 31, 2025****All amounts in thousands of US dollars, unless otherwise stated**

In December 2021, SUNAT concluded its income tax inspection of Nexa Peru's fiscal year 2014 and issued an assessment determining an additional amount to be paid by the Company. SUNAT calculated Nexa Peru's income tax expense for the 2014 fiscal year using the Peruvian statutory income tax rate of 30%, instead of the 20% income tax rate granted under the tax stability agreement to Cerro Lindo's operations.

SUNAT's position was based on the assertion that the Company should segregate the income generated by the facilities built under the approved feasibility study (which includes a plant with a production capacity of 5,000 tons) from the income generated by other facilities. As SUNAT considered that NEXA Peru did not provide enough documentation for SUNAT to calculate such segregation, it disregarded the application of the stabilized income tax rate.

On January 18, 2022, the Company filed its defense before SUNAT's claim office, arguing that the assessment was not compliant with applicable law, mainly because: i) SUNAT determined a presumed tax base that is expressly denied by the Peruvian Tax Code; and ii) SUNAT misinterpreted the scope and application of the tax stability agreement.

In 2022 and 2023, SUNAT also concluded the fiscal audits related to the tax stability regime of Cerro Lindo for the 2015, 2016 and 2017 fiscal years and issued the corresponding tax assessments, applying the Peruvian statutory income tax rate of 28% for the 2015 and 2016 fiscal years and 29.5% for the 2017 fiscal year, instead of the stabilized income tax rate.

In 2023 and 2024, SUNAT issued unfavorable decisions against the Company for the fiscal years 2014 through 2017. The Company filed appeals against these decisions and continues to maintain its position regarding the applicability of the Cerro Lindo tax stability agreement.

In the fourth quarter of 2024, SUNAT completed its audit of the 2018 tax period, recognizing that a portion of the Company's income was subject to the tax stability regime. In January 2025, NEXA paid USD 18,300 in order to obtain a 60% reduction in penalties and interests on penalties, without waving its legal position regarding the application of the tax stability agreement.

As previously disclosed, in rulings issued for the 2014 and 2015 tax periods, the Peruvian Tax Court upheld SUNAT's restrictive interpretation. In the fourth quarter of 2025, the Company appealed these rulings and continues to litigate the cases before the Peruvian Judiciary. In accordance with local regulations, to pursue the appeal the Company is required to pay the full disputed amount once the debt becomes enforceable, which is currently expected to occur in the first half of 2026 for an estimated amount of USD 67,726. Such amount may be settled in up to 72 monthly installments, including accrued interest.

Conversely, regarding the 2016 and 2017 tax stability discussions, in January 2026, which are duly recognized herein as subsequent event, the Peruvian Tax Court declared the nullity of the tax stability assessment, concluding that SUNAT did not adequately assess the documentation submitted by the Company during the audit process and failed to establish a clear criterion for the segregation of results. Consequently, the Tax Court determined that SUNAT should not have applied the non-stabilized tax rate to the Company's total results and ordered the cases to return to the audit phase, during which SUNAT must perform the segregation of results.

In the fourth quarter of 2025, SUNAT concluded its audit of the 2019 tax period applying the same criteria used in the 2018 audit. In January 2026, the Company paid US\$ 12,210 to obtain a 60% reduction in penalties and interests over penalties, without affecting its legal position.

For both payments related to the 2018 and 2019 tax periods, the Company continues to maintain its legal position regarding the applicability of the tax stability agreement. Such payments do not constitute an acknowledgment of liability, and the Company will continue pursuing its legal defense before the competent authorities.

As of the date of these consolidated financial statements, SUNAT is auditing the Company's income tax returns for the 2020 and 2021 fiscal years.

The tax uncertainties related to the Cerro Lindo tax stability agreement that are recognized as part of income tax liabilities in the balance sheet as of December 31, 2025, amounted to USD 130,709 (USD 102,062 as of December 31, 2024).



Notes to the consolidated financial statements
At and for the year ended on December 31, 2025
All amounts in thousands of US dollars, unless otherwise stated

(e) Pillar 2 - analysis on estimated effects

NEXA is within the scope of the OECD Pillar Two model rules which establish a new global minimum tax framework of 15% minimum tax. Pillar Two legislation was enacted in Luxembourg and in Brazil, already in effect for financial year beginning January 1, 2024, and January 1, 2025, respectively. However, no legislation regarding Pillar Two has been enacted in Peru yet.

The Company performed an assessment of the group's potential exposure to Pillar Two income taxes under the OECD transitional safe harbor rules and the Global Anti-Base Erosion (GloBE) income calculation and there was no material impact on its financial results.

(f) New transfer pricing rules in Brazil

As from January 1, 2024, Law 14.596/2023 became effective and introduced new transfer pricing rules (TP rules) in Brazil. These rules aim to align with the international standards established by the Organization for Economic Cooperation and Development (OECD), according to the arm's length principle, which stipulates that the terms and conditions of a controlled transaction should be consistent with those that would be established between third parties in comparable transactions. The new rules are expected to affect only transactions involving Nexa BR, as transactions involving Nexa Peru and the Parent Company already comply with international standards established by the OECD.

The Company, with the support of its technical advisors, performed functional, economic and benchmark analyses of its principal intercompany transactions and monitored the results of each segment of the operations, having identified and implemented the necessary adjustments and adaptations during 2025. In addition, the Company complied in a timely manner with all obligations required under applicable law.

The Company continues to monitor developments in the legislation and does not expect a relevant impact on the Company or its subsidiaries.

12 Financial risk management

Accounting policies

The Company's activities expose it to a variety of financial risks: (a) market risk (including currency risk, interest rate risk and commodities price risk); (b) credit risk; and (c) liquidity risk.

A significant portion of the products sold by the Company are commodities, with prices pegged to international indices and denominated in USD. Part of the production costs, however, are denominated in BRL and Peruvian Soles ("PEN"), and therefore, there is a mismatch of currencies between revenues and costs. Additionally, the Company has debt linked to different indices and currencies, which may impact its cash flows.

To mitigate the potential adverse effects of each financial risk factor, the Company follows a Financial Risk Management Policy that establishes governance and guidelines for the financial risk management process, as well as metrics for measurement and monitoring. This policy establishes guidelines and rules for: (i) Commodities Exposure Management, (ii) Foreign Exchange Exposure Management, (iii) Interest Rate Exposure Management, (iv) Issuers and Counterparties Risk Management, and (v) Liquidity and Financial Indebtedness Management. All strategies and proposals must comply with the Financial Risk Management Policy guidelines and rules, be presented to and discussed with the Finance Committee of the Board of Directors, and, when applicable, submitted for the approval of the Board of Directors, under the governance structure described in such Policy.

(a) Market risk

The purpose of the market risk management process and all related actions is intended to protect the Company's cash flows against adverse events, such as changes in foreign exchange rates, interest rates and commodity prices, to maintain the ability to pay financial obligations, and to comply with liquidity and indebtedness levels defined by management.



(i) Sensitivity analysis

Presented below is a sensitivity analysis of the main risk factors that affect the pricing of the outstanding financial instruments related to cash and cash equivalents, financial investments, loans and financing, and other financial instruments. The main sensitivities are the exposure to changes in the USD exchange rate, the Interbank Deposit Certificate (“CDI”) interest rates, the National Broad Consumer Price Index (“IPCA”), the Secured Overnight Funding Rate (“SOFR”) and the commodity prices. The scenarios for these factors are prepared using market sources and other relevant sources, in compliance with the Company's policies. The scenarios on December 31, 2025, are described below:

- Scenario I: considers a change in the market forward yield curves and quotations as of December 31, 2025, according to the base scenario defined by the Company for March 31, 2026.
- Scenario II: considers a change of + or -25% in the market forward yield curves as of December 31, 2025.
- Scenario III considers a change of + or -50% in the market forward yield curves as of December 31, 2025.

			Impacts on income statement						Impacts on statement of comprehensive income				
			Scenarios II and III						Scenarios II and III				
Risk factor	Quotation at December 31, 2025	Amount	Changes from 2025	Scenario I	-25%	-50%	+25%	+50%	Scenario I	-25%	-50%	+25%	+50%
Cash and cash equivalents and financial investments													
Foreign exchange rates													
USD	5,5024	12,513	(1.20%)	(150)	(3,128)	(6,256)	3,128	6,256	-	-	-	-	-
EUR	6,4692	4,856	(0.42%)	(20)	(1,214)	(2,428)	1,214	2,428	-	-	-	-	-
PEN	1,6365	51,177	(4.75%)	(2,429)	(12,794)	(25,588)	12,794	25,588	-	-	-	-	-
Interest rates													
BRL - CDI - SELIC	14.90%	134,737	(72,92) bps	(983)	(5,019)	(10,038)	5,019	10,038	-	-	-	-	-
Loans and financings													
Foreign exchange rates													
USD	5,5024	180,080	(1.20%)	2,161	45,020	90,040	(45,020)	(90,040)	-	-	-	-	-
Interest rates													
BRL - CDI - SELIC	14.90%	130,157	(72,92) bps	949	4,848	9,697	(4,848)	(9,697)	-	-	-	-	-
USD - SOFR	3.64%	180,080	(27) bps	488	1,638	3,275	(1,638)	(3,275)	-	-	-	-	-
IPCA - TLP	4.26%	166,364	6 bps	(102)	1,772	3,544	(1,772)	(3,544)	-	-	-	-	-
BRL - TJLP	9.07%	18,047	11 bps	(20)	409	818	(409)	(818)	-	-	-	-	-
Other financial instruments													
Foreign exchange rates													
USD	5,5024	750,000	(1.20%)	1,559	42,818	128,453	(25,691)	(42,818)	-	-	-	-	-
Interest rates													
BRL - CDI - SELIC	14.90%	750,000	(72,92) bps	108	570	1,199	(519)	(992)	-	-	-	-	-
USD - SOFR	3.64%	870,943	27 bps	23	113	226	(113)	(225)	9	99	199	(97)	(194)
Dollar coupon	4.81%	650,000	(41) bps	(2,617)	30,324	60,649	(30,324)	(60,649)	-	-	-	-	-
Commodities price													
Zinc	3,063.50	743,061	(6.97%)	9,676	27,379	54,757	(27,378)	(54,757)	(3,880)	(10,978)	(21,957)	10,978	21,957
Gold	4,337.88	8,968	(12.98%)	-	-	-	-	-	628	1,506	3,716	2	(3,473)
Silver	71,99	118,914	(41.66%)	-	-	-	-	-	24,057	13,506	33,436	(15,857)	(37,075)



(ii) Foreign exchange risk

Foreign exchange risk is managed through the Company’s Financial Risk Management Policy, which states that the objectives of derivative transactions are to reduce cash flow volatility, hedge against foreign exchange exposure and minimize currency mismatches.

The Company’s Financial Risk Management Policy establishes guidelines and rules to manage the Foreign Exchange Risk, to consist in finance projects / companies in the same currency of its future cash flows (i.e. a project/company that will generate cash flows indexed to USD must be primarily financed with borrowings denominated in the same currency). This strategy aims to reduce the impact of currency on the project’s/company’s cash flows, since revenues and expenses are denominated in the same currency.

Presented below are the financial assets and liabilities in foreign currencies on December 31, 2025. These mainly results from NEXA BR’s operations, for which the functional currency is the BRL and some other receivables related to tax claim payments, which are made in Peruvian Soles.

Intercompany loans balances are fully eliminated in the consolidated financial statements. However, the related foreign exchange gain or loss is not, and is presented as foreign exchange effects.

USD amounts of foreign currency balances	2025	2024
Assets		
Cash, cash equivalents and financial investments	125,345	98,067
Other financial instruments	28,243	70
Trade accounts receivables	20,946	19,553
	174,534	117,690
Liabilities		
Loans and financings	312,115	297,199
Other financial instruments	21,021	238
Trade payables	205,414	162,288
Confirming payables	102,252	28,518
Lease liabilities	44,184	42,357
Use of public assets	18,808	18,047
	703,794	548,647
Net exposure	(529,260)	(430,957)

(iii) Interest rate risk

The Company's interest rate risk primarily arises from its long-term loans. Floating-rate loans expose the Company to cash flow interest rate risk, as changes in market rates directly impact future interest payments. Conversely, fixed-rate instruments may expose the Company to fair value risk, as fluctuations in market interest rates affect the fair value of the hedged instruments. For further details on interest rates, refer to note 24.

The Company’s Financial Risk Management Policy establishes guidelines and rules to hedge against changes in interest rates that impact on the Company’s cash flow. Exposure to each interest rate is projected until the maturity of the assets and liabilities are exposed to this index. Occasionally the Company enters floating to fixed interest rate swaps to manage its cash flow interest rate risk. In the case of loans and financings contracted together with swaps, the Company accounts for them under the fair value option to eliminate the accounting mismatch that would arise if amortized cost were used. Occasionally the Company enters floating to fixed interest rate swaps to manage its cash flow interest rate risk.

(iv) Commodity price risk

The Company's commodity price risk primarily arises from the volatility in the prices of the commodities it produces, including zinc, copper, lead, and the gold and silver contained within these concentrates. Price fluctuations depend on various factors such as global demand, production capacity, inventory levels, commercial strategies adopted by major producers, and the availability of substitutes in the global market. These changes can directly impact the Company's revenue and profitability.



The Company's Financial Risk Management Policy establishes guidelines to mitigate the risk of fluctuations in commodity prices that could impact the Company's cash flows. The exposure to the price of each commodity considers the monthly production projections, inputs purchases, and the maturity flows of hedges associated with them.

Commodity prices hedge transactions are classified into the following hedging strategies:

Hedges for concentrates and metals contained in concentrate sales (Strategic Hedges)

The strategic hedge objective is to reduce the volatility of cash flows due to price fluctuations in London Metal Exchange (LME) prices for zinc, copper, and lead, as well as London Bullion Market Association (LBMA) prices for silver and gold contained within these concentrates. This approach helps ensure a more predictable operating margin.

The hedged items are the proportion of payable metals (zinc, copper, lead, gold, and silver) within the sold concentrates, priced by the London Metal Exchange or the London Bullion Market Association. This strategy can be implemented through the sale of forward contracts or zero-cost collar contracts.

Hedges for mismatches of quotational periods (Book Hedge)

The book hedge objective is to mitigate the risk of mismatches in quotational periods arising between the purchases of concentrate or processed metal and the sale of processed metal. These transactions usually involve the purchases and sales of zinc for future trading on the over-the-counter market.

For this strategy, the hedged items are the percentages of payable zinc contained in the purchased concentrates by the smelters and the percentages of payable zinc contained in the sold metals. Concentrates from integrated own mines, and consequently the metals produced from these concentrates, do not participate in this strategy as they do not bear the risk of mismatches of quotation periods.

Hedge for non-standard price metal sales (Customer Hedge)

The customer hedge objective is to maintain the revenues of a business unit linked to a standard London Metal Exchange (LME) quotational period (QP) price, converting non-standard QPs offered to specific customers to a standard QP. For this strategy, the hedged item is the percentage of payable metal contained in the processed metals sold with the price negotiated on the London Metal Exchange.

(b) Credit risk

Trade receivables, derivative financial instruments, term deposits, bank deposit certificates ("CDBs"), and government securities create exposure to credit risk with respect to the counterparties and issuers. The Company has a policy of making deposits in financial institutions, investment funds and other entities engaged in or providing financial services, such as cash management, funding and working capital management, and derivative transactions, and all eligible counterparties including financial institutions and investment funds that have, at least, a rating from two of the following international rating agencies: Fitch, Moody's or Standard & Poor's, with the Company always applying the most conservative rating available.

The minimum rating required for counterparties is determined as follows:

- Onshore operations:

- (i) at least an "A" rating on the local scale when two or more local ratings exist; or
- (ii) at least an "AA-" rating on the local scale when only one local rating is available; or
- (iii) at least a "BBB-" rating on the global scale when there is no local rating, but two or more global ratings exist; or
- (iv) at least a "BBB+" rating on the global scale when only one global rating is available; or
- (v) if the counterparty does not have a local or global rating or does not meet these minimum criteria, the rating of its immediate parent or ultimate holding company must be used, which must be at least "A" on the global scale from two agencies, or "AA-" from one agency.

Notes to the consolidated financial statements
At and for the year ended on December 31, 2025
All amounts in thousands of US dollars, unless otherwise stated



- Offshore operations:
- (i) at least a “BBB-” rating on the global scale when the counterparty is rated by two or more agencies, or
 - (ii) at least a “BBB+” rating when rated by only one agency; or
 - (iii) rating “BBB-”, or equivalent, on a global scale by two rating agencies.

The prior country-specific exceptions for Peru and Luxembourg were eliminated, as the updated rating matrix provides a unified and comprehensive framework for all jurisdictions. If only a global rating exists, the updated minimum criteria described above shall apply depending on the number of agencies providing the rating. In the case of a counterparty that does not have its own credit rating, the Company must evaluate the rating of its immediate parent company; if the parent does not meet the policy criteria, the rating of the ultimate parent or holding company must be used. Additionally, if a counterparty does not meet the minimum rating requirements but offers a guarantor, the rating of the guarantor may be used, provided that the guarantor satisfies all minimum rating criteria and the guarantee fully covers the Company’s exposure for all types of transactions with the counterparty.

The pre-settlement risk methodology is used to assess counterparty risks in derivative transactions. This methodology uses Monte Carlo simulations to estimate the potential exposure before the settlement date in the event of a counterparty defaulting on the financial commitments defined by contract. The global ratings were obtained from the rating agencies Fitch, Moody’s or Standard & Poor’s ratings and are related to commitments in foreign or local currency, and, in both cases, they assess the capacity to honor these commitments, using a scale applicable on a global basis. Therefore, both ratings in foreign currency and in local currency are internationally comparable ratings.

In the case of credit risk arising from customer credit exposure, the Company assesses the credit quality of the customer, considering mainly the history of the relationship and financial indicators defining individual credit limits, which are continuously monitored.

The Company performs initial analyses of customer credit and, when deemed necessary, guarantees or letters of credit are obtained to mitigate the credit risk. Additionally, most sales to the United States of America, Europe and Asia are collateralized by letters of credit and credit insurance.

The carrying amount of the Company’s financial instruments best represents the maximum exposure to their credit risk.

The following table reflects the credit quality of issuers and counterparties for transactions involving cash and cash equivalents, financial investments and derivative financial instruments. The variations presented are mainly related to the Company's transactions in the year and not to changes in the counterparties’ ratings.

	2025			2024		
	Local rating	Global rating	Total	Local rating	Global rating	Total
Cash and cash equivalents						
AAA	64,464	-	64,464	251,962	-	251,962
AA+	1	-	1	1	-	1
AA	-	57,071	57,071	-	95,461	95,461
AA-	-	32,544	32,544	-	18,714	18,714
A+	-	172,533	172,533	-	127,151	127,151
A	-	331	331	8,265	24,749	33,014
A-	-	29,923	29,923	-	61,935	61,935
BBB+	-	58,527	58,527	-	-	-
BBB	-	52,290	52,290	-	-	-
No rating (i)	48,186	1	48,187	11,899	20,400	32,299
	112,651	403,220	515,871	272,127	348,410	620,537



	2025			2024		
	Local rating	Global rating	Total	Local rating	Global rating	Total
Financial investments						
AAA	5,608	-	5,608	19,638	-	19,638
No rating (i)	79	-	79	55	-	55
	5,687	-	5,687	19,693	-	19,693
Derivative financial instruments						
AAA	2,089	-	2,089	71	-	71
AA	-	4,421	4,421	-	-	-
A+	-	2,014	2,014	-	450	450
A	-	-	-	-	842	842
A-	-	28,243	28,243	-	3,919	3,919
	2,089	34,678	36,767	71	5,211	5,282
Other assets						
AAA	1,080	-	1,080	883	-	883
	1,080	-	1,080	883	-	883

(i) Refers to subsidiaries of international financial institutions that do not have a global rating available in the international rating agencies. According to the Company's policy, for these financial institutions, the rating of the financial institution controlling entities is assumed, which must be at least BBB-.

(c) Liquidity risk

Liquidity risk is managed through the Company's Financial Risk Management Policy, which aims to ensure the availability of funds to meet the Company's financial obligations. The main liquidity measurement and monitoring instrument is the cash flow projection, using a minimum projection period of 12 months from the benchmark date. Financial institutions that provide the Company with financial services are within Nexa's rating policies and at the same level of the ones provided for the Company's credit risk.

A substantial part of the confirming payables arrangement is with one financial institution. However, there are other financial institutions that the Company has relations with that could be considered for future supplier financing transactions. If this service is not available, the entity may be required to increase its debt levels which may negatively impact its leverage ratios.

The table below shows the Company's financial obligations to be settled by the Company based on their maturity (the remaining period from the balance sheet up to the contractual maturity date). The amounts below represent the estimated undiscounted future cash flows, which include interests to be incurred and, accordingly, do not reconcile directly with the amounts presented in the consolidated balance sheet.

2025	Less than 1 year	Between 1 and 3 years	Between 3 and 5 years	Over 5 years	Total
Loans and financings	153,014	478,025	433,708	1,581,443	2,646,190
Lease liabilities	54,233	60,421	9,980	17,354	141,988
Derivative financial instruments	11,646	91	20,600	-	32,337
Trade payables	500,025	-	-	-	500,025
Confirming payables	415,388	-	-	-	415,388
Salaries and payroll charges	83,597	-	-	-	83,597
Dividends payable	26,918	-	-	-	26,918
Related parties	-	4,695	-	-	4,695
Asset retirement and environmental obligations	39,326	51,641	118,247	376,092	585,306
Use of public assets	3,331	3,542	3,992	27,499	38,364
	1,287,478	598,415	586,527	2,002,388	4,474,808



2024	Less than 1 year	Between 1 and 3 years	Between 3 and 5 years	Over 5 years	Total
Loans and financings	148,077	150,023	1,175,144	1,028,440	2,501,684
Lease liabilities	29,882	37,755	6,121	12,299	86,057
Derivative financial instruments	3,600	181	17	-	3,798
Trade payables	443,288	-	-	-	443,288
Confirming payables	268,175	-	-	-	268,175
Salaries and payroll charges	70,234	-	-	-	70,234
Dividends payable	3,707	-	-	-	3,707
Related parties	1,125	2,960	-	-	4,085
Asset retirement and environmental obligations	47,937	76,583	60,598	364,036	549,154
Use of public assets	1,457	3,180	3,585	28,226	36,448
	1,017,482	270,682	1,245,465	1,433,001	3,966,630

(d) Capital management

The Company's objectives when managing capital are to safeguard its ability to continue as a going concern, so it can continue to provide returns for shareholders and benefits for other stakeholders, and to maintain an optimal capital structure to reduce the cost of capital.

To maintain or adjust the capital structure, the Company may adjust the dividends level paid to shareholders, return capital to shareholders, issue new shares or sell assets to reduce debt. The Company monitors capital mainly using the leverage ratio, calculated as net debt to Adjusted EBITDA.

Net debt and Adjusted EBITDA measures should not be considered in isolation or as a substitute for net income or operating income, as indicators of operating performance, or as alternatives to cash flow as measures of liquidity. Additionally, management's calculation of Adjusted EBITDA may be different from the calculation used by other companies, including competitors in the mining and smelting industry, so these measures may not be comparable to those of other companies.

	Note	2025	2024	2023
Loans and financings	24 (a)	1,705,984	1,762,633	1,725,566
Derivative financial instruments	16 (a)	(2,341)	(1,484)	2,600
Lease liabilities	23 (b)	121,134	95,899	77,405
Cash and cash equivalents	15 (a)	(515,871)	(620,537)	(457,259)
Financial investments		(5,687)	(19,693)	(11,058)
Net debt (i)		1,303,219	1,216,818	1,337,254
Net income (loss) for the year		223,144	(187,407)	(291,810)
Plus (less):				
Depreciation and amortization	7	288,996	330,198	310,475
Share in the results of associates		(21,143)	(21,223)	(23,536)
Net financial results	10	187,365	369,460	167,058
Income tax expense (benefit)	11 (a)	108,605	115,556	(4,274)
Miscellaneous adjustments	2	(15,088)	107,496	248,128
Adjusted EBITDA (ii)		771,879	714,080	406,041
Leverage ratio (Net debt/Adjusted EBITDA)		1.68	1.70	3.29

(i) Net debt is defined as (a) loans and financings, plus lease liabilities, plus or minus (b) the fair value of derivative financial instruments, less (c) cash and cash equivalents, less (d) financial investments.

(ii) Adjusted EBITDA for capital management calculation uses the same assumptions described in note 2 for Adjusted EBITDA by segment.

13 Financial instruments

Accounting policy

Normal purchases and sales of financial assets are recognized on the trade date – the date on which the Company commits to purchase or sell the asset. Financial assets are initially recognized at fair value plus transaction costs for all financial assets not carried at fair value through profit or loss. Financial assets carried at fair value through profit or loss, if any, are initially recognized at fair value, and transaction costs are expensed in the income statement.



Notes to the consolidated financial statements
At and for the year ended on December 31, 2025
All amounts in thousands of US dollars, unless otherwise stated

Financial assets are derecognized when the rights to receive cash flows from the investments have expired or the Company has transferred substantially all the risks and rewards of ownership. Financial assets at fair value through profit or loss and at fair value through other comprehensive income are subsequently carried at fair value. Financial assets at amortized costs are subsequently measured using the effective interest rate method.

Equity instruments may be irrevocably elected on their initial recognition for their fair value changes to be presented in other comprehensive income instead of in the income statement. Since the objective of the Company's equity instruments is to buy more participation in a project and not sell the investment, they have been classified as fair value through other comprehensive income.

Then, the Company classifies its financial assets and liabilities under the following categories: amortized cost, fair value through profit or loss and fair value through other comprehensive income.

(i) Amortized cost

Financial assets measured at amortized cost are assets held within a business model whose objective is to hold financial assets to collect contractual cash flows and for which the contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest ("SPPI") on the principal amount outstanding.

Financial liabilities are measured at amortized cost, except for financial liabilities at fair value through profit or loss such as derivatives and some specific loans and financings.

(ii) Fair value through profit or loss

Financial assets measured at fair value through profit or loss are assets which an entity manages with the objective of realizing cash flows through the sale of such assets and financial assets that do not give rise to cash flows that are SPPI on the principal amount outstanding.

Financial liabilities measured at fair value through profit or loss are liabilities which are not measured at amortized cost, such as derivatives and loans and financings where the fair value option is adopted to eliminate an accounting mismatch that would arise if amortized cost were used. For these loans and financings, the fair value variation related to the Company's own credit risk is recorded in the OCI.

(iii) Fair value through other comprehensive income

Financial assets measured at fair value through other comprehensive income are held within a business model whose objective is achieved by both collecting contractual cash flows and selling financial assets and for which the contractual terms of the financial asset give rise on specified dates to cash flows that are SPPI on the principal amount outstanding. Investments in equity instruments are measured at fair value through other comprehensive income as mentioned before.

(a) Breakdown by category

The Company's financial assets and liabilities are classified as follows:



					2025
	Note	Amortized cost	Fair value through profit or loss	Fair value through Other comprehensive income	Total
Assets per balance sheet					
Cash and cash equivalents	15 (a)	515,871	-	-	515,871
Financial investments		5,687	-	-	5,687
Other financial instruments	16 (a)	-	36,767	-	36,767
Trade accounts receivables (iii)	17 (a)	35,973	192,615	-	228,588
Investments in equity instruments	14 (c)	-	-	5,219	5,219
		557,531	229,382	5,219	792,132
Liabilities per balance sheet					
Loans and financings	24 (a)	1,614,386	91,598	-	1,705,984
Lease liabilities	23 (b)	121,134	-	-	121,134
Other financial instruments	16 (a)	-	103,893	-	103,893
Trade payables	25 (a)	500,025	-	-	500,025
Confirming payables	26 (a)	415,388	-	-	415,388
Dividends payable		26,918	-	-	26,918
Use of public assets (ii)		18,808	-	-	18,808
Related parties (ii)	20 (a)	4,695	-	-	4,695
		2,701,354	195,491	-	2,896,845

					2024
	Note	Amortized cost	Fair value through profit or loss	Fair value through Other comprehensive income	Total
Assets per balance sheet					
Cash and cash equivalents	15 (a)	620,537	-	-	620,537
Financial investments		19,693	-	-	19,693
Other financial instruments	16 (a)	-	5,282	-	5,282
Trade accounts receivables (iii)	17 (a)	39,008	101,785	-	140,793
Investments in equity instruments	14 (c)	-	-	5,093	5,093
Related parties (i)	20 (a)	1,546	-	-	1,546
		680,784	107,067	5,093	792,944
Liabilities per balance sheet					
Loans and financings	24 (a)	1,670,313	92,320	-	1,762,633
Lease liabilities	23 (b)	95,899	-	-	95,899
Other financial instruments	16 (a)	-	37,134	-	37,134
Trade payables	25 (a)	443,288	-	-	443,288
Confirming payables	26 (a)	268,175	-	-	268,175
Dividends payable		3,707	-	-	3,707
Use of public assets (ii)		18,047	-	-	18,047
Related parties (ii)	20 (a)	4,085	-	-	4,085
		2,503,514	129,454	-	2,632,968

(i) Classified as “Other assets” in the consolidated balance sheet.

(ii) Classified as “Other liabilities” in the consolidated balance sheet.

(iii) Fair value through profit or loss amounts, relates mainly to amounts included in a forfeiting program and sales that are subsequently adjusted to changes in LME prices.

14 Fair value estimates

Critical accounting estimates, assumptions and judgments

The fair value of financial instruments that are not traded in an active market is determined using valuation techniques. The Company uses judgment to select among a variety of methods and makes estimates and assumptions that are mainly based on market conditions existing at the end of each reporting period.

Although management has used its best judgment in estimating the fair value of its financial instruments, any technique for making said estimates and assumptions involves some level of inherent fragility.



(a) Analysis

The main financial instruments and the estimates and assumptions made by the Company for their valuation are described below:

- Cash and cash equivalents, financial investments, trade accounts receivables and other current assets – considering their nature, terms and maturity, the carrying amounts approximate their fair value.
- Financial liabilities – these instruments are subject to usual market interest rates. The fair value is based on the present value of expected future cash disbursements, at interest rates currently available for debt with similar maturities and terms and adjusted for the Company’s credit risk. Loans and financings are measured at amortized cost, except for certain contracts for which the Company has chosen the fair value option.
- Energy forward contracts - part of the fair value of these financial instruments, are estimated based on the published price quotations in the active markets, as far as the data is existent and accessible in the market. The other part is estimated based on the use of valuation techniques that consider: (i) prices established in purchase and sale operations; (ii) supply risk margin; and (iii) projected market price in the period of availability.
- Other financial instruments – the fair value is determined by calculating their present value through yield curves at the closing dates. The curves and prices used in the calculation for each group of instruments are developed based on data from Brazilian Securities, Commodities and Futures Exchange – B3, Central Bank of Brazil, LME and Bloomberg, interpolated between the available maturities. The main derivative financial instruments are:
 - Swap contracts – the present value of both the assets and liabilities are calculated through the discount of forecasted cash flows by the interest rate of the currency in which the swap is denominated. The difference between the present value of the assets and the liabilities generates its fair value.
 - Forward contracts – the present value is estimated by discounting the notional amount multiplied by the difference between the future price at the reference date and the contracted price. The future price is calculated using the convenience yield of the underlying asset. It is common to use Asian non-deliverable forwards for hedging non-ferrous metals positions. Asian contracts are derivatives in which the underlying is the average price of certain asset over a range of days.
 - Option contracts – the present value is estimated based on the Black and Scholes model, with assumptions that include the underlying asset price, strike price, volatility, time to maturity and interest rate.
 - Zero Cost Collar contracts – the present value of both options is estimated based on the Black model, with assumptions that include the underlying asset price, strike price, volatility, time to maturity and interest rate.

(b) Fair value by hierarchy

	Note	Level 1	Level 2 (ii)	2025 Total
Assets				
Other financial instruments	16 (a)	-	36,767	36,767
Trade accounts receivables		-	192,615	192,615
Investments in equity instruments (i)		5,219	-	5,219
		5,219	229,382	234,601
Liabilities				
Loans and financings designated at fair value (ii)		-	91,598	91,598
Other financial instruments	16 (a)	-	103,893	103,893
		-	195,491	195,491



	Note	Level 1	Level 2 (ii)	2024 Total
Assets				
Other financial instruments	16 (a)	-	5,282	5,282
Trade accounts receivables		-	101,785	101,785
Investments in equity instruments (i)		5,093	-	5,093
		5,093	107,067	112,160
Liabilities				
Loans and financings designated at fair value (ii)		-	92,320	92,320
Other financial instruments	16 (a)	-	37,134	37,134
		-	129,454	129,454

- (i) To determine the fair value of the investments in equity instruments, the Company uses the share’s quotation as of the last day of the reporting period.
(ii) Loans and financings are measured at amortized cost, except for certain contracts for which the Company has elected the fair value option.

The Company discloses fair value measurements based on their level on the following fair value measurement hierarchy:

Level 1:

When fair value is calculated with quoted prices (unadjusted) in active markets for identical assets and liabilities traded in active markets at the balance sheet date. A market is regarded as active if quoted prices are readily and regularly available from an exchange, dealer, broker, industry group, pricing service, or regulatory agency, and those prices represent actual and regularly occurring market transactions on an arm’s length basis. The quoted market price used for financial assets held by the Company is the current bid price.

Level 2:

When fair value is calculated with valuation techniques since the financial instruments are not traded in an active market and all the significant inputs required to identify the fair value of an instrument are observable. Specific valuation techniques used to value financial instruments include:

- Quoted market prices or dealer quotes for similar instruments are used where available;
- The fair values of interest rate swaps are calculated at the present value of the estimated future cash flow based on observable yield curves; and
- The fair value of forward foreign exchange contracts is determined using forward exchange rates at the balance sheet date, with the resulting value discounted to present value.

Other techniques, such as discounted cash flows analysis, are used to determine the fair value of the remaining financial instruments.

Level 3:

When fair value is calculated with inputs for the asset or liability that are not based on observable market data (that is, unobservable inputs). As of December 31, 2025, there were no financial assets and liabilities carried at fair value classified as Level 3.

(c) Investments in equity instruments - Equity interest in Tinka Resources

In 2021, the Company acquired 9.0% of the issued and outstanding common shares of Tinka Resources Limited (“Tinka”), an exploration and development company that holds 100% of the Ayawilca zinc-silver project in Peru.

On May 31, 2022, the Company subscribed to 40,792 thousand additional common shares in a private transaction at approximately USD 0.17 (CAD 0.22) per share, totaling USD 7,000 (CAD 8,974 thousand). Subsequently, on December 17, 2024, the Company subscribed to a further 9,859 thousand common shares at approximately USD 0.07 (CAD 0.10) per share, totaling USD 700 (CAD 986 thousand).

Following these transactions, the Company held 19.86% of Tinka’s outstanding common shares (81,202 thousand shares) and 4,930 thousand warrants to acquire additional common shares.



On September 29, 2025, Tinka announced the consolidation of its common shares on a five-for-one basis, following approval by the TSX Venture Exchange. After the consolidation, the Company continued to hold 19.86% of Tinka’s outstanding common shares, totaling 16,240,442 post-consolidation shares.

On October 6, 2025, Tinka completed a non-brokered private placement issuing 51,918,181 units, each consisting of one common share and one-half of one common share purchase warrant. The Company did not participate in this offering, resulting in the dilution of its interest to 12.15% as of December 31, 2025, while maintaining ownership of 16,240,442 shares.

Consistent with the accounting policy applied to the original 2021 acquisitions, the investment in Tinka continues to be measured as an equity instrument at cost on initial recognition and subsequently measured at fair value through other comprehensive income.

15 Cash and cash equivalents

Accounting policy

Cash and cash equivalents include cash, bank deposits, and highly liquid short-term investments (investments with an original maturity of less than 90 days), which are readily convertible into a known amount of cash and subject to an immaterial risk of changes in value. Bank overdrafts are shown within Loans and financing in current liabilities in the balance sheet.

(a) Composition

	2025	2024
Cash and banks	383,994	424,258
Term deposits	131,877	196,279
	515,871	620,537

16 Other financial instruments

Accounting policy

Derivatives are initially recognized at fair value as at the date on which a derivative contract is entered into and are subsequently measured at fair value. Derivatives are only used for risk mitigation purposes and not as speculative investments. When derivatives do not meet the hedge accounting criteria, they are classified as held for trading and accounted for at fair value through profit or loss.

For derivatives that meet the hedge accounting criteria, the Company documents at the inception of the hedging transaction of the relationship between hedging instruments and hedged items, as well as its risk management objectives and strategy for undertaking the hedge transactions. The Company also documents its assessment, both at hedge inception and on an ongoing basis, whether the derivatives that are used in hedging transactions and accounted for as hedge accounting were, and will continue to be, highly effective in offsetting changes in the fair value or cash flow of hedged items.

(i) Derivative financial instruments designated as cash flow hedge

Derivatives are classified as cash flow hedges when they are linked to a highly probable forecast transaction. The Company applies this classification to its concentrate sales hedging program (“Strategic Hedge”) and certain strategies related to its mismatches of quotational period (“QP”) hedging program (“Book Hedge”).

The hedge ratio is 1:1 for both hedging programs, as the quantity of purchase or sales designated as being hedged matches the notional amount of the hedging instrument. Since these operations involve highly probable future purchase and/or sales that are not yet recognized, the related risk stems from the volatility of cash flows; therefore, the exposure is treated exclusively as a cash flow hedge.

The Company assesses, on an ongoing basis, that a clear economic relationship exists between the hedging instruments and the hedged items, and that the hedge ratios applied are consistent with its risk management strategy.

Notes to the consolidated financial statements
At and for the year ended on December 31, 2025
All amounts in thousands of US dollars, unless otherwise stated



Derivative financial instruments are initially recognized at fair value on the trade date and subsequently measured at fair value at each reporting date.

For qualifying cash flow hedges:

- the effective portion of changes in the fair value of the hedging instruments is recognized in Other Comprehensive Income (OCI) and accumulated in equity; and
- the amounts accumulated in equity are reclassified to income statement in the same period(s) and during which the hedged forecast gold and silver sales affect income statement, while gains or losses related to the non-effective portion are immediately recognized as “Other income and expenses, net” in the income statement.

When a hedging instrument expires, is sold or no longer meets the criteria for hedge accounting, any cumulative gain or loss existing in shareholders’ equity at that time remains in shareholders’ equity and is recognized when the forecast transaction is ultimately recognized in the income statement. When a forecasted transaction is no longer expected to occur, the cumulative gain or loss that was previously accounted in shareholders’ equity is immediately transferred to the income statement within “Other income and expenses, net”.

Any ineffective portion, if any, is recognized immediately in the income statement.

The main sources of hedge ineffectiveness identified:

- Changes in the hedged item, such as modifications in the estimates of future cash flows related to customer revenues.
- Forecast projections of purchases and sales at the time of hedge contracts that later prove to be different from what was actually purchased/sold.
- Variations in the counterparty’s credit risk, which may impact its ability to meet contractual obligations.
- Differences between the hypothetical derivative and the actual hedging instrument (ZCC), which may lead to mismatches in fair value measurement or in the underlying risk dynamics.

No significant hedge ineffectiveness is expected in the Strategic Hedge program, as we have secured up to 60% of the monthly forecasted sales (ex-streaming) for the year 2026 for Nexa Peru. This provides a considerable margin of error in the forecasted volumes for 2026. However, for the Book Hedge program, some ineffectiveness may occur because for certain QPs in some delivery months, we secure 100% of the monthly forecasted purchases/sales. Any ineffective portion is recognized immediately in the income statement.

	Reserve in OCI	Reclassified from OCI to P&L	Ineffectiveness in Other income and expenses
Cash flow hedge accounting			
Concentrate sales	(6,481)	-	-
Mismatches of quotational periods	1,331	(2,005)	201
	(5,150)	(2,005)	201

(ii) Derivative financial instruments designated as fair value hedge

Derivatives that are designated for hedge accounting recognition are qualified as fair value hedges when they are related to assets or liabilities already recognized in the consolidated balance sheet.

Changes in the fair values of derivatives that are designated and qualify as fair value hedges and changes in the fair value of the hedged item are recorded in the income statement in the same period.

Currently, the Company does not have any derivatives designated as fair value hedge.

(iii) Derivatives financial instruments not designated as hedge accounting

Changes in the fair value of derivative financial instruments not designated as hedge accounting are recognized in the income statement in the line affected by the related transaction.



(iv) Energy forward contracts

The Company, through its energy subsidiaries, is an energy self-producer and authorized to sell energy both in the free and regulated markets as Energy Traders. A portion of these transactions involve contracts for delivery of energy for internal use to meet production demands and are not therefore classified as financial instruments.

Another portion of these transactions consists of sales of energy not used in production process. These transactions take place in an active market and meet the definition of financial instruments, because they are settled in energy and readily convertible into cash. Such contracts are recorded as derivatives and are recognized in the Company's balance sheet at fair value on the date the derivative is entered and subsequently revalued at their fair values at the reporting date. The fair value recognition and realization of these financial instruments are recorded under "Other income and expenses, net".

The fair values of these derivatives are estimated partly based on price quotes in active markets, as long as such market data exists, and partly through the use of valuation techniques, which consider: (i) prices established in the purchase and sale operations; (ii) the risk margin on the supply; and (iii) the projected market price during the period of availability. Whenever the fair value upon initial recognition for these contracts differs from the transaction price, a loss or gain on the fair value is recognized in the profit or loss for the year. The transactions carried out by the company Pollarix S.A. and Nexa Energy Comercializadora de Energia Ltda in the Free Contracting Environment ("ACL") resulted in a gain from the sale of surplus energy, which was recognized at its fair value on the transaction date.

(v) Offtake agreement

On January 25, 2022, the Company signed an offtake agreement with an international offtaker (the "Offtaker") a subsidiary of a BBB rated company, in which it agreed to sell 100% of the copper concentrate to be produced by Aripuanã for a 5-year period up to a total of 30,810 tons, at the lower of current spot market prices or a price cap. In July 2023, the contract was amended, including provisions for additional deliveries and time extension until Nexa fulfills the delivery of the originally agreed-upon volumes. The transaction price is the lower of current market prices or a price cap, from the most updated schedule of copper concentrates deliveries. The Company began deliveries of copper concentrates in June 2023.

The offtake agreement resulted from negotiations with the Offtaker to sell the copper concentrate in lieu of paying future royalties related to the previous acquisition of the Aripuanã project mining rights from the Offtaker. The amount of USD 46,100, representing the fair value of the agreement at its inception date, was recognized as an intangible asset and is being amortized over the life of the mine according to the Units of Production ("UoP") method.

Additionally, the Company opted to voluntarily and irrevocably designate the entire offtake agreement at fair value through profit and loss within the scope of IFRS 9, rather than separate the value of the embedded derivative associated with the price cap, recognizing a non-cash accumulated loss of USD 49,254 as of December 31, 2025 (gain as of December 31, 2024: USD 3,347), due mainly to significant variation in the copper price projection, as disclosed in Note 9.

(a) Composition

				2025
	Derivatives financial instruments	Offtake agreement measured at FVTPL	Energy forward contracts at FVTPL (i)	Total
Current assets	16,554	-	2,089	18,643
Non-current assets	18,124	-	-	18,124
	34,678	-	2,089	36,767
Current liabilities	(11,646)	(20,587)	-	(32,233)
Non-current liabilities	(20,691)	(43,322)	(7,647)	(71,660)
	(32,337)	(63,909)	(7,647)	(103,893)
Other financial instruments, net	2,341	(63,909)	(5,558)	(67,126)



				2024
	Derivatives financial instruments	Offtake agreement measured at FVTPL	Energy forward contracts at FVTPL	Total
Current assets	5,279	-	-	5,279
Non-current assets	3	-	-	3
	5,282	-	-	5,282
Current liabilities	(3,600)	(2,352)	(2,571)	(8,523)
Non-current liabilities	(198)	(17,314)	(11,099)	(28,611)
	(3,798)	(19,666)	(13,670)	(37,134)
Other financial instruments, net	1,484	(19,666)	(13,670)	(31,852)

(i) On December 31, 2025, due to the current scenario of high energy supply in Brazil, the Company has a projected energy surplus on forward contracts with some suppliers. Consequently, the Company recognized the fair value arising from the mark-to-market of current purchase until 2026, which resulted in an income in the amount of USD 9,608. This amount was accounted for as an income within "Other income and expenses, net" (Note 9) and will vary according to the market's energy prices.

(b) Derivative financial instruments: Fair value by strategy

			2025		2024
Strategy	Per Unit	Notional	Fair value	Notional	Fair value
Concentrate Sales					
Silver Zero Cost Collar	Oz	1,651,819	(6,478)	-	-
Gold Zero Cost Collar	Oz	2,067	(3)	-	-
			(6,481)		-
Mismatches of quotational periods					
Zinc forward	ton	239,304	1,053	232,717	1,449
			1,053		1,449
Metal sales					
Zinc forward	ton	3,249	548	2,584	203
			548		203
Interest rate risk					
IPCA vs. CDI	BRL	100,000	(421)	100,000	(168)
CDI vs. USD (i)	BRL	650,000	7,642	-	-
			7,221		(168)
			2,341		1,484

(i) On December 16, 2025, the Company implemented a new gold and silver revenue hedge program using Zero Cost Collar ("ZCC") derivative instruments as part of its commodity risk management strategy. This was done to reduce the Peru operations' exposure to commodity price risk in 2026 and to protect its margins. The ZCC have monthly maturities until December 2026, in line with the forecast volume percentages provided by the commercial team. A ZCC involves simultaneously buying and selling options to limit exposure to adverse price movements of commodities while capping potential gains within a predefined range.

(ii) On March 28, 2025, NEXA executed a cross-currency swap with a notional amount of USD 112,652 (BRL 650,000 at the transaction date) to hedge the BRL exposure related to Nexa BR debentures issued on April 2, 2024, in the same BRL amount. The swap mirrors the interest and principal payment terms of the debentures, which mature on March 28, 2030, with semi-annual payments. Under the agreement, NEXA pays 6.209% on the USD notional receives CDI + 1.50% p.a. floating on the BRL notional. This instrument is recognized at fair value through profit or loss (FVTPL) under net financial results. Since inception, the Company has recorded increased impacts from changes in BRL exposure on related assets and liabilities, compared to December 2024, as presented in Table A above.



(c) Derivative financial instruments: Changes in fair value - At the end of each year

						2025
Strategy	Cost of sales	Net revenues	Other income and expenses, net - note 9	Net financial results - note 10	Other comprehensive income	Realized (loss) gain
Concentrate Sales	-	-	-	-	(6,481)	-
Mismatches of quotational periods	(16,807)	6,471	201	-	1,331	8,584
Non-standard price metal sales	-	1,445	-	-	-	(1,132)
Interest rate risk - IPCA vs. CDI	-	-	-	(554)	-	343
Interest rate risk - CDI vs. USD	-	-	-	13,360	-	(6,108)
2025	(16,807)	7,916	201	12,806	(5,150)	1,687

						2024
Strategy	Cost of sales	Net revenues	Other income and expenses, net - note 9	Net financial results - note 10	Other comprehensive income	Realized (loss) gain
Concentrate Sales	-	-	-	-	-	-
Mismatches of quotational periods	(33,063)	27,514	746	-	(872)	10,299
Non-standard price metal sales	-	3,626	-	-	-	(4,449)
Interest rate risk - IPCA vs. CDI	-	-	-	135	-	148
Interest rate risk - CDI vs. EUR	-	-	-	1,236	-	(1,236)
2024	(33,063)	31,140	746	1,371	(872)	4,762

(d) Energy forward contracts

		2025	2024	Notional 2025	Notional 2024
Balance at the beginning of the year		(13,670)	(16,064)		
Changes in fair value		9,608	81	-	-
Foreign exchanges effects		(1,496)	2,313	-	-
Energy forward contracts (Megawatts)		-	-	(95,314)	58,621
Balance at the end of year		(5,558)	(13,670)		

(e) Offtake agreement measured at FVTPL: Changes in fair value

		2025	2024	Notional (tons) 2025	Notional (tons) 2024
Balance at the beginning of the year		(19,666)	(19,565)	22,288	27,562
Changes in fair value (i)		(49,254)	(3,347)	-	-
Deliveries of copper concentrates (ii)		-	-	(3,626)	(5,274)
Price cap realized (iii)		5,011	3,246	-	-
Balance at the end of year		(63,909)	(19,666)	18,662	22,288

(i) Changes in fair value increased for future deliveries, due to a higher forward copper price in the long term.

(ii) Since June 2023, the Company is delivering copper concentrates under an offtake agreement with an offtaker signed in January 2022 (amended in July 2023) to sell 100% of the copper concentrate produced by Aripuanã for 5 years or until NEXA fulfills the delivery of the specified agreed volume. The Company estimates that the full committed copper volumes will be delivered until the end of 2028. The transaction price agreed with the offtaker is below current market prices due to a price cap established in this agreement.

(iii) During 2025, copper prices exceeded the price cap, leading to a reduction in the financial instrument liability associated with these sales transactions. Revenue was recognized based on the fair value of the instruments.

17 Trade accounts receivables

Accounting policy

Trade accounts receivables are amounts due from customers for goods sold or services provided in the ordinary course of the Company's business.

Notes to the consolidated financial statements
At and for the year ended on December 31, 2025

All amounts in thousands of US dollars, unless otherwise stated

Trade accounts receivables are recognized initially at fair value and subsequently measured at:

(i) Fair value through profit or loss when they are related to the Company's accounts receivables portfolio outstanding at the balance sheet date that is designated at inception to be included in a forfaiting program whereby the Company, at its discretion, can discount certain outstanding trade accounts receivables and receive payments in advance. The program is used to meet short-term liquidity needs. Trade accounts receivables within this program are derecognized since all risks and rewards, control of the assets and contractual rights to receive the assets cash flows are transferred to the counterparty.

(ii) Fair value through profit or loss when they are related to sales that are subsequently adjusted to changes in LME prices, which are recorded in net revenues. These accounts receivable do not meet the SPPI criteria because there is a component of commodity price risk that modifies the cash flows that otherwise would be required by the sales contract.

(iii) Amortized cost using the effective interest rate method, less impairment, when the receivables do not meet the aforementioned classifications.

Credit risk can arise from non-performance by counterparties of their contractual obligations to the Company. To ensure an effective credit risk evaluation, management applies procedures related to the application for credit granting and approvals, renewal of credit limits, continuous monitoring of credit exposure in relation to established limits and events that trigger requirements for secured payment terms. As part of the Company's process, the credit exposures with all counterparties are regularly monitored and assessed.

The Company applies the IFRS 9 simplified approach to measure the impairment losses for trade accounts receivables. This approach requires the use of the lifetime expected credit losses on its trade accounts receivables measured at amortized cost. To calculate the lifetime expected credit losses the Company uses a provision matrix and forward-looking information. The additions to impairment of trade accounts receivables are included in selling expenses. Trade accounts receivables are generally written off when there is no expectation of recovering additional cash.

(a) Composition

	2025	2024
Trade accounts receivables	232,002	145,409
Related parties - note 20	1,532	885
Impairment of trade accounts receivables	(4,946)	(5,501)
	228,588	140,793

(b) Changes in impairment of trade accounts receivables

	2025	2024
Balance at the beginning of the year	(5,501)	(6,561)
Additions	(7,560)	(11,754)
Reversals	8,488	12,084
Foreign exchange gain (losses)	(373)	730
Balance at the end of year	(4,946)	(5,501)

(c) Analysis by currency

	2025	2024
USD	207,642	121,240
BRL	20,946	19,540
Other	-	13
	228,588	140,793

(d) Aging of trade accounts receivables

	2025	2024
Current	216,657	129,918
Up to 3 months past due	12,609	12,693
From 3 to 6 months past due	30	568
Over 6 months past due	4,238	3,115
	233,534	146,294
Impairment of trade accounts receivables	(4,946)	(5,501)
	228,588	140,793



18 Inventory

Accounting policy

Inventory is stated at the lower of the cost and the net realizable value. Cost is determined using the weighted average cost method. The cost of finished goods and work in progress comprises raw materials, direct labor, other direct costs and related fixed production overheads (based on normal operating capacity). The normal operating capacity is supported by the historical annual production. The idle capacity cost is calculated considering the reduction in the level of production due to unusual events and the level of production not achieved in the ramp-up period. Variable production overhead costs are included in inventory costs based on the actual production level. Imports in transit are stated at the accumulated cost of each import. At the end of the reporting period, the net realizable value of inventories is assessed and a provision for non-realizable losses on obsolete or slow-moving inventory may be recognized.

The provision for net realizable value is estimated considering the current selling price in the ordinary course of business, less any additional selling expenses. The write-downs and reversals are recognized within Cost of sales.

A provision for obsolete inventory, finished products, semi-finished products, raw materials and auxiliary materials is recognized when items cannot be used in normal production or sold because they are damaged or do not meet the Company's specification and is recognized as "Other income and expenses".

Slow-moving provision is recognized for inventory items that are in excess of the expected normal use or sale. The amount of slow-moving provision recognized is determined based on 20% of the carrying amount for each six-month period without use or sale and is recognized as "Other income and expenses".

(a) Composition

	2025	2024
Finished products	139,488	126,916
Semi-finished products	120,155	94,980
Raw materials	80,434	37,857
Auxiliary materials and consumables	128,503	105,160
Inventory provisions	(54,185)	(39,717)
	414,395	325,196

(b) Changes in the provision of the year

	2025	2024
Balance at the beginning of the year	(39,717)	(38,510)
Additions	(41,333)	(30,258)
Reversals	28,871	21,663
Foreign exchange gains (losses)	(2,006)	5,445
Divestments	-	1,943
Balance at the end of year	(54,185)	(39,717)

19 Other assets and other liabilities

(a) Other assets

	2025	2024
Tax claim payments (i)	125,670	64,656
Other recoverable taxes (ii)	102,187	103,261
Prepaid expenses	9,364	7,945
Judicial deposits	9,221	13,912
Advances to third parties	3,624	7,575
Other assets	38,586	26,572
	288,652	223,921
Current assets	77,225	88,195
Non-current assets	211,427	135,726



(i) This amount mainly consists of USD 102,147 related to tax claim payments concerning withholding taxes and litigation over transfer pricing adjustments in transactions with related parties (USD 64,656 in December 2024), and — USD 20,532 related to income tax claim payments arising from the interpretation of the application of Cerro Lindo’s stability agreement for the 2018 fiscal year (USD 18,300 in December 2024). Both payments stem from ongoing legal discussions, in which the Company has not recognized any provision, but was required to "settle the payment" to continue pursuing the matters at judicial levels. The payments were made in Peruvian soles and are subject to exchange rate fluctuations against the US dollar.

(ii) Other recoverable taxes are composed mainly of tax credits related to ICMS (Tax on Circulation of Goods and Services), primarily generated from purchases. Additionally, there are PIS (Social Integration Program) and COFINS (Contribution to Social Security Financing) credits, essentially arising from the acquisition of fixed assets.

(b) Other liabilities

	2025	2024
Advances from customers (i)	79,205	76,395
Other tax liabilities (ii)	70,292	52,978
Use of public assets	18,808	18,047
Other trade payables	18,720	20,921
Other liabilities	19,078	17,915
	206,103	186,256
Current liabilities	143,834	120,236
Non-current liabilities	62,269	66,020

(i) On December 17, 2025, the Company entered into a second commercial advance agreement with a customer, in which it agreed to sell concentrates produced by El Porvenir for twelve months period and received an advance payment of USD 50,000. The advance payment was recorded as “Other liabilities”, and the related revenues will be recognized upon delivery of the concentrates, when the corresponding performance obligations are satisfied. (As of December 31, 2024: USD 50,000 received under a similar commercial advance agreement).

(ii) Other tax liabilities are composed of various taxes arising from the Company's operations, including amounts related to COFINS, PIS and ICMS, mainly associated with routine operational activities, as well as ISS (Service Tax) applicable to service-related transactions. The balance also includes Other Taxes, Duties and Contributions, which comprise- ancillary and nonrecurring charges, together with Mining Special Tax and Fees and other regulatory charges classified as Various Taxes. Additionally, it includes amounts related to Mining Rights resulting from specific legal obligations associated with mining activities, and VAT Payable, arising from transactions subject to value-added tax in certain -jurisdiction.

(c) Brazilian Tax reform

In 2025, the Tax Reform was regulated by Complementary Law No. 214 for Brazilian entities, which establishes the gradual replacement of current taxes by the Goods and Services Tax (IBS) and the Contribution on Goods and Services (CBS).

Considering that the transition period is expected to begin in 2026, Management has assessed that there are no material impacts to be recognized in the Financial Statements for the year ended December 31, 2025.

Management continues to perform assessments of the potential impacts of the Tax Reform on its operations, including tax, accounting and operational aspects, as well as to evaluate and implement the necessary system and process adjustments to ensure the Company’s appropriate adaptation to the new tax framework.

20 Related parties

The Company’s related parties are subsidiaries, joint ventures, associates, shareholders and its related entities and key management personnel of the Company.

Nexa Resources S.A.

Notes to the consolidated financial statements
At and for the year ended on December 31, 2025

All amounts in thousands of US dollars, unless otherwise stated



(a) Balances

	Cash and cash equivalents		Trade accounts receivables		Related parties' assets		Trade payables, lease and confirming liabilities		Dividends payable		Related parties' liabilities	
Assets and liabilities	2025	2024	2025	2024	2025	2024	2025	2024	2025	2024	2025	2024
Parent												
Votorantim S.A.	-	-	-	-	2	2	1,418	101	-	-	4,694	3,658
Related parties												
Acerbrag S.A.	-	-	792	-	-	-	-	-	-	-	-	-
Auren Comercializadora de Energia Ltda.	-	-	-	-	-	-	564	907	-	-	-	-
Auren Energia S.A.	-	-	-	-	-	-	-	-	24,234	1,307	-	-
Campos Novos Energia S.A.	-	-	-	-	-	1,544	10,008	7,104	-	-	-	-
Companhia Brasileira de Alumínio	-	-	163	299	-	-	-	70	-	-	1	7
Scotiabank Peru SAA (i)	40,294	44,251	-	-	-	-	63,866	30,216	-	-	-	-
Votorantim Cimentos S.A.	-	-	576	586	-	-	393	412	-	-	-	-
Votorantim International CSC S.A.C	-	-	-	-	-	-	-	-	-	-	-	420
Other	-	-	1	-	-	-	99	22	2,684	2,400	-	-
	40,294	44,251	1,532	885	2	1,546	76,348	38,832	26,918	3,707	4,695	4,085
Current	40,294	44,251	1,532	885	-	-	72,292	35,806	26,918	3,707	-	-
Non-current	-	-	-	-	2	1,546	4,056	3,026	-	-	4,695	4,085
	40,294	44,251	1,532	885	2	1,546	76,348	38,832	26,918	3,707	4,695	4,085

(b) Transactions

	Sales			Purchases		
Profit and loss	2025	2024	2023	2025	2024	2023
Parent						
Votorantim S.A.	-	-	-	6,910	8,908	7,484
Related parties						
Acerbrag S.A.	1,382	-	-	-	-	-
Auren Comercializadora de Energia Ltda.	-	1,140	744	5,041	6,384	7,971
Campos Novos Energia S.A.	-	-	-	47,560	51,973	61,545
Companhia Brasileira de Alumínio	337	640	161	65	-	210
Group Andrade Gutierrez (ii)	-	-	-	-	19,832	73,757
Scotiabank Peru SAA (i)	-	-	-	573	282	17
Votorantim Cimentos S.A.	-	-	-	-	-	1,050
Votorantim International CSC S.A.C	-	-	-	-	-	5,122
Other	-	-	-	3,238	1,061	436
	1,719	1,780	905	63,337	88,440	157,592



(i) Scotiabank Peru S.A.A., an entity for which one member of the Company’s Board of Directors serves as an independent chairman and may have significant influence, has transactions with Nexa related to leasing and confirming operations. The outstanding balances arising from these transactions as of December 31, 2025, amounted to USD 8,667 (2024: USD 5,404) for leasing operations and USD 55,199 (2024: USD 24,812) for confirming operations. Confirming operations consist of arrangements whereby payments otherwise due to suppliers are settled through the bank. In addition, purchase transactions presented in chart (b) above relate to interest expenses on lease contracts.

(ii) Nexa entered into contracts with Consórcio Construtor Nova Aripuanã (a consortium of Andrade Gutierrez group companies) for construction and operational services related to the Aripuanã project. At that time, a close family member of one of the Company’s board members was considered to have significant influence on the holding level of Andrade Gutierrez. In mid-2024, the board member associated with this entity terminated their contract with Nexa, and Andrade Gutierrez ceased to be regarded as a related party.

(c) Key management compensation

Key management includes the members of the Company's global executive team and Board of Directors. Key management compensation, including all benefits, was as follows:

	2025	2024
Short-term benefits	8,061	7,713
Other long-term benefits	457	116
	8,518	7,829

Short-term benefits include fixed compensation, payroll charges and short-term benefits under the Company’s variable compensation program. Other long-term benefits relate to the variable compensation program.

21 Property, plant and equipment

Accounting policy

Property, plant and equipment are stated at their historical cost of acquisition or construction less accumulated depreciation and any recognized impairment losses. Historical cost includes expenditures that are directly attributable to the acquisition and construction of the assets. The mining projects development costs that are registered within Property, plant and equipment include (i) direct and indirect costs attributed to building the mining facilities; (ii) financial charges incurred during the construction period; (iii) depreciation of other fixed assets used during construction; and (iv) estimated decommissioning and site restoration expenses.

Subsequent costs are included in the asset’s carrying amount, or recognized as a separate asset as appropriate, only when it is probable that future economic benefits associated with the item will flow to the Company and they can be measured reliably. The carrying amount of any component accounted for as a separate asset is derecognized when replaced. All other repairs and maintenance are charged to the income statement during the reporting period in which they are incurred.

Replacement costs are included in the carrying amount of the asset when it is probable that the Company will realize future economic benefits in excess of the benefits expected from the asset in its current condition. Replacement costs are depreciated over the remaining useful life of the related asset.

Land is not depreciated. Depreciation of other assets is calculated using the straight-line method to reduce their costs to their residual values over their estimated useful lives.

The assets' residual values and useful lives are reviewed annually and adjusted if appropriate.

An asset carrying amount is reduced to its recoverable amount when it is greater than the estimated recoverable amount, in accordance with the criteria adopted by the Company to determine the recoverable amount.



Gains and losses on disposals are determined by comparing the proceeds with the carrying amount and are recognized within “Other income and expenses, net” in the income statement.

Loans and financings costs directly related to the acquisition, construction or production of a qualifying asset that requires a substantial period of time to prepare for its intended use or sale are capitalized as part of the cost of that asset when it is probable that future economic benefits associated with the item will flow to the Company and costs can be measured reliably.

Stripping costs

In its surface mining operations, the Company must remove overburden and other waste to gain access to mineral ore deposits. The removal process is referred to as stripping. During the development of a mine, before production commences, when the stripping activity improves access to the ore body, the component of the ore body for which access has been improved can be identified and the costs can be measured reliably, a stripping activity asset is capitalized as part of the investment in the construction of the mine and is accounted for as part of Property, plant and equipment within assets and projects under construction. Subsequently, when the operation starts, the stripping costs are transferred to “Dams and Buildings” and are depreciated by a linear calculation considering the asset’s useful life.

Stripping costs incurred during the production phase of operations are treated as production costs and are part of the inventory cost.

Mining Projects

The Company starts to capitalize a project’s mineral exploration and evaluation costs at the beginning of its feasibility study phase, following completion of a pre-feasibility study in which probability of economic feasibility has been established and where there is sufficient geologic and economic certainty of converting mineral resources into proven and probable mineral reserves at a development stage (construction or execution phase) or production stage based on various factors including the known geology, metallurgy and life-of-mine (“LOM”) plans.

Capitalized costs incurred during a project’s mineral exploration and evaluation stages are classified within Mining projects, under Property, plant and equipment until the project starts its development stage and are only depreciated by the UoP method once the development stage finishes and the project’s operation start.

Costs incurred during a project’s development stage are also capitalized under Property, plant, and equipment but within Assets and projects under construction. In this way, the capitalized mineral exploration and evaluation costs will remain within Mining projects and will only be depreciated by the UoP method once the development stage finishes and the project’s operation starts.

Once the development stage is finished and the project’s operation starts, the capitalized development costs are reclassified to the appropriate group of assets considering their nature and are depreciated on a linear calculation based on the assets’ useful life.

Based on the above, once a project begins operation, there will be depreciation coming from the project’s capitalized mineral exploration and evaluation costs within the Mining projects account and based on the UoP method and from the project’s capitalized development costs within the corresponding group of assets based on their useful life.

The carrying value of the capitalized mineral exploration and evaluation costs, which remain within Mining projects, and the capitalized development costs, which are within Assets and projects under construction, of the projects are assessed for impairment at least annually or whenever evidence indicates that the assets may be impaired in accordance with IFRS 6 and IAS 36. If the Company decides at any moment to discontinue the project, this could be an impairment indicator that will be assessed under the impairment test. For purposes of this impairment assessment, the projects are allocated to cash generating units (“CGUs”) when applicable. The annual impairment test is disclosed in note 31.



Notes to the consolidated financial statements
At and for the year ended on December 31, 2025
All amounts in thousands of US dollars, unless otherwise stated

Refer to note 8 for the Company’s accounting policy related to expensed mineral exploration and project evaluation costs for mining projects.
Costs to acquire exploration legal mining rights are included as Intangible within Rights to use natural resources as explained in note 23.

Asset retirement obligations

An asset retirement obligation is an obligation related to the permanent removal from service of a tangible long-lived asset that results from the acquisition, construction or development, or the normal operations of a tangible long-lived asset. At the initial recognition of an asset retirement obligation and at the periodical revisions of the expected disbursements and the discount rate, the changes in the liability are charged to Property, plant and equipment.
The capitalized amount recognized in Property, plant and equipment is depreciated based on the UoP method. Any reduction in the provision that exceeds the carrying amount of the asset, is immediately recognized in the income statement as “Other income and expenses, net.”

Impairment

Refer to note 31 for the Company’s accounting policy related to impairment of Property, plant and equipment.



(a) Changes in the year

							2025
	Lands, dam and buildings	Machinery, equipment, and facilities	Assets and projects under construction	Asset retirement obligations	Mining projects (i)	Others	Total
Balance at the beginning of the year	898,162	707,792	313,712	94,345	59,552	23,945	2,097,508
Cost	1,673,095	2,487,702	381,216	188,759	208,627	34,817	4,974,216
Accumulated depreciation and impairment	(774,933)	(1,779,910)	(67,504)	(94,414)	(149,075)	(10,872)	(2,876,708)
Balance at the beginning of the year	898,162	707,792	313,712	94,345	59,552	23,945	2,097,508
Additions	-	2	351,857	8,304	-	10	360,173
Disposals and write-offs	(46)	(2,337)	(851)	-	-	(82)	(3,316)
Depreciation	(72,746)	(110,002)	-	(8,785)	(1,020)	(722)	(193,275)
Impairment reversal (loss) of long-lived assets - note 31	2,761	(1,415)	(3,963)	9,331	1,143	6	7,863
Foreign exchange effects	75,273	60,144	11,260	10,522	710	1,832	159,741
Remeasurement	-	-	-	3,093	-	-	3,093
Effect of new subsidiary acquisition	571	55	-	-	-	228	854
Transfers	156,214	52,087	(202,601)	-	(4,707)	38	1,031
Balance at the end of year	1,060,189	706,326	469,414	116,810	55,678	25,255	2,433,672
Cost	1,942,174	2,586,948	542,522	213,674	126,979	37,525	5,449,822
Accumulated depreciation and impairment	(881,985)	(1,880,622)	(73,108)	(96,864)	(71,301)	(12,270)	(3,016,150)
Balance at the end of year	1,060,189	706,326	469,414	116,810	55,678	25,255	2,433,672
Average annual depreciation rates %	4	11	-	UoP	UoP	8	
	Lands, dam and buildings	Machinery, equipment, and facilities	Assets and projects under construction	Asset retirement obligations	Mining projects (i)	Others	Total
Balance at the beginning of the year	914,366	848,420	445,440	80,361	121,760	28,267	2,438,614
Cost	1,710,083	2,896,565	512,925	219,449	215,913	44,601	5,599,536
Accumulated depreciation and impairment	(795,717)	(2,048,145)	(67,485)	(139,088)	(94,153)	(16,334)	(3,160,922)
Balance at the beginning of the year	914,366	848,420	445,440	80,361	121,760	28,267	2,438,614
Additions	-	667	276,839	45,891	-	85	323,482
Disposals and write-offs	(23)	(3,408)	(8,984)	-	(4,111)	(53)	(16,579)
Depreciation	(104,929)	(113,679)	-	(5,221)	(834)	(1,201)	(225,864)
Impairment reversal (loss) of long-lived assets - note 31	12,147	964	(7,149)	1,495	(50,197)	336	(42,404)
Divestments	(2,990)	(4,265)	(290)	(1,377)	(4,150)	(381)	(13,453)
Foreign exchange effects	(163,559)	(133,501)	(34,196)	(16,857)	(2,946)	(4,369)	(355,428)
Remeasurement	-	-	-	(9,947)	-	-	(9,947)
Transfers	243,150	112,594	(357,948)	-	30	1,261	(913)
Balance at the end of year	898,162	707,792	313,712	94,345	59,552	23,945	2,097,508
Cost	1,673,095	2,487,702	381,216	188,759	208,627	34,817	4,974,216
Accumulated depreciation and impairment	(774,933)	(1,779,910)	(67,504)	(94,414)	(149,075)	(10,872)	(2,876,708)
Balance at the end of year	898,162	707,792	313,712	94,345	59,552	23,945	2,097,508
Average annual depreciation rates %	4	9	-	UoP	UoP		



(i) Only mining projects of the operating unit Atacocha are being depreciated under the UoP method.

22 Intangible assets

Accounting policy

Goodwill

Goodwill arising from business combinations is measured as the excess of the sum of the consideration transferred, the amount of any non-controlling interests in the acquiree, and the fair value of the acquirer's previously held equity interest in the acquiree (if any) over the net assets acquired. Goodwill is not amortized but is tested for impairment annually and whenever circumstances indicate that the carrying amount may not be recovered. Refer to note 31 for the Company's impairment accounting policy and critical estimates and assumptions and judgments.

Rights to use natural resources

The significant costs incurred for the acquisition of legal rights to explore mining concessions and develop mineral properties are capitalized and are amortized as production costs when the associated projects start their commercial operation using the UoP method over their useful lives. Useful lives consider the period of extraction for both mineral reserves and mineral resources, which includes a portion of the Company's inferred resources in the Company's mining operations. The costs for the acquisition of legal rights attributed to mining projects are not depreciated until the project becomes operational and production activities start.

The costs incurred are impaired if the Company determines that the projects and their mineral rights associated have no future economic value. For purposes of impairment assessment, rights to use natural resources are allocated to CGUs. Refer to note 31 for the Company's impairment accounting policy.

Critical accounting estimates, assumptions and judgments - Quantification of mineral reserves and resources for useful life calculation

The Company classifies proven and probable reserves, and measured, indicated and inferred resources based on the definitions of the United States Securities and Exchange Commission's (SEC) Modernized Property Disclosure Requirements for Mining Registrants as described in Subpart 229.1300 of Regulation S-K, Disclosure by Registrants Engaged in Mining Operations (S-K 1300) and Item 601 (b)(96) Technical Report Summary.

The useful life determination applied to the rights to use natural resources reflect the pattern in which the benefits are expected to be derived by the Company and is based on the estimated life of mine ("LOM"). Any changes to the LOM, based on new information regarding estimates of mineral reserves and mineral resources and mining plan, may affect prospectively the LOM and amortization rates.

The estimation process of mineral reserves and mineral resources is based on a technical evaluation, which includes geological, geophysics, engineering, environmental, legal and economic estimates and may have relevant impact on the economic viability of the mineral reserves and mineral resources. These estimates are reviewed periodically, and any changes are reflected in the expected LOM. Management is confident based on testing, continuity of the ore bodies and conversion experience that a part of the inferred resources will be converted into measured and indicated resources, and if they are economically recoverable, and such inferred resources may also be classified as proven and probable mineral reserves. Where the Company can demonstrate the expected economic recovery with a high level of confidence, inferred resources are included in the amortization calculation.

However, the future conversion of inferred resources is inherently uncertain and involves estimates, assumptions and judgments that could have a material impact on the Company's results of operations.



(a) Changes in the year

				2025
	Goodwill (i)	Rights to use natural resources	Others	Total
Balance at the beginning of the year	305,397	507,491	21,799	834,687
Cost	316,087	1,810,609	49,896	2,176,592
Accumulated amortization and impairment	(10,690)	(1,303,118)	(28,097)	(1,341,905)
Balance at the beginning of the year	305,397	507,491	21,799	834,687
Additions	-	-	1,994	1,994
Disposals and write-offs	-	-	(1)	(1)
Amortization	-	(48,122)	(3,627)	(51,749)
Impairment reversal of long-lived assets	-	83,817	26	83,843
Foreign exchange effects	811	6,844	2,523	10,178
Effect of new subsidiary acquisition	-	-	7	7
Transfers	-	(1,184)	153	(1,031)
Balance at the end of year	306,208	548,846	22,874	877,928
Cost	318,239	1,844,122	51,630	2,213,991
Accumulated amortization and impairment	(12,031)	(1,295,276)	(28,756)	(1,336,063)
Balance at the end of year	306,208	548,846	22,874	877,928
Average annual depreciation rates %	-	UoP	5	
				2024
	Goodwill (i)	Rights to use natural resources	Others	Total
Balance at the beginning of the year	307,112	579,551	22,616	909,279
Cost	630,787	1,859,147	53,865	2,543,799
Accumulated amortization and impairment	(323,675)	(1,279,596)	(31,249)	(1,634,520)
Balance at the beginning of the year	307,112	579,551	22,616	909,279
Additions	-	-	5,748	5,748
Disposals and write-offs	-	(226)	(116)	(342)
Amortization	-	(65,710)	(2,435)	(68,145)
Impairment reversal of long-lived assets	-	9,534	-	9,534
Foreign exchange effects	(1,715)	(15,433)	(5,152)	(22,300)
Transfers	-	(225)	1,138	913
Balance at the end of year	305,397	507,491	21,799	834,687
Cost	316,087	1,810,609	49,896	2,176,592
Accumulated amortization and impairment	(10,690)	(1,303,118)	(28,097)	(1,341,905)
Balance at the end of year	305,397	507,491	21,799	834,687
Average annual depreciation rates %	-	UoP	5	

(i) As of December 31, 2025, the Company's recognized goodwill balances were as follows: USD 95,411 (2024 - USD 95,087) allocated to Cajamarquilla CGU, USD 4,374 (2023 - USD 3,887) allocated to Juiz de Fora, and USD 206,423 (2024 - USD 206,423) allocated to the Mining Peru group of CGUs.

23 Right-of-use assets and lease liabilities

Accounting policy

Right-of-use assets represent the right to use an underlying asset for the lease term and lease liabilities represent the Company's obligation to make lease payments arising from the lease.

Lease terms are negotiated on an individual asset basis, and contractual provisions contain a wide range of different terms and conditions. The lease agreements do not impose any covenants, but leased assets may not be used as security for borrowing purposes.

The Company accounts for non-lease components such as service costs separately, whenever applicable. The Company's lease terms may include options to extend or terminate the lease and when it is reasonably certain that we will exercise that option, the financial effects are included in the contract's measurement.

Payments associated with short-term leases, and all leases of low-value assets, are recognized on a straight-line basis as an expense in profit or loss. Short-term leases are leases with a lease term of 12 months or less without a purchase option.

**Measurement**

Liabilities arising from a lease contract are initially measured on a present value basis, using the incremental borrowing rate approach. The incremental borrowing rate is determined by the Company based on equivalent financial costs that would be charged by a counterparty for a transaction with the same currency and a similar amount, term and risk of the lease contract. The finance cost charged to the income statement produces a constant periodic rate of interest over the lease term. On December 31, 2025, incremental borrowing rate were between 7,90% to 16,50% for Brazil; 2,85% to 9,53% for Peru and 5,00% for Luxembourg.

Lease contracts are recognized as a liability with a corresponding right-of-use asset at the date at which the leased asset is available for use by the Company. The right-of-use asset also includes any lease payments made, and it is amortized over the shorter of the asset's useful life and the lease term on a straight-line basis. Amortization expenses are classified either in "Cost of sales" or "Administrative expenses" based on the designation of the related assets.

When the lease liability is remeasured, a corresponding adjustment is made to the carrying amount of the right-of-use asset or is recorded in profit or loss if the carrying amount of the right-of-use asset has been reduced to zero.

(a) Right-of-use assets - Changes in the year

	2025					2024
	Lands and Buildings	Machinery, equipment, and facilities	IT equipment	Vehicles	Total	Total
Balance at the beginning of the year	21,505	58,559	346	4,855	85,265	74,818
Cost	24,592	119,566	910	12,640	157,708	111,562
Accumulated amortization	(3,087)	(61,007)	(564)	(7,785)	(72,443)	(36,744)
Balance at the beginning of the year	21,505	58,559	346	4,855	85,265	74,818
New contracts	66	43,783	766	5,396	50,011	64,955
Disposals and write-offs	-	-	-	-	-	(5,348)
Renegotiation of contracts	3,293	(51)	3,515	1,162	7,919	-
Amortization	(2,301)	(36,410)	(270)	(4,991)	(43,972)	(36,189)
Remeasurement	(390)	1,103	181	3,391	4,285	144
Foreign exchange effects	(1,629)	4,563	38	593	3,565	(13,115)
Effect of new subsidiary acquisition	3,094	-	-	-	3,094	-
Balance at the end of year	23,638	71,547	4,576	10,406	110,167	85,265
Cost	36,673	155,940	4,976	16,205	213,794	157,708
Accumulated amortization	(13,035)	(84,393)	(400)	(5,799)	(103,627)	(72,443)
Balance at the end of year	23,638	71,547	4,576	10,406	110,167	85,265
Average annual amortization rates %	31	33	33	33		

(b) Lease liabilities - Changes in the year

	2025	2024
Balance at the beginning of the year	95,899	77,405
New contracts	50,011	64,955
Disposals and write-offs	-	(4,853)
Payments of lease liabilities	(43,616)	(32,056)
Contract renegotiation	7,919	-
Interest paid on lease liabilities	(9,807)	(11,645)
Remeasurement	4,285	144
Accrued interest - note 10	9,989	13,517
Foreign exchange effects	2,709	(11,568)
Effect of new subsidiary acquisition	3,745	-
Balance at the end of year	121,134	95,899
Current liabilities	45,516	32,747
Non-current liabilities	75,618	63,152



24 Loans and financings

Accounting policy

Loans and financings are initially recognized at fair value, net of transaction costs incurred, and are subsequently measured at amortized cost, unless they are designated as fair value option, if necessary to eliminate the accounting mismatch that would arise if amortized cost were used. Any difference between the proceeds (net of transaction costs) and the total amount payable is recognized in the income statement as interest expense over the period of the loans using the effective interest rate method, except for the loans measured at fair value.

Loans and financings are classified as current liabilities unless the Company has the unconditional right to defer repayment of the liability for at least 12 months after the reporting period.

Fees paid on the establishment of loan facilities are recognized as transaction costs of the loan to the extent that it is probable that some or all of the facility will be drawn down. In this case, the fee is deferred until the drawdown occurs.

To the extent that there is no evidence that it is probable that some or all of the facility will be drawn down, the fee is capitalized as a prepayment for liquidity services and amortized over the period of the facility to which it relates.

(a) Composition

Type	Average interest rate	Current	Non-current	Total		Fair value	
				2025	2024	2025	2024
				Total	Total	Total	Total
Eurobonds – USD	Pre-USD 6.67%	18,969	1,202,602	1,221,571	1,231,129	1,394,529	1,247,522
BND	TJLP + 2.82%						
	SELIC + 3.10%	28,290	147,069	175,359	177,397	164,974	156,565
	TLP - IPCA + 5.89%						
Export credit notes	SOFR TERM + 2.50%	937	121,211	122,148	184,135	123,799	184,737
	SOFR + 2.40%						
Debentures	CDI+ 1.50%	4,595	117,529	122,124	107,310	123,185	105,012
Other		2,624	62,158	64,782	62,662	61,943	58,779
		55,415	1,650,569	1,705,984	1,762,633	1,868,430	1,752,615
Current portion of long-term loans and financings (principal)		28,183					
Interest in loans and financings		27,232					

(b) Loans and financing transactions during the year ended on December 31, 2025

On April 8, 2025, the Company completed a bond offering of USD 500,000 for a term of 12 years at an interest rate of 6.60% per year. The proceeds were used to fully repurchase the 2027 Senior Notes and partially repurchase the 2028 Senior Notes through a combination of a tender offer and a make-whole call, executed on April 8 and May 23, 2025, respectively. The Company repurchased USD 215,496 (100%) of the 2027 Notes and USD 289,483 (72.3%) of the 2028 Notes.

The total disbursement for these transactions amounted to USD 527,911, comprising USD 504,979 of principal, USD 6,977 in accrued interest, USD 15,046 in premium, USD 909 in agent fees and other related costs, and USD 1,905 in loss on bond repurchase related to the write-down of debt issuance costs, resulting in a total loss of USD 17,860 recognized in profit or loss for the period. The redemption price was determined based on the greater of par value or the present value of future cash flows, discounted at the US Treasury rate plus 50 basis points, plus accrued interest. Following the transactions, the remaining outstanding principal of the 2028 Notes was USD 111,018.

On May 13, 2025, to strengthen its short-term liquidity position, the Company entered an ACC with a top-tier financial institution for a principal amount of USD 40,000 (BRL 223,700), at an annual interest rate of 5.35%. The loan had a six-month maturity and was settled in a single installment upon submission of export documentation as defined in the debt agreement. Upon maturity, the Company fully settled the ACC, repaying the principal amount and USD 1,070 in accrued interest.

Notes to the consolidated financial statements
At and for the year ended on December 31, 2025

All amounts in thousands of US dollars, unless otherwise stated

Following this settlement, no outstanding balance remains under this facility.

On December 29, 2025, the Company made a partial repayment of its Export Credit Note maturing in 2027, which originally had an outstanding principal balance of USD 90,000. The Company repaid USD 60,000 of principal, together with USD 1,080 of accrued interest associated with the repaid portion. Following this transaction, as of December 31, 2025, the remaining outstanding balance of the Export Credit Note amounted to USD 30,550 in principal amount, plus the related accrued interest.

(c) Changes in the year

	2025	2024
Balance at the beginning of the year	1,762,633	1,725,566
New loans and financings	542,414	799,439
Debt issue costs	(4,931)	(7,577)
Interest accrual	137,208	133,730
Changes in fair value of financing liabilities related to changes in the Company's own credit risk	328	1,572
Changes in fair value of loans and financings - note 10	(2,052)	3,627
Debt modification gain - note 10	-	(3,142)
Loss on bonds repurchase	1,905	3,348
Payments of loans and financings	(632,856)	(681,475)
Foreign exchange effects	40,606	(84,387)
Interest paid on loans and financings	(139,271)	(128,068)
Balance at the end of year	1,705,984	1,762,633

(d) Maturity profile

	2026	2027	2028	2029	2030	As from 2031	2025 Total
Eurobonds - USD (i)	18,969	(1,132)	110,050	(953)	(953)	1,095,590	1,221,571
BNDES	28,290	18,810	18,810	13,665	13,665	82,119	175,359
Export credit notes (i)	938	29,514	(487)	92,183	-	-	122,148
Debentures (i)	4,595	(185)	(185)	(185)	118,084	-	122,124
Other	2,623	2,432	52,432	2,432	2,432	2,431	64,782
	55,415	49,439	180,620	107,142	133,228	1,180,140	1,705,984

(i) The negative balances refer to related funding costs (fee) amortization.

(e) Analysis by currency

	Current	Non-current	2025 Total	2024 Total
USD	20,055	1,373,814	1,393,869	1,465,434
BRL	35,360	276,755	312,115	297,199
	55,415	1,650,569	1,705,984	1,762,633

(f) Analysis by index

	Current	Non-current	2025 Total	2024 Total
Fixed rate	18,969	1,202,602	1,221,571	1,231,129
SOFR	1,086	171,211	172,297	234,307
TLP	17,867	147,069	164,936	158,052
CDI	4,595	117,529	122,124	107,310
TJLP	5,709	12,158	17,867	18,813
BNDES SELIC	7,189	-	7,189	13,022
	55,415	1,650,569	1,705,984	1,762,633

(g) Changes in liabilities arising from financing activities

	Loans and financings	Lease liabilities	Other financial instruments net	Dividends payable	Attributable to NEXA's shareholders	Attributable to non-controlling interests
At December 31, 2023	1,725,566	77,405	38,229	2,830	1,197,324	254,713
Cash flows from activities						
Operating activities	(128,068)	(11,645)	(4,762)	-	(205,030)	17,623
Investing activities	-	-	-	-	-	-
Financing activities	110,387	(32,056)	-	(15,529)	(4,635)	4,279
Non-cash financing transactions						
Interest, foreign exchange and other financial effects	193,675	2,652	(150)	2,422	(9,082)	-
Changes in Fair Value of loans and financings	3,627	-	-	-	-	-
Changes in debt modification gain	(3,142)	-	-	-	-	-
Changes in Fair Value of derivative financial instruments	-	-	(194)	-	-	-
Changes in fair value of energy forward contracts	-	-	(81)	-	-	-
Fair value of financial instruments in commodity contracts	-	-	3,347	-	-	-
Price cap realized in offtake agreement	-	-	(3,246)	-	-	-
Changes in fair value of financial liabilities related to changes in the Company's own credit risk	1,572	-	-	-	(1,572)	-
Addition of new contracts	-	65,099	-	-	-	-
Dividends distribution to non-controlling interests	-	-	-	17,351	-	(17,351)
Cash flow hedge accounting	-	-	872	-	644	-
Currency translation adjustment	(140,984)	(5,556)	(2,163)	(3,367)	(163,719)	(12,901)
At December 31, 2024	1,762,633	95,899	31,852	3,707	813,930	246,363
Cash flows from activities						
Operating activities	(139,271)	(9,807)	(1,687)	(1,226)	116,583	90,518
Investing activities	-	3,745	-	-	997	-
Financing activities	(95,373)	(43,616)	-	(34,267)	(12,887)	838
Non-cash financing transactions						
Interest, foreign exchange and other financial effects	110,268	5,994	15	(303)	19,701	-
Loss on bonds repurchase	1,905	-	-	-	-	-
Changes in fair value of loans and financings	(2,052)	-	-	-	-	-
Changes in fair value of derivative financial instruments	-	-	(4,116)	-	-	-
Changes in fair value of energy forward contracts	-	-	(9,608)	-	-	-
Changes in fair value of offtake agreement	-	-	49,254	-	-	-
Price cap realized in offtake agreement	-	-	(5,011)	-	-	-
Changes in fair value of financial liabilities related to changes in the Company's own credit risk	328	-	-	-	(328)	-
Addition of new contracts	-	54,296	-	-	-	-
Renegotiation of contracts	-	7,919	-	-	-	-
Dividends distribution to non-controlling interests	-	-	-	57,289	-	(57,289)
Cash flow hedge accounting	-	-	5,150	-	(3,691)	-
Currency translation adjustment	67,546	6,704	1,277	1,718	68,629	6,199
Balance at the end of year	1,705,984	121,134	67,126	26,918	1,002,934	286,629

(h) Guarantees and financial covenants

The Company had certain loans and financings that are subject to specific financial covenants at a consolidated level, including: (i) leverage ratio; (ii) capitalization ratio; and (iii) debt service coverage ratio.

During 2025, the Company had engaged in negotiations with BNDES and, on December 22, 2025, the Company signed a letter with BNDES ("the Letter") authorizing: (i) the waiver of the financial covenants applicable to the fiscal year ended December 31, 2025, and (ii) the replacement of such covenants with a new contractual obligation to maintain a minimum corporate credit rating. The waiver and replacement of such covenants are already in place as of December 31, 2025, although the corresponding amendments to the loan agreements are expected to be executed within 120 days from the issuance of this Letter.



Pursuant to the Letter, the former financial ratio covenants were substituted with minimum global-scale corporate credit ratings as follows: (i) Fitch Ratings: BB+, and (ii) Moody's: Ba3.

As of December 31, 2025, the Company was in compliance with these ratings, and management has not identified any conditions indicating a potential downgrade below the required levels. Accordingly, the previous covenant requirements no longer affect the loan's classification or maturity profile.

The substitution of the former financial ratios for a minimum rating covenant does not alter the economic substance of the financing arrangement. From the issuance of the Letter onwards, early repayment may only be triggered if the Company fails to maintain the required ratings, subject to applicable contractual cure periods. Accordingly, only the portion of the BNDES financing that was originally scheduled for settlement within twelve months after December 31, 2025 is classified as a current liability, with the remaining balance classified as a non-current liability.

25 Trade Payables

Accounting policy

Trade payables represent liabilities for goods and services that were provided to the Company before the end of the financial year, which are unpaid. Trade and other payables are presented as current liabilities unless payment is not due within 12 months after the reporting period. These amounts are recognized initially at their fair value and subsequently measured at amortized cost using the effective interest method.

(a) Composition

	2025	2024
Trade payables	487,543	434,672
Related parties – note 20 (a)	12,482	8,616
	500,025	443,288

26 Confirming Payables

Accounting policy

The Company has contracts with some suppliers whose commercial payment varies between 60 and 180 days, which can be negotiated individually with the supplier and reach 210 days, without any additional guarantees in these contracts, the supplier has the option to request a bank to advance the payment of their commercial invoice within 180 days, before the invoice matures. As a result of those contracts between the suppliers and the bank, the commercial terms agreed with the Company do not change. In accordance with the commercial agreement, the supplier communicates to the Company its interest in selling the invoice to the bank, and it is only the supplier who can decide to sell its invoice at any time during the commercial period. With this option, suppliers can improve their working capital position with advance receipt. The bank pays the supplier with an interest discount rate and the Company assumes part of the interest payment to the supplier. In certain cases, the supplier assumes the integral payment of interest. While the nature of the trade payable does not change, the Company believes that the separate presentation of these accounts within “Confirming payables” is relevant to the understanding of the Company's financial position.

Based on concepts of IFRS 9, the Company assesses whether the payment term extension arrangement substantially modifies the original liability based on qualitative and quantitative assessments. If the original liability has not been substantially modified, the original liability remains and is disclosed as “Confirming Payable”. If the original liability has been substantially modified, the Company derecognizes the original liability (confirming payables) and recognizes a new financial liability as “Other financial liabilities”. Any gain/loss is recognized in the “Income Statement”.



The Company concluded that for December 31, 2025, the transactions maintain their essence as “confirming payables” taking into consideration Nexa’s assessment policy.

Payments of the principal amounts and interest reimbursements are presented within the “operating activities group” in the Company's cash flow statement, in accordance with IAS 7, as the Company classifies the actual transactions as confirming payable.

(a) Carrying amount of financial liabilities

	2025	2024
Confirming payables	415,388	268,175

As of December 31, 2025, financial institutions have paid the total amount of confirming payables to the suppliers.

(b) Range of payments due dates

	2025 Days after invoice	2024 Days after invoice
Liabilities that are part of confirming payables	60 - 210	60 - 210
Comparable trade payables that are not part of a confirming payable	30 - 120	30 - 120

(c) Non-cash changes

There were no business combinations or material foreign exchange differences in either period.

27 Asset retirement, restoration and environmental obligations

Accounting policy

Provision for asset retirement obligations include costs for restoration and closure of the mining assets and is recognized due to the development or mineral production, based on the net present value of estimated closure costs. Other restoration obligations regarding the de-characterization of their structures includes estimated mandatory costs as required by the Brazilian Government. Management uses its judgment and previous experience to determine the potential scope of rehabilitation work required and the related costs associated with that work, which are recognized as a “Property, plant and equipment” for asset retirement obligations relating to operating mining assets or as “Other income and expenses, net” for non-operating structures and for de-characterization of environmental obligations and other restoration obligations include costs related to rehabilitation of areas damaged by the Company in its extractive actions (for example - soil contamination, water contamination, among others) or penalties. Therefore, it becomes an event that creates obligations when environmental damage is detected by the Company, when a new law requires that the existing damage be rectified or when the Company publicly accepts any responsibility for the rectification, creating a constructive obligation. The costs to remedy an eventual unexpected contamination, which give rise to a probable loss and can be reliably estimated, must be recognized in “Other income and expenses, net” in income statement.

In addition, investments in infrastructure, machinery and equipment regarding operational improvements to avoid future environmental damage, are not provisioned, because it is expected that these assets will bring future economic benefits to the operating units, thus it is capitalized as Property, plant and equipment.

The liabilities are discounted to present value using a risk-adjusted credit rate that reflects current market assessments of the time value of the money and the specifics risks for the asset to be restored. The interest rate charges relating to the liability are recognized as an accretion expense in the Net financial results. Difference in the settlement amount of the liability is recognized in the income statement.

Critical accounting estimates, assumptions and judgments

The initial recognition and the subsequent revisions of the asset retirement obligations, other restoration obligations, and environmental obligations consider critical future closure and repairing costs and several assumptions such as interest rates, inflation, useful lives of the assets and the estimated moment that the expenditure will be executed. These estimates are reviewed annually by the Company or when there is a relevant change in these assumptions.



Cost estimates can vary in response to many factors of each site that include timing, expected LOM, changes to the relevant legal or government requirements and commitments with stakeholders, review of remediation and relinquishment options, emergence of new restoration techniques, stage of engineering evaluation maturity among others. Engineering projects for each liability are in different stages of maturity, some of them still in the conceptual engineering phase, for which the estimation of expenditures includes in its methodology a high degree of uncertainty in the definition of the total cost of the project in accordance with best market practices.

External experts support the cost estimation process where appropriate. These factors either isolated or consolidated could significantly affect the future income statement and balance sheet position.

(a) Changes in the year

				2025	2024
	Asset retirement obligations	Environmental obligations	Other restoration obligations (iii)	Total	Total
Balance at the beginning of the year	240,408	32,159	6,819	279,386	314,919
Additions (ii)	10,188	1,103	-	11,291	56,375
Payments	(12,744)	(4,409)	-	(17,153)	(17,785)
Reversals	-	-	-	-	(1)
Interest accrual - note 10	23,012	3,114	461	26,587	26,058
Remeasurement - discount rate (i) / (ii)	8,919	(339)	91	8,671	(28,224)
Write-offs	-	-	(8,391)	(8,391)	(710)
Foreign exchange effects	15,028	3,994	1,020	20,042	(39,368)
Classified as liabilities associated with assets held for sale	-	-	-	-	(31,878)
Balance at the end of year	284,811	35,622	-	320,433	279,386
Current liabilities	35,032	4,294	-	39,326	47,561
Non-current liabilities	249,779	31,328	-	281,107	231,825

- (i) As of December 31, 2025, the credit risk-adjusted rate used for Peru was between 5,04% and 10,7% (December 31, 2024: 3.39% and 12.29%) and for Brazil was between 7,42% and 12,17% (December 31, 2024: 4.02% and 8.51%).
- (ii) The changes observed during 2025, were mainly due to the revised disbursement timelines related to decommissioning obligations in certain operations, based on updated asset retirement and environmental obligations studies, along with higher discount rates, as described above. As a result, as of December 31, 2025, the Company's asset retirement obligations for operational assets increased by USD 8,463 (December 31, 2024: increased of USD 35,944) as shown in note 21; and asset retirement and environmental obligations for non-operational assets gain in USD 174 (December 31, 2024: expense of USD 13,750) as shown in note 9.
- (iii) In December 2025, the Company completed engineering studies to confirm the construction method of certain inactive industrial waste containment structures that have been closed and decommissioned for more than 20 years. The environmental regulator confirmed the Nexa studies, and all five structures were classified as dry-stack (piles), confirming that not de-characterization or remediation projects are required. Accordingly, the previously recorded provision for restoration obligations was fully reversed for USD 8,392.

28 Provisions

Accounting policy

Provisions for legal claims and judicial deposits

Provisions for legal claims are recognized when there is a combination of the following conditions: (i) the Company has a present legal or constructive obligation as a result of past events; (ii) it is probable (more likely than not) that an outflow of resources will be required to settle the obligation; and (iii) the amount can be reliably estimated. The provisions are periodically estimated, and the likelihood of losses is supported by the Company's legal counsel.

Notes to the consolidated financial statements
At and for the year ended on December 31, 2025

All amounts in thousands of US dollars, unless otherwise stated

Provisions are measured at the present value of the expenditure expected to be required to settle the obligation using a discount rate that reflects current market assessments of the time value of money and the risks specific to the obligation. The increase in the provision due to the passage of time is recognized as Financial Expenses.

When a claim is secured by a judicial deposit, the Company offsets the provision with the judicial deposit amount in the consolidated balance sheet. However, the Company also has judicial deposits for claims for which the likelihood of loss is possible or remote and for which no provision is recognized. In such cases, these amounts are recognized as outstanding judicial deposits in the Company's assets.

Critical accounting estimates and assumptions - Provisions for legal claims

The Company is part of ongoing tax, labor, civil and environmental lawsuits which are pending at different court levels. The provisions for potentially unfavorable outcomes of litigation in progress are established and updated based on management evaluation and require a high level of judgment regarding the matters involved, supported by the positions of external legal advisors. Income tax claims are discussed at the current and deferred income tax section (note 11).

(a) Changes in the year

					2025	2024
	Tax	Labor	Civil	Environmental	Total	Total
Balance at the beginning of the year	7,100	17,414	2,064	19,054	45,632	56,787
Additions	9,838	9,992	2,081	4,052	25,963	13,125
Reversals	(3,110)	(5,770)	(319)	(1,604)	(10,803)	(15,033)
Interest accrual	1,597	3,856	(48)	178	5,583	2,402
Payments	(7)	(2,912)	(3,364)	(1,990)	(8,273)	(4,326)
Foreign exchange effects	969	2,141	47	2,346	5,503	(7,727)
Other	(10,471)	347	-	(10)	(10,134)	404
Balance at the end of year	5,916	25,068	461	22,026	53,471	45,632

(b) Breakdown of legal claims provisions

The provisions and the corresponding judicial deposits are as follows:

	2025			2024		
	Judicial deposits	Provisions	Carrying amount	Judicial deposits	Provisions	Carrying amount
Tax	(6,986)	12,903	5,917	(1,118)	8,222	7,104
Labor	(744)	25,812	25,068	(985)	18,394	17,409
Civil	-	460	460	-	2,064	2,064
Environmental	(10)	22,036	22,026	-	19,055	19,055
Balance at the end of the year	(7,740)	61,211	53,471	(2,103)	47,735	45,632

As of December 31, 2025, the Company's outstanding judicial deposits, that are not presented net of the provisions are USD 9,221 and are recorded as "Other Assets" in the balance sheet (December 31, 2024: USD 13,912).

(c) Contingent liabilities

Legal claims that have a possible likelihood that an obligation will arise are disclosed in the Company's consolidated financial statements. The Company does not recognize a liability when it is not probable that an outflow of resources will be required or because the amount of liability cannot be reliably calculated. These legal claims are summarized below:

	2025	2024
Tax (i)	124,072	110,165
Labor (ii)	31,250	24,530
Civil (iii)	13,569	17,821
Environmental (iv)	124,810	106,799
	293,701	259,315



(i) Comments on contingent tax liabilities

The main contingent liabilities relating to tax lawsuits are discussed below.

Income tax over transfers of shares in Peru

Relates to assessments issued by the SUNAT, where the Company was jointly and severally liable for the payment of income tax by a foreign investor, in a supposed capital gain on transfer of shares. The estimated financial effect of this contingent liability is USD 34,560 (2024: USD 41,723).

Compensation for exploration for mineral resources

Relates to assessments issued by the Brazilian National Department of Mineral Production for the alleged failure to pay or underpayment of financial compensation for the exploration of mineral resources ("CFEM"). The estimated financial effect of this contingent liability is USD 16,147 (2024: USD 10,676).

PIS and COFINS tax credit offsetting

Tax proceeding concerning the utilization (offset) of tax credits recognized pursuant to the final judgment of Writ of Mandamus No. 001556.04.2008.4.01.3812, which ruled on the exclusion of ICMS from the PIS and COFINS calculation bases. The matter has been pending before the First Administrative Court since April 9, 2025. The estimated financial effect of this contingent liability is USD 71,600.

(ii) Comments on contingent labor liabilities

Include several claims filed by former employees, third parties and labor unions and labor public attorney's office mostly claiming the payment of indemnities related to dismissals, such as overtime, work at night hours, commuting hours, health hazard premiums and hazardous duty premiums, as well as indemnity claims by former employees and third parties based on alleged occupational illnesses, work accidents and payment of social benefits. The individual amount of the claims is not material.

(iii) Comments on contingent civil liabilities

The civil proceedings identified as potential contingent liabilities are related to indemnity lawsuits filed against the Company, alleging property damages, contractual breaches, personal injuries, consequential damages, loss of prospective earnings, and other general losses. The estimated financial effect of this contingent liability is USD 13,569 (2024: USD 17,821).

(iv) Comments on contingent environmental liabilities

The main contingent environmental liabilities in Brazil were filed by fishermen communities against the Company for indemnification, compensation for material and moral damages due to alleged pollution of the São Francisco River close to the Company's Três Marias operation in Brazil. The estimated financial effect of these contingent liabilities is USD 83,072 (2024: USD 93,634).

29 Contractual obligations

Accounting policy

Contractual obligations consist of advance payments received by the Company under a silver streaming agreement, signed with a counterparty (the "Streamer") and by which referential silver contents found in the ore concentrates produced by the Company's Cerro Lindo mining unit are sold to the Streamer.

Determining the accounting treatment of silver streaming transactions requires the exercise of high degree of judgment.

The Company assesses whether those advances obtained under this agreement should be recognized as contractual obligations (a sale of a non-financial item) or as a financial liability. For that purpose, the Company takes into consideration factors such as which party is exposed to the operational risk, the risk of access to the resources, the price risk, and assesses whether the transaction involves a sale of an own use asset for the counterparty. In those cases, in which the Company concludes that, in essence, the Streamer shares substantially the operational risks, the resource access and price risks, it delivers a non-financial item that qualifies as an "own use" item; any advance payment obtained is recognized as a contractual obligation in the framework of IFRS 15: Revenue from contracts with customers. Otherwise, the Company would recognize a financial liability in the framework of the provisions of IFRS 9: Financial instruments.

Notes to the consolidated financial statements**At and for the year ended on December 31, 2025****All amounts in thousands of US dollars, unless otherwise stated**

When a contractual obligation is recognized, the balance is initially recognized at the amount received, and it is subsequently recognized as revenue when the control of the respective assets is transferred, that is, upon the physical delivery of the nonfinancial item (silver certificate). Contractual obligations are recognized within non-current liabilities, except for the portion of silver certificates that are estimated to be delivered over the 12 months following the balance sheet date.

The advance payment obtained under the silver streaming transaction entered by the Company in 2016 is recognized as contractual obligation to the extent that the risk assessment conducted by management indicates the relevant risks are substantially shared with the Streamer and the qualifying conditions of a sale of an “own use” item are met.

The advance payment was recognized as a Contractual obligation and the corresponding revenues are recognized as the silver is delivered, which is the time that the contractual performance obligations are satisfied. The Company delivers the certificates as the silver contents of its concentrate sales are collected from its customers that buy ore concentrates.

The recognition of interest in contractual obligation is based on the opening balance of the year of the contractual obligations applying a market rate percent, representing the effect of passage of time over the length of the Metal Purchase Agreement.

Determination of the transaction price

The transaction price is the amount of consideration to which the Company expects to be entitled in return for transferring the promised goods to its counterparty. The transaction price is allocated to each performance obligation based on the relative standalone selling prices. In the silver streaming transaction, the Company has variable considerations related to the production capacity of the mine linked to its LOM and to the LME. IFRS 15 requires that for contracts containing variable considerations, the transaction price be continually updated and re-allocated to the transferred goods. For this purpose, the contractual obligations require an adjustment to the transaction price per unit each time there is a change in the underlying production profile of a mine or the expected metal prices. The change in the transaction price per unit results in a retroactive adjustment to revenues in the period in which the change is made, reflecting the new production profile expected to be delivered under the streaming agreement or the expected metal prices. A corresponding retroactive adjustment is made to accretion expenses, reflecting the impact of the change in the contractual obligation balance.

Critical accounting estimates, assumptions and judgments

The Recognition of revenues and of the contractual obligation related to the silver transaction require the use of critical accounting estimates and assumptions including, but not limited to: (i) allocation of revenues on relative prices; (ii) estimate prices for determining the upfront payment; (iii) discount rates used to measure the present value of future inflows and outflows; and (iv) estimates of LOM, reserves and mineral production.

(a) Composition

In 2016, the Company entered a silver streaming arrangement for the anticipated sale of a portion of the silver contained in the ore concentrates produced by the Cerro Lindo mining unit, which consisted of i) an upfront payment of USD 250,000 and ii) additional payments at the date of each delivery of the ounces of payable silver equivalent to 10% of the spot price at the date of settlement. In addition, by this agreement, sales of silver certificates to Triple Flag are limited to a total of 19.5 million of the ounces that Nexa Peru sells to its customers.

Notes to the consolidated financial statements
At and for the year ended on December 31, 2025
All amounts in thousands of US dollars, unless otherwise stated



Once that limit is reached, sales under the streaming will be made for 25% of the silver content in the Nexa Peru’s sales of concentrate for a period equivalent to the life of said mining unit. Based on the Company’s current production and delivery estimates, this threshold is expected to be reached during the first semester of 2026.

The changes in the contractual obligation are shown below:

	2025	2024
Balance at the beginning of the year	100,958	117,112
Revenues recognition upon ore delivery	(41,577)	(43,662)
Remeasurement adjustment (i)	24,637	21,084
Interest on contractual obligations – note 10	6,744	6,424
Balance at the end of year	90,762	100,958
Current	18,166	31,686
Non-current	72,596	69,272

(i) As of December 2025, the Company recognized a remeasurement adjustment in its contractual obligations of silver streaming with a corresponding reduction in revenues for an amount of USD 24,637 and an increased in accretion for an amount of USD 6,744 (2024: reduction in revenues for an amount of USD 21,084 and an increase in accretion for an amount of USD 6,424), given the higher long-term prices and the updated mine plan for its Cerro Lindo Mining Unit. According to the Company’s silver streaming accounting policy, prices and changes in the LOM given an update in mine plans are variable considerations and the recognized revenue under the streaming agreement should be adjusted to reflect the updated variables.

30 Shareholders’ equity

Accounting policy

Common shares are classified in shareholders’ equity. Each time a share premium is paid to the Company for an issued share, the respective share premium is allocated to the share premium account. Each time the repayment of a share premium is decided, such repayment shall be done pro-rata to the existing shareholders.

The distribution of dividends to the Company’s shareholders is recognized as a liability in the Company’s consolidated financial statements in the period in which the dividends are approved by the Company’s shareholders.

Shares repurchased under buyback programs that are not cancelled are reported as treasury shares and are deducted from shareholders’ equity. These shares are also deducted in the earnings per share calculation.

(a) Capital

As of December 31, 2025, the outstanding capital of USD 132,438 (2024: USD 132,438) is comprised of 132,438 thousand subscribed and issued common shares (2024: 132,438 thousand), with par value of USD 1.00 per share. In addition to the subscribed and issued common shares, NEXA also has an authorized, but unissued and unsubscribed share capital set at USD 231,925.

(b) Share premium

The share premium, if any, may be distributed to the shareholders in accordance with Luxembourg Commercial Companies Act by a resolution of the Board of Directors.

(c) Additional paid-in capital

Additional paid in capital arises from transactions recognized in equity that do not qualify as capital or share premium in accordance with Luxembourg Commercial Companies Act and, therefore, cannot be distributed to the shareholders of the Company.

(d) Accumulated other comprehensive income

The changes in the accumulated other comprehensive income are as follows:

Notes to the consolidated financial statements
At and for the year ended on December 31, 2025

All amounts in thousands of US dollars, unless otherwise stated



	Cumulative translation adjustment	Hedge accounting	Changes in fair value of financial instruments	Total
At January 01, 2023	(272,880)	1,262	(14,213)	(285,831)
Translation adjustment on foreign subsidiaries	81,413	-	-	81,413
Cash flow hedge accounting, net of income tax	-	(537)	-	(537)
Changes in fair value of financial liabilities related to changes in the Company's own credit risk	-	-	(385)	(385)
Changes in fair value of investments in equity instruments	-	-	(1,466)	(1,466)
At December 31, 2023	(191,467)	725	(16,064)	(206,806)
Translation adjustment on foreign subsidiaries	(184,446)	-	-	(184,446)
Cash flow hedge accounting, net of income tax	-	109	-	109
Changes in fair value of financial liabilities related to changes in the Company's own credit risk	-	-	(1,037)	(1,037)
Changes in fair value of investments in equity instruments	-	-	(1,256)	(1,256)
At December 31, 2024	(375,913)	834	(18,357)	(393,436)
Translation adjustment on foreign subsidiaries	79,357	-	-	79,357
Cash flow hedge accounting, net of income tax	-	(3,801)	-	(3,801)
Changes in fair value of financial liabilities related to changes in the Company's own credit risk	-	-	(218)	(218)
Changes in fair value of investments in equity instruments	-	-	126	126
At December 31, 2025	(296,556)	(2,967)	(18,449)	(317,972)
Attributable to NEXA's shareholders				(266,300)
Attributable to non-controlling interests				(51,672)

(e) Earnings per share

Basic earnings per share are calculated by dividing net income attributable to NEXA's shareholders by the weighted average number of ordinary shares outstanding during the year.

Diluted earnings per share are calculated using the same net income attributable to NEXA's shareholders and the weighted average number of ordinary shares adjusted for the effects of all potentially dilutive instruments, if any.

The Company performs an assessment at each reporting date of all outstanding financial instruments and equity-linked arrangements to determine whether they are potentially dilutive in accordance with IAS 33. For the years presented, the Company did not have any outstanding options, warrants, convertible instruments, share-based payment arrangements or any other instruments that could result in the issuance of additional shares. As the Company does not have any potentially dilutive shares, basic and diluted earnings per share are the same.

	2025	2024	2023
Net income (loss) for the year attributable to NEXA's shareholders	132,626	(205,030)	(291,968)
Weighted average number of outstanding shares – in thousands	132,439	132,439	132,439
Earnings (losses) per share - USD	1.00	(1.55)	(2.20)

(f) Dividend distribution

NEXA

On May 8, 2025, at the annual shareholders' meeting and in accordance with Luxembourg laws, the Company's shareholders approved a cash distribution to shareholders of USD 13,400 as a share premium reimbursement. The cash distribution was paid on June 27, 2025, to shareholders of record as of June 10, 2025.

Nexa Peru

On March 28, 2025, Nexa Peru approved dividends totaling USD 100,000 payable in two equal installments of USD 50,000 each, based on the ownership percentage of each shareholder as of the payment date. Nexa CJM is entitled to receive USD 82,432 for its shares, NEXA USD 179, and the non-controlling interest USD 17,389. The first installment of USD 8,717 was paid on April 30, 2025, and the second of USD 8,103 was paid on September 30, 2025. During 2025, Nexa Peru also paid USD 359 related to previous periods in dividends to non-controlling interests.



Pollarix

During 2025, Pollarix S.A. approved total dividends amounting to USD 50,231 (BRL 275,668), comprising USD 10,332 (BRL 56,713) allocated to Nexa BR and USD 39,899 (BRL 218,975) the portion allocated to non-controlling interests, USD 17,088 (BRL 93,726) was paid during 2025. The remaining balance, including dividends from 2025 and residual amounts from prior years, totaling USD 24,853 (BRL 133,344), was fully settled on January 19, 2026, as disclosed in Note 32. As a result, 100% of the dividends approved in 2025 were fully liquidated.

Enercan

On April 30, 2025, Enercan’s Board of Directors approved an additional dividend distribution to its shareholders related to the 2024 fiscal year, entitling the Company’s subsidiary Pollarix to receive USD 20,370 (BRL 112,216).

On December 19, 2025, Enercan’s Board of Directors approved an additional dividend distribution to its shareholders, entitling the Company’s subsidiary Pollarix to receive USD 3,465 (BRL 20,199). During 2025, Pollarix received in cash a total amount of USD 23,836 (BRL 132,415), including: (i) USD 10,099 (BRL 56,108) related to the June distribution; (ii) USD 6,061 (BRL 33,665) related to August; and (iii) USD 7,675 (BRL 42,642) related to November and December, from the outstanding dividend amount.

(g) Non-controlling interest

Summarized balance sheet	NEXA PERU		Pollarix S.A.	
	2025	2024	2025	2024
Current assets	847,874	840,727	44,390	21,597
Current liabilities	427,941	381,329	36,714	8,169
Current net assets	419,933	459,398	7,676	13,428
Non-current assets	1,495,772	1,176,393	60,627	53,843
Non-current liabilities	518,914	422,555	7,647	11,099
Non-current net assets	976,858	753,838	52,980	42,744
Net assets	1,396,791	1,213,236	60,656	56,172
Accumulated non-controlling interests	242,227	205,102	44,402	42,569
Summarized income statement	NEXA PERU		Pollarix S.A.	
	2025	2024	2025	2024
Net revenues	1,063,503	881,122	32,845	27,919
Net (loss) gain for the year	276,866	(41,999)	46,783	28,959
Other comprehensive income	-	-	7,932	(14,886)
Total comprehensive income for the year	276,866	(41,999)	54,715	14,073
Comprehensive income attributable to non-controlling interests	53,258	(5,229)	43,459	15,026
Dividends paid to non-controlling interests	17,179	5,938	17,088	14,616
Summarized statement of cash flows	NEXA PERU		Pollarix S.A.	
	2025	2024	2025	2024
Net cash provided by (used in) operating activities	152,509	244,940	27,532	(11,615)
Net cash used in investing activities	(155,881)	(108,007)	3,185	2,130
Net cash (used in) provided by financing activities	(113,055)	(16,245)	(2,462)	13,783
(Decrease) increase in cash and cash equivalents	(116,427)	120,688	28,255	4,298

On January 15, 2025, Nexa El Porvenir paid USD 3,453 and non-controlling shareholders paid USD 1,864 for the subscription of newly issued shares of Nexa Atacocha. Since Nexa El Porvenir subscribed to its portion of the capital increase in December 2024, while non-controlling shareholders completed their subscription in January 2025, its ownership interest in Nexa Atacocha decreased from 86.65% as of December 31, 2024, to 82.11%. Nexa El Porvenir recognized a gain of USD 1,005 from the dilution of its ownership interest, due to Atacocha’s negative equity, which was recorded in equity attributable to Nexa’s controlling interest, while a loss of USD 1,016 was allocated to the non-controlling shareholders.



On July 17, 2025, Nexa El Porvenir, which owned 82.11% of Nexa Atacocha, launched a Voluntary Public Tender Offer (OPA) through the Lima Stock Exchange (BVL), under the supervision of the Peruvian Securities Market Authority (SMV), to acquire up to the remaining 17.89% of Atacocha's shares held by non-controlling interests. The tender offer remained open until September 3, 2025.

Following the completion of Tender Offer, 0.89% of the shares were acquired for USD 502, resulting in an increase in Nexa El Porvenir's controlling ownership interest in Nexa Atacocha from 82.11% to 83.00%.
As a result, the non-controlling interest decreased from 17.89% to 17.00. Consequently, a total reduction of USD 502 was recorded in equity, of which USD 492 was recognized in retained earnings attributable to the controlling interest and USD 10 to the non-controlling interest.

31 Impairment of long-lived assets

Accounting policy

Impairment of goodwill

As part of the impairment testing procedures, the goodwill arising from a business combination is allocated to a CGU or groups of CGUs that are expected to benefit from the related business combination and is tested at the lowest level that goodwill is monitored by management. Goodwill is tested annually for impairment, regardless of whether there has been an impairment indicator or, more frequently, if circumstances indicate that the carrying amount may not be recovered.

Impairment of long-lived assets

The Company assesses at each reporting date, whether there are indicators that the carrying amount of an asset or CGU, including goodwill balance, may not be recovered. If any indicator exists, such as a change in forecasted commodity prices, a significant increase in operational costs, a significant decrease in production volumes, a reduction in LOM, the cancelation or significant reduction in the scope of a project, foreign exchange rate, market conditions or unusual events that can affect the business, the Company estimates the recoverable amount of the assets or CGUs.

The recoverable amount is estimated by reference to the higher of an assets or CGUs fair value less cost of disposal ("FVLCD") and its value in use ("VIU"). The recoverable amount is determined for an individual asset unless the asset does not generate cash inflows that are largely independent of those from other assets or groups of assets, in which case, the asset is tested as part of a larger CGU to which it belongs.

If the carrying amount of an asset or CGU exceeds its recoverable amount, the asset or CGU is considered impaired and is reduced to its recoverable amount. Non-financial assets other than goodwill that were adjusted due to impairment are subsequently reviewed for possible reversal of the impairment at each reporting date. Generally, the opposite of indicators that gave rise to an impairment loss would be considered indicators that impairment losses might have to be reversed.

If the underlying reasons for the original impairment have been removed or the service potential of the asset or CGU has increased, an assessment of impairment reversals is performed by the Company. Reversals of impairment losses that arise simply from the passage of time or related with prior goodwill impairments are not recognized.

For individual assets, if there is any indicator that an asset become unusable by damage or a decision that would lead the asset to not contribute economically to the Company, it is impaired. In addition, greenfield projects for which the Company decides to quit exploration and there is no expectation that in the future will bring cash inflows are also impaired.

Impairment of exploration and evaluation costs and development projects costs

Exploration assets (greenfields) representing mineral rights acquired in business combinations, mineral rights, and other capitalized exploration and evaluation costs, as well as development projects costs capitalized included in Property, plant and equipment are tested for impairment individually or allocated in aggregation with CGU or groups of CGUs that include producing assets, when applicable, through FVLCD when there are indicators that capitalized costs might not be recoverable. The allocation of exploration and evaluation costs, and development project costs to CGUs or group of CGUs is based on 1) expected synergies or share of producing assets infrastructure, assets and/or processing facilities 2) legal entity level, and 3) country level. When testing a CGU or a group of CGUs that include exploration and evaluation costs and development project costs, the Company performs the impairment test in two steps. In the first step, producing assets or group of producing assets, and exploration and evaluation costs and development projects costs that are not expected to share infrastructure assets are tested for impairment on an individual basis. In the second step, exploration and evaluation costs and development project costs that shared infrastructure assets and/or processing facilities are allocated to a CGU or a group of CGUs and tested for impairment on a combined basis.



Valuation methods and assumptions for recoverable amount based on FVLCD

FVLCD

FVLCD is an estimate of the price that the Company would receive to sell an asset, CGU or group of CGUs in an orderly transaction between market participants at the measurement date, less the cost of disposal. FVLCD is not an entity-specific measurement but is focused on market participants' assumptions for a particular asset when pricing the asset. FVLCD is estimated by the Company using discounted cash flows techniques (using a post-tax discount rate) and market past transaction multiples (amount paid per ton of minerals for projects in similar stages) for greenfield projects for

which resources allocation is under review, although the Company considers observable inputs, a substantial portion of the assumptions used in the calculations are unobservable. These cash flows are classified as level 3 in the fair value hierarchy. No CGUs are currently assessed for impairment by reference to a recoverable amount based on FVLCD classified as level 1 or level 2.

VIU

VIU is determined as the present value of the estimated future cash flows expected to arise from the continued use of the asset in its current condition and its residual value. VIU is determined by applying assumptions specific to the Company's continued use and does not consider enhancements or future developments. These assumptions are different from those used in calculating FVLCD and consequently the VIU calculation is likely to give a different result (usually lower) than a FVLCD calculation. Additionally, it is applied to the estimated future cash flows a pre-tax discount rate.

Forecast assumptions

The cash flow forecasts are based on management's best estimates of expected future revenues and costs, including the future cash costs of production, capital expenditure, and closure, restoration, and environmental costs. The resulting estimates are based on detailed LOM and long-term production plans. When calculating FVLCD, these forecasts include capital and operating expenditures related to expansions and restructurings of both brownfield and greenfield projects that a market participant would consider in seeking to obtain the highest and best use of the asset, considering their evaluation, eventual changes in their scope or feasibility, and their development stage.

The cash flow forecasts may include net cash flows expected to be realized from the extraction, processing and sale of material that does not currently qualify for inclusion in ore reserves. Such non-reserve material is only included if the Company has a high level of confidence that it will be converted to reserves. This expectation is usually based on preliminary drilling and sampling of areas of mineralization that are contiguous with existing ore reserves, as well as on the historical internal conversion ratio. Typically, the additional evaluation required for conversion to reserves of such material has not yet been done because this would involve incurring evaluation costs earlier than is required for the efficient planning and operation of the producing mine.

For purposes of determining FVLCD from a market participant's perspective, the cash flows incorporate management's internal price forecasts that also reflects the view of market participants. The internal price forecasts are developed using a robust model that incorporates market-based supply, demand and cost data. The internal price forecasts used for ore reserve estimation testing and the Company's strategic planning are generally consistent with those used for the impairment testing.



Cost levels incorporated in the cash flow forecasts are based on the current LOM plan and long-term production plan for the CGU, which are based on detailed research, analysis and iterative modeling to optimize the level of return from investment, output and sequence of extraction. The mine plan considers all relevant characteristics of the orebody, including waste-to-ore ratios, ore grades, haul distances, chemical and metallurgical properties of the ore, process recoveries and capacities of processing equipment that can be used. The LOM plan and long-term production plans are, therefore, the basis for forecasting production output and production costs in each future year.

The discount rates applied to the future cash flow forecasts represent the Company's estimate of the rate that a market participant would apply to the time value of money and the risks specific to the asset for which the future cash flow estimates have not been adjusted. The Company's weighted average cost of capital is generally used for determining the discount rates, with appropriate adjustments for the risk profile of the countries in which the individual CGUs operate.

With respect to the estimated future cash flows of capitalized exploration assets and development projects, for some assets the Company applies a price to net assets value ratio discount in order to reflect the inherent risk of such projects and that are neither adjusted in the discount rate nor in the future cash flows. The discount is based on the stage of the project and the type of metal.

Critical accounting estimates, assumptions and judgments - Impairment of long-lived assets

Impairment is assessed at the CGU level. A CGU is the smallest identifiable asset or group of assets that generates independent cash inflows. Judgment is applied to identify the Company's CGUs, particularly when assets belong to integrated operations, and changes in CGUs could impact impairment charges and reversals.

External and internal factors are quarterly monitored for impairment indicators. Judgment is required to determine, for example, whether the impact of adverse spot commodity price movements is significant and structural in nature. Also, the Company's assessment of whether internal factors, such as an increase in production costs and delays in projects, result in impairment indicators requires significant judgment. Among others, the long-term zinc price, foreign exchange rate considering Brazilian real (BRL) per US dollar (USD) for Brazilian operations, and the discount rate may have a significant impact on the Company's impairment estimations.

The process of estimating the recoverable amount involves the use of assumptions, judgment and projections for future cash flows. These calculations use cash flow projections based on financial and operational budgets for a five-year period. After the five-year period, the cash flows are extended until the end of the useful LOM or indefinitely for the smelters. The smelters cash flows do not use growth rates in the cash flow projections of the terminal value. Management's assumptions and estimates of future cash flows used for the Company's impairment testing of goodwill and long-lived assets are subject to risk and uncertainties, including metal prices and macroeconomic conditions, which are particularly volatile and partially or totally outside the Company's control. Future changes in these variables may differ from management's expectations and may materially change the recoverable amounts of the CGUs.

Impairment test analysis

Throughout 2025, the Company, at each reporting date, assessed whether there were indicators that the carrying amount of an asset, goodwill, or cash generation unit (CGU) might not be recoverable, or if a previously recorded impairment needed to be reversed for its entire CGU located in Brazil and Peru.

Goodwill assessment

During 2025 Nexa conducted its annual impairment test for the CGUs to which goodwill has been previously allocated including Mining Peru group of CGUs (composed of Cerro Pasco and Cerro Lindo CGUs), Cajamarquilla and Juiz de Fora in accordance with the assumptions and projections outlined in the Company's strategic planning process. As a result, no impairment was identified.



Cerro Pasco CGU

The Company identified indicators of reversal, primarily driven by the increase of short-term and long-term metal prices. As a result, an impairment reversal of USD 108,005 was recognized at the CGU Cerro Pasco against the income statement.

Impairment test summary

In summary, for the year 2025, Nexa recognized the following impairment loss/reversal:

Impairment (losses) reversals	2025	2024	2023
Magistral Project	-	(58,435)	-
Cerro Pasco CGU	108,005	22,206	(42,660)
Morro Agudo	-	10,291	(59,002)
Pukaqaga Project	-	3,978	-
Other individual assets	(16,299)	(10,910)	(12,976)
Total	91,706		(114,643)

(a) Key assumptions used in impairment tests

The recoverable amounts for each CGU were determined based on the FVLCD method, which were higher than those determined based on the VIU method. The Company identified long-term metal prices, discount rate, exchange rate considering Brazilian real (BRL), and LOM as key assumptions in determining the recoverable amounts, due to the material impact such assumptions may have on the recoverable value. Part of these assumptions are summarized below:

	2025	2024	2023
Long-term zinc price (USD/t)	3,120	2,930	2,800
Discount rate (Peru)	7.08%	7.08%	7.22%
Discount rate (Brazil)	7.63%	7.64%	8.02%
Exchange rate (BRL x USD)	5.43	5.66	4.84
Brownfield projects - LOM (years)	From 3 to 25	From 3 to 25	From 4 to 21

(i) Although LOM is a key assumption, based on current facts and circumstances, including recent historical information, management does not consider a change in this assumption to be reasonably possible. Historically, LOM has remained stable or increased by one to two years, and given the current stage of mining operations, a significant reduction in LOM is not expected.

(b) Impairment reversal - Cerro Pasco CGU

As mentioned above, the impairment reversal was identified at the CGU level, not being directly related to a single asset. Then, the impairment reversal was allocated on a pro-rata basis to the following assets:

	Carrying amount prior to impairment reversal	Impairment reversal	Carrying amount after impairment reversal
Property, plant and equipment	292,466	17,448	309,914
Intangible assets	155,528	90,558	246,086
Other net liabilities	(53,772)	-	(53,772)

The Company performed a stress test on the key assumptions used in the calculation of the recoverable amount of the CGU Cerro Pasco as follows:

Scenario	Impairment Reversal	Excess over recoverable amount	Current Long-term zinc price (USD/t)	Current Discount rate (Peru)
Base case	108,005	33,502	3,120	7.08%

Assumption	Stress test Scenario	Stress on Assumption	Impairment Reversal	Impact	Excess over recoverable amount	Impact
Long-term zinc price (USD/t)	5% Decrease	2,964	75,328	(32,677)	-	(33,502)
Discount rate (Peru)	5% Increase	7.43%	108,005	-	18,643	(14,859)



(c) Sensitivity analysis -Tested CGUs and Cajamarquilla Goodwill

The Company estimated the amount by which the value assigned to the key assumptions must change in order for the assessed CGU recoverable amount, which was not impaired, to be equal to its carrying amount:

CGU	Excess over recoverable amount	Decrease in Long term Zinc (USD/t)		Increase in WACC		Appreciation of BRL over USD(i)	
		Change	Price	Change	Rate	Change	Price
Três Marias System	458,634	(14.41%)	2,670	111.02%	14.94%	(13.46%)	4.70
Juiz de Fora	51,351	(8.04%)	2,869	24.96%	8.85%	(3.77%)	5.23
Aripuaña	633,312	(30.26%)	2,176	113.29%	15.10%	(22.70%)	4.20
Cerro Pasco	33,502	(2.53%)	3,041	11.54%	8.51%	-	-
Cerro Lindo	431,471	(36.33%)	1,987	133.08%	17.78%	-	-
Mining Peru	258,550	(11.24%)	2,769	43.88%	10.98%	-	-
Cajamarquilla	730,640	(51.36%)	1,518	94.11%	14.81%	-	-

(i) These analyses are only applicable to Três Marias System, Juiz de Fora and Aripuanã CGUs, as these are in Brazil and their functional currency is BRL. Therefore, the appreciation of BRL over USD impacts the operational cost and expense, reducing the recoverable amount of these CGUs in USD, for consolidated purposes.

32 Long-term commitments

(a) Projects evaluation

In December 2021, the Group submitted a request for the Modification of the Environmental Impact Assessment (MEIA) for the Magistral Project to the National Environmental Certification Agency (SENACE), through the applicable legal process. During the review process, the Peruvian Water Authority (ANA) and the Protected Natural Areas Service - (SERNANP) issued unfavorable observations. On May 24, 2024, SENACE formally rejected the MEIA.

On February 8, 2024, the Peruvian Government approved an extension of the deadline for fulfilling the Accreditable Investment Commitment under the Magistral Transfer Contract, extending it from September 2025 to August 2028. As of December 31, 2025, the unexecuted amount under this commitment totaled USD 323,000.

In December 2021, the Group submitted a request for the Modification of the Environmental Impact Assessment (MEIA) for the Magistral Project to the National Environmental Certification Agency (SENACE), through the applicable legal process. During the review process, the Peruvian Water Authority (ANA) and the Protected Natural Areas Service - (SERNANP) issued unfavorable observations. On May 24, 2024, SENACE formally rejected the MEIA.

On April 30, 2025, the Peruvian Government formally acknowledged the rejection of the MEIA as a force majeure event, leading to the suspension of the obligation to fulfill the investment commitment. As stipulated in the Magistral Transfer Contract, NEXA and the Government must now engage in direct negotiations to assess the impact of this majeure force event on the project's execution. As of the date of this report, the deadline to fulfill the Accreditable Investment Commitment remains suspended, as does the potential application of the related penalty in the amount of USD 97,029.

(b) Environmental Guarantee for Dams

As of December 31, 2025, there have been no changes to the regulatory framework related to the environmental guarantee requirements established under Decree 48,747/2023 and its amendments. NEXA submitted its guarantee proposal in September 2024 and provided a guarantee for BRL 60,728 (approximately USD 11,128), representing 50% of the required amount by December 31, 2024. A new Decree, published on December 31, 2024, established that the timeline for the remaining installments will begin only after the approval of the proposal by the environmental agency. NEXA is still awaiting this approval before proceeding with the remaining obligations.



33 Events after the reporting period

(a) Payments of dividends to non-controlling interest

On January 19, 2026, Pollarix paid interim dividends related to previous quarters, totaling USD 31,290 (BRL 167,880). Of this amount, USD 24,853 (BRL 133,344) was fully settled to non-controlling interests, while USD 6,437 (BRL 34,535) was paid to Nexa BR.

(b) Tax claim payments

In January of 2026, the Company paid the amount of US\$ 12,210 regarding specific Peruvian uncertain income tax discussions of other expenses as explained in note 11 (d). Such payment was placed before the courts, and a provision may be recorded against such amount in the future if the likelihood of loss becomes probable, or the payments could be recoverable in cash if the Company prevails in these discussions. This payment did not change Nexa’s legal position or estimate related to the tax discussion on December 31, 2025.

(c) Share premium reimbursement

On February 26, 2026, the Company’s Board of Directors recommended, subject to approval by the Company’s Annual General Meeting expected to be held on or around June 26, 2026, a cash distribution to the Company’s shareholders of approximately USD 17,454 to be paid on August 26, 2026, as share premium reimbursement, in accordance with the dividend policy effective since January 2025.

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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholders of
Nexa Resources S.A.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Nexa Resources S.A. and its subsidiaries (the “Company”) as of December 31, 2025 and 2024, and the related consolidated income statement, consolidated statement of comprehensive income, consolidated statement of changes in shareholders’ equity and consolidated statement of cash flows for each of the three years in the period ended December 31, 2025, including the related notes (collectively referred to as the “consolidated financial statements”). We also have audited the Company's internal control over financial reporting as of December 31, 2024, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2025 and 2024, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2025 in conformity with IFRS Accounting Standards as issued by the International Accounting Standards Board. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2025, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the Management’s Report on Internal Control over Financial Reporting appearing under Item 15. Our responsibility is to express opinions on the Company’s consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company’s internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company’s internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company’s assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that (i) relate to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Impairment Assessments – Goodwill and long-lived assets

As described in Notes 22 and 31 to the consolidated financial statements, the Company’s goodwill balance was US\$ 306,208 thousand as of December 31, 2025, comprised by the goodwill allocated to the following cash generating units (CGU): Cajamarquilla, in the amount of US\$ 95,411 thousand, Juiz de Fora, in the amount of US\$ 4,374 thousand and Mining Peru group of CGUs, in the amount of US\$ 206,423 thousand. Management conducts a goodwill impairment test on an annual basis or, more frequently, if circumstances indicate that the carrying value of goodwill may be impaired. Management also evaluates impairment losses and reversals indicators for the long-lived assets, such as intangible, property plant and equipment and investments in associate companies. Potential impairment is identified by comparing the Fair Value Less Cost of Disposal (FVLCD) of a CGU to its carrying value, including goodwill, when applicable. Fair value is estimated by management using a discounted cash flow model or by market past transaction multiples. Management’s cash flow projections included significant judgments and assumptions mainly related to long-term zinc price and discount rates. The goodwill impairment assessments resulted in no impairment losses. The Company has also tested for impairment the assets that showed indicators of impairment losses and the assets other than goodwill that showed any indication that an impairment loss either no longer exists or has decreased. As a result of these impairment tests, the Company recorded US\$ 108,005 thousand of impairment reversal of assets related to Cerro Pasco CGU, and recorded US\$ 16,299 thousand of impairment losses, related to other individual assets.

The principal considerations for our determination that performing procedures relating to impairment assessments of the goodwill and long-lived assets is a critical audit matter are (i) the significant judgment by management when developing the fair value estimates of the CGUs and individual assets; (ii) a high degree of auditor judgment, subjectivity, and effort in performing procedures and evaluating management's significant assumptions related to long-term zinc price and discount rates; and (iii) the audit effort included involving the use of professionals with specialized skill and knowledge.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management's impairment assessments, including controls related to the significant assumptions. These procedures also included, among others (i) assessing the Company's determination of its cash generating units; (ii) testing management's process for developing the fair value estimates; (iii) evaluating the appropriateness of the discounted cash flow model used by management; (iv) testing the completeness and accuracy of underlying data used in the discounted cash flow model; and (v) evaluating the reasonableness of the significant assumptions used by management related to long-term zinc price and discount rates. Evaluating management's assumptions related to long-term zinc price and discount rates involved evaluating whether the assumptions used by management were reasonable considering (i) the consistency with external market and industry data; and (ii) whether the assumptions were consistent with evidence obtained in other areas of the audit. Professionals with specialized skill and knowledge were used to assist in evaluating (i) the appropriateness of the discounted cash flow model and (ii) the reasonableness of the long-term zinc price and discount rates used.

Cerro Lindo tax stability agreement

As described in Note 11 to the consolidated financial statements, as it relates to uncertain tax positions on income tax, the Company recognizes liabilities in the consolidated financial statements for the uncertain tax positions when management determines that it is not more-likely-than-not that the positions will be sustained upon examination by the tax authorities. No liability is accrued in the consolidated financial statements for uncertain tax positions when the Company determines that it is more-likely-than-not that the positions will be sustained upon examination by the tax authorities; these uncertain tax positions are disclosed. The Company's liability accrued and uncertain tax positions disclosed related to the Cerro Lindo stability agreement are US\$ 130,709 thousand and US\$ 167,190 thousand, respectively, as of December 31, 2025.

The principal considerations for our determination that performing procedures relating to Cerro Lindo stability agreement is a critical audit matter were (i) the significant judgment by management when assessing whether it is not more-likely-than-not that the Company's tax positions will be sustained upon examination by the tax authority, and in determining whether the amount of the loss or range of loss can be reasonably estimated and (ii) a high degree of auditor judgment and effort in performing procedures and evaluating audit evidence related to management's assessment of the uncertain tax positions.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management's assessment of Cerro Lindo stability agreement, including controls over assessing whether a liability should be accrued or a disclosure should be made, and when determining whether the amount of the loss or range of loss can be reasonably estimated, as well as financial statement disclosures. These procedures also included, among others (i) confirming with internal and external legal counsel the possibility or probability of an unfavorable outcome and the extent to which the loss or range of loss is reasonably estimable; (ii) evaluating the reasonableness of management's assessment regarding whether an unfavorable outcome is more-likely-than-not and reasonably estimable; and (iii) evaluating the sufficiency of the Company's disclosures.

/s/PricewaterhouseCoopers Auditores Independentes Ltda.
Curitiba, Brazil
February 26, 2026
We have served as the Company's auditor since 2001.

Nexa Resources S.A.
Société anonyme
37A, Avenue J.F. Kennedy
L-1855 Luxembourg
Grand Duchy of Luxembourg
R.C.S. Luxembourg: B 185.489

ARTICLES OF ASSOCIATION AS OF 8 MAY 2025

TITLE I - DENOMINATION, REGISTERED OFFICE, OBJECT, DURATION

1. ARTICLE 1.-

There is hereby established a public limited liability company ("*société anonyme*") under the name of "**Nexa Resources S.A.**" (the "**Company**") governed by the present articles of association (the "**Articles**") and by current Luxembourg law ("**Luxembourg Law**"), in particular the law of 10 August 1915 on commercial companies, as amended (the "**Commercial Companies Law**").

2. ARTICLE 2.

- 2.1 The Company has its registered office in the City of Luxembourg, Grand Duchy of Luxembourg.
 - 2.2 The registered office may be transferred within the Grand Duchy of Luxembourg by decision of the board of directors of the Company (the "**Board of Directors**"). The Board of Directors is authorized to amend these Articles to reflect the change of registered office and to proceed to such formalities as may be required under Luxembourg Law.
 - 2.3 The registered office of the Company may be transferred outside the Grand Duchy of Luxembourg by means of a resolution of the shareholders adopted at a general meeting of shareholders of the Company (the "**General Meeting**") under the conditions required by these Articles.
 - 2.4 The Company may have offices and branches (whether or not a permanent establishment) both in Luxembourg and abroad.
 - 2.5 In the event that the Board of Directors should determine that extraordinary political, economic or social developments have occurred or are imminent that would interfere with the normal activities of the Company at its registered office or with the ease of communication between such office and persons abroad, the registered office may be temporarily transferred abroad until the complete cessation of these extraordinary circumstances; such temporary measures shall have no effect on the nationality of the Company which, notwithstanding the temporary transfer of its registered office, will remain a Luxembourg company. Such temporary measures will be taken and notified to any interested parties by the Board of Directors.
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3. ARTICLE 3.-

The Company is established for an unlimited period of time.

4. ARTICLE 4.-

The Company's purpose is:

- 1) To carry out any trade, business or commercial activities whatsoever, including but not limited to the purchase, exchange and sale of goods and/or services to third parties;
- 2) To take participations and interests, in any form whatsoever, in any commercial, industrial, financial or other, Luxembourg or foreign companies or enterprises;
- 3) To acquire through participations, contributions, underwriting, purchases or options, negotiation or in any other way any securities, rights, patents and licenses and other property, rights and interest in property as the Company shall deem fit;
- 4) Generally to hold, manage, develop, sell or dispose of the same, in whole or in part, for such consideration as the Company may think fit, and in particular for shares or securities of any company purchasing the same;
- 5) To enter into, assist or participate in financial, commercial and other transactions;
- 6) To grant to any holding company, subsidiary, or fellow subsidiary, or any other company which belong to the same group of companies as the Company (the "**Affiliates**") any assistance, loans, advances or guarantees (in the latter case, even in favour of a third-party lender of the Affiliates);
- 7) To borrow and raise money in any manner and to secure the repayment of any money borrowed; and
- 8) Generally to do all such other things as may appear to the Company to be incidental or conducive to the attainment of the above objects or any of them.

The Company can perform all commercial, technical and financial operations, connected directly or indirectly in all areas as described above in order to facilitate the accomplishment of its purpose, provided always that the Company will not enter into any transaction which would constitute a regulated activity of the financial sector without due authorization under Luxembourg Law.

TITLE II - CAPITAL, SHARES

5. ARTICLE 5.

- 5.1 The subscribed share capital is set at USD 132,438,611 (one hundred thirty-two million four hundred thirty eight six hundred eleven United States Dollars) divided into 132,438,611 (one hundred thirty-two million four hundred thirty eight six hundred eleven) shares having a nominal value of USD 1 (one United States Dollar) each (the "**Shares**").
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- 5.2 The Shares can only be in registered form.
- 5.3 The Company may, without limitation, accept equity or other contributions without issuing Shares or other securities in consideration for the contribution and may credit the contributions to one or more accounts. Decisions as to the use of any such accounts are to be taken by the Board of Directors subject to the Commercial Companies Law and these Articles. For the avoidance of doubt, any such decision may, but needs not to, allocate any amount contributed to the contributor.
- 5.4 The subscribed share capital and any Authorized Capital (as defined below) may be increased or reduced by a resolution of the General Meeting adopted in accordance with the conditions required for the amendment of the Articles, as further detailed in Article 13.18.2 and in accordance with Luxembourg Law.
- 5.5 All Shares must be fully paid up on issue by contributions in cash or in kind.
- 5.6 The Company may have a sole shareholder. The death or dissolution of a sole shareholder will not result in the dissolution of the Company.
- 5.7 In addition to its issued and subscribed share capital, the Company has also an authorized, but unissued and unsubscribed share capital set at USD 231,924,819 (two hundred thirty-one million nine hundred twenty-four thousand eight hundred nineteen United States Dollars) (the "**Authorized Capital**").
- 5.8 The Board of Directors is authorized, during a period starting on the day of the general meeting of shareholders held on 8 May 2025 and ending on the fifth anniversary of the date of publication in the Luxembourg legal gazette (*Recueil Electronique des Sociétés et Associations*) of the minutes of such general meeting, without prejudice to any renewals, to increase the issued share capital on one or more occasions within the limits of the Authorized Capital.
- 5.9 The Board of Directors is authorized to determine the conditions of any capital increase and the issuance of new Shares and the instruments to be issued in accordance with the above provisions through contributions in cash or in kind, among others, by the conversion of debt into equity, by offsetting receivables, by the incorporation of reserves, issue premiums or retained earnings, with or without the issue of new Shares, or following the issue and the exercise of subordinated or non-subordinated bonds, convertible into or repayable by or exchangeable for Shares (whether provided in the terms at issue or subsequently provided), or following the issue of bonds with warrants or other rights to subscribe for Shares attached, or through the issue of stand-alone warrants or any other instrument carrying an entitlement to, or the right to subscribe for, Shares.
- 5.10 The Board of Directors may approve the issuance of new Shares and, where applicable, the instruments to be issued in accordance with the provisions of this Article 5 of the present Articles without reserving (i.e. by cancelling or limiting) the preferential right to subscribe for such Shares and instruments for the existing shareholders so long as such issuance of new Shares and instruments is carried out through a public offering process.
- 5.11 The Board of Directors is authorized to set the subscription price, with or without issue premium, the date from which the Shares or other financial instruments will carry beneficial rights and, if applicable, the duration, amortization, other rights (including early repayment), interest rates, conversion rates and exchange rates of the aforesaid financial instruments as well as all the other conditions and terms of such financial instruments including as to their subscription, issue and payment, for which the Board of Directors may decide that, if the proposed increase of capital is not entirely subscribed for, the capital shall be increased by the amount of subscriptions received.
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- 5.12 The Board of Directors is authorized to allocate existing Shares or new Shares issued under the Authorized Capital, free of charge, to employees and corporate officers (including directors) of the Company and of companies of which at least 10 per cent of the capital or voting rights is directly or indirectly held by the Company. The terms and conditions of such allocations are to be determined by the Board of Directors.
- 5.13 When the Board of Directors has implemented a complete or partial increase in capital as authorized by the foregoing provisions, Article 5 of the present Articles shall be amended to reflect that increase.
- 5.14 The Board of Directors is expressly authorized to delegate to any natural or legal person to organize the market in subscription rights, accept subscriptions, conversions or exchanges, receive payment for the price of Shares, bonds, subscription rights or other financial instruments, to have registered increases of capital carried out as well as the corresponding amendments to Article 5 of the present Articles and to have recorded in said Article 5 of the present Articles the amount by which the authorization to increase the capital has actually been used and, where appropriate, the amounts of any such increase that are reserved for financial instruments which may carry an entitlement to Shares. The non-subscribed portion of the Authorized Capital may be drawn on by the exercise of conversion or subscription rights already conferred by the Company.
- 5.15 The Company may, to the extent and under the terms permitted by Luxembourg Law, purchase its own Shares or cause them to be repurchased by its subsidiaries.
- 5.16 The Company shall consider the person in whose name the Shares are recorded in the register of shareholders to be the owner of those Shares.
- 5.17 Only if a public offering of Shares on a stock exchange, either regulated or not, in the European Economic Area, the United Kingdom, the United States of America, or Canada occurred and in case Shares are recorded in the register of shareholders on behalf of one or more persons in the name of a securities settlement system or the operator of such a system or in the name of a professional depositary of securities or any other depositary (such systems, professionals or other depositaries being referred to hereinafter as “**Depositaries**”) or of a sub-depositary designated by one or more Depositaries, the Company—subject to a confirmation in proper form received from the Depositary—will permit those persons to exercise the rights attaching to those Shares, including admission to and voting at General Meetings. The Board of Directors may determine the requirements which such confirmations must comply with.
- 5.18 Confirmations that an entry has been made in the register of shareholders will be provided to shareholders directly recorded in the register of shareholders or, in case of Depositaries or sub-depositaries recorded in the register, upon their request. Except for transfers in accordance with the rules and regulations of the relevant Depositary, the transfer of Shares shall be made by a written declaration of transfer recorded in the register of shareholders and dated and signed by the transferor and the transferee or by their duly-appointed agents. The Company may accept any other document, instrument, writing or correspondence as sufficient proof of the transfer.
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TITLE III - MANAGEMENT

6. ARTICLE 6.

- 6.1 The Company shall be managed by a board of directors comprising at least five (5) members and a maximum of eleven (11) members (each a "**Director**" and together the "**Directors**"), who shall be appointed by the General Meeting in accordance with Article 13.18.1. The Board of Directors shall at all times be composed as required pursuant to applicable law, including, if applicable, the rules and regulations of any stock exchange on which part or all of the Shares of the Company are listed. In particular, at least three (3) Directors shall meet the independence and financial literacy requirements for audit committee members set forth in the listing rules of the New York Stock Exchange, Toronto Stock Exchange, or any stock exchange on which any Shares of the Company are then listed and any additional requirements under the rules and regulations of the U.S. Securities and Exchange Commission, Canadian securities laws and other applicable law, subject to any available exemptions.
- 6.2 The Directors, whether shareholders or not, are appointed for a period not exceeding two (2) years (renewable) by the General Meeting, which may at any time and "ad nutum" remove them.
- 6.3 The maximum number of Directors and the overall remuneration of the Board of Directors are approved by the General Meeting. The Board of Directors determines the remuneration of each Director based on the total amount approved by the General Meeting.
- 6.4 Any Director may resign at any time by delivering his or her resignation in writing or by electronic transmission to the Chairman (as defined below) or to the Board of Directors. Such resignation shall be effective upon receipt by the Company unless it is specified therein to be effective at some later time, and the acceptance of a resignation shall not be necessary to make it effective unless such resignation specifies otherwise.
- 6.5 In the event that a Director appointed by the General Meeting ceases to be a Director for any reason, the remaining Directors, by a simple majority vote of the Directors present or represented, may, at their discretion, fill such vacancy. This Director will be in office up to the next General Meeting taking place.
- 6.6 Any Director may be suspended or dismissed at any time by a resolution of the General Meeting adopted at a simple majority.

7. ARTICLE 7.

- 7.1 The Board of Directors shall elect from its members a chairman (the "**Chairman**") and who may choose a secretary for each meeting, who need not be a director and who shall be responsible for keeping the minutes of such meeting of the Board of Directors. The Chairman will preside at all meetings of the Board of Directors. In his absence, the other members of the Board of Directors will appoint another chairman "pro tempore", by simple majority vote of the Directors present or represented at such meeting, who will preside at the relevant meeting.
- 7.2 The Board of Directors is convened upon call by the Chairman or at least three (3) Directors, as often as the interest of the Company so requires.
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- 7.3 No separate notice is required for meetings held at times and places specified in a schedule previously adopted by a resolution of the Board of Directors.
- 7.4 Any director may act at any meeting of the Board of Directors by appointing in writing, whether in original, by mail or email, another Director as his or her proxy. A Director may represent more than one of his or her colleagues, provided that at least two (2) directors are present in person or participate by telephone conference or similar means in any meeting.
- 7.5 The Board of Directors can validly debate and take decisions only if at least the majority of its members is present or represented. Resolutions of the Board of Directors are only validly adopted if carried by a majority of the votes of the members of the Board of Directors present or represented. In case of a tie vote, the matter shall be deferred by the Chairman.
- 7.6 Directors may participate in a meeting of the Board of Directors by means of telephone conference or similar communications equipment allowing the identification of each participating Director and by means of which all persons participating in the meeting can hear and speak to each other on a continuous basis, and such participation in a meeting will constitute presence in person at the meeting, provided that all actions approved by the Directors at any such meeting will be reproduced in writing in the form of resolutions.
- 7.7 The deliberations of the Board of Directors shall be recorded in the minutes, shall be signed by the Chairman and by the secretary of the meeting or a member of the Board of Directors who participated to the meeting. Any transcript of or excerpt from these minutes shall be signed by the Chairman or by the secretary of such meeting.
- 7.8 Resolutions in writing signed by all members of the Board of Directors will be as valid and effective as if passed at a meeting duly convened and held. The signatures of such resolutions may appear on a single document or multiple counterparts of an identical document and may be evidenced by mail, email or any similar means. Resolutions adopted in accordance with this procedure are deemed to have been taken at the registered office of the Company.
- 7.9 The Board of Directors shall approve the internal regulation of the Board of Directors.

8. ARTICLE 8.

- 8.1 The Board of Directors is vested with the powers to perform all acts of administration and disposition in compliance with the corporate object of the Company, with the exception of the powers reserved by Luxembourg Law or by the Articles to the General Meeting.
- 8.2 The Board of Directors may establish and dissolve committees including, but not limited to, an audit committee, a compensation, nominating and governance committee, a finance committee, and a sustainability committee set forth their respective duties, approve the internal regulations of those committees, elect the respective members thereof and define and approve, based on the total amount determined by the General Meeting, the remuneration of the members of such committees, including as required pursuant to applicable law (including the rules and regulations of any stock exchange applicable to the Company). Such committee members shall exercise their duties under the responsibility of the Board of Directors.
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9. ARTICLE 9.

9.1 The Company is validly bound or represented towards third parties by:

- 9.1.1 the joint signature of two (2) Directors;
- 9.1.2 if the Board of Directors of the Company has delegated certain powers to a Management Committee (as defined in Article 10), by the joint signature of two (2) Managing Officers, but only within the limits of such delegated powers;
- 9.1.3 if a sole Daily Manager (as defined in Article 11.1) has been appointed, the Company will be bound by the sole signature of such Daily Manager to the extent powers have been delegated to him under Article 11.1, but only within the limits of such delegated powers;
- 9.1.4 if more than one Daily Manager as defined in Article 11.1 has been appointed, the Company will be bound by the joint signature of two Daily Managers, to the extent powers have been delegated to them under Article 11.1, but only within the limits of such delegated powers; or
- 9.1.5 the sole signature or joint signature of any other person(s) to whom such a power has been delegated in accordance with Article 11.2, but only within the limits of such delegated powers.

10. ARTICLE 10.

- 10.1 The Board of Directors may delegate its powers to conduct the management and affairs of the Company, except the general guidance of the Company's business and the acts reserved by the Commercial Companies Law to the Board of Directors, and the representation of the Company for such management and affairs to a management committee (the "**Management Committee**") comprising at least three (3) members and a maximum of eleven (11) members, who need not be shareholders or Directors (each a "**Managing Officer**").
- 10.2 The Managing Officers are appointed by the Board of Directors of the Company for a period not exceeding one (1) year (renewable) which may at any time and "ad nutum" remove and replace them. Their remuneration is determined by the Board of Directors.
- 10.3 The Board of Directors shall approve the internal regulations of the Management Committee, which shall set forth its duties and any other management powers and attributions including, but not limited to: the powers to perform acts or transactions involving the Company, the authorization limits of the Management Committee, appointment and removal of the Daily Managers (as defined below), and any other specific power that may be attributed to the Management Committee by the Board of Directors as determined in the relevant resolution of the Board of Directors to that effect or in the internal regulations of the Management Committee.

11. ARTICLE 11.

- 11.1 The day-to-day management of the business of the Company and the power to represent the Company with respect thereto may be delegated by decision of the Management Committee, if any has been established, or otherwise by decision of the Board of Directors, to one or more Directors, members of the Management Committee, officers, employees or third parties (each a "**Daily Manager**"), acting either alone or jointly, as determined in the relevant internal regulation. A majority of the Daily Managers shall be resident in Luxembourg. The Board of Directors or the Management Committee, if any, shall approve, by a simple majority vote of the Directors or the Managing Officers, respectively, present at such meeting the internal regulations of the Daily Managers and set forth their duties.
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- 11.2 The Board of Directors, the Management Committee, if any, and/or the Daily Manager(s), if any, may delegate any of their powers for specific tasks to one or more ad hoc agents, Directors, Managing Officers, Daily Managers, employee or third party and may remove any such agent(s) and will determine any such agent's powers and responsibilities and remuneration (if any), and any other relevant conditions of such agent's agency.

TITLE IV - SUPERVISION

12. ARTICLE 12.

- 12.1 The Company is supervised by one or more independent auditors (*réviseur(s) d'entreprises agréé(s)*) (the "**Statutory Auditors**"), which are appointed by a General Meeting.
- 12.2 Their term of office must not exceed one (1) year, however, Statutory Auditors may be re-elected. In the event that an Independent Auditor is appointed without any indication of the term of his appointment, his term is deemed to be one (1) year.
- 12.3 A Statutory Auditor may only be removed by a General Meeting for cause in accordance with Luxembourg Law or with the Statutory Auditors' approval.

TITLE V. - GENERAL MEETING

13. ARTICLE 13.

- 13.1 The annual General Meeting shall be held in Luxembourg at the address of the registered office of the Company or at such other place as may be specified in the convening notice of the meeting within six (6) months after the end of the accounting year as set out in Article 14.
- 13.2 Other meetings of the shareholders of the Company may be held at such place and time as may be specified in the respective convening notices of the meeting.
- 13.3 Any shareholder may participate in a General Meeting by conference call, video conference or similar means of communications equipment whereby (i) the shareholders attending the meeting can be identified, (ii) all persons participating in the meeting can hear and speak to each other, (iii) the transmission of the meeting is performed on an on-going basis, and (iv) the shareholders can properly deliberate, and participating in a meeting by such means shall constitute presence in person at such meeting.
- 13.4 Except as otherwise required by Luxembourg Law, by the rules of the New York Stock Exchange, Toronto Stock Exchange, or any stock exchange on which any Shares of the Company are then listed and any additional requirements under the rules and regulations of the U.S. Securities and Exchange Commission, Canadian securities laws and other applicable law or by these Articles, General Meetings shall be convened by the Board of Directors with at least a thirty (30) days prior notice. The quorum provided for by Luxembourg Law shall govern the notice for, and the conduct of, the General Meetings.
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- 13.5 The convening notices shall be sent by registered letter or, alternatively, in any manner as set forth in applicable law or in these Articles.
- 13.6 The convening notice may be sent to a shareholder by any other means of communication having been accepted by such shareholder. Alternative means of communication are email, fax, ordinary letter and courier services.
- 13.7 Only the contact details on record with the Company at least five (5) days before the issue by the Board of Directors of any notice to such shareholder shall be valid and binding on the Company. The Board of Directors shall at the registered office keep a list of the email addresses communicated by the shareholders to the Company and no third party other than the notary recording shareholder decisions shall have access to such a list.
- 13.8 Any shareholder may change its street address or email address or revoke its consent or deemed consent to alternative means of convening provided that its revocation or its new contact details are received by the Company no later than five (5) days before the issue of any notice. The Board of Directors is authorized to ask for confirmation of such new contact details by sending a registered letter or an email, as appropriate, to this new street address or email address. If the shareholder fails to confirm its new contact details, the Board of Directors shall be authorized to send any subsequent notice to the previous contact details.
- 13.9 The Board of Directors as well as the Statutory Auditors may convene a General Meeting. They shall be obliged to convene it so that it is held within a period of one month, if shareholders representing one tenth (1/10th) of the Company's share capital require it in writing, with an indication of the agenda. One or more shareholders representing at least one tenth (1/10th) of the subscribed capital may require the entry of one or more items on the agenda of any General Meeting. This request must be addressed to the Company at least ten (10) days prior to the relevant General Meeting.
- 13.10 The Board of Directors may fix in advance a date preceding the date of (i) any General Meeting and/or (ii) for the payment of any dividend (including, without limitation, an interim dividend) as a record date for the determination of the shareholders entitled to vote at such General Meeting and/or receive payment of any such dividend, respectively, notwithstanding any transfer of any Shares on the register of the Company after any such record date.

Notwithstanding the provisions of the foregoing paragraph of this Article 13.10, the fixing of a record date shall be in conformity with Luxembourg Law and the rules of the New York Stock Exchange, Toronto Stock Exchange, or any stock exchange on which any Shares of the Company are then listed.

- 13.11 Each share is entitled to one vote.

- 13.12 Any shareholder may in accordance with statutory rules vote in person or through a proxy. A shareholder may act at any General Meeting by appointing any other natural or legal person who need not be a shareholder as its proxy in writing whether in original, by telefax, or e-mail to which an electronic signature (which is valid under Luxembourg Law) is affixed. Such proxy shall enjoy the same rights to speak and ask questions during the General Meeting as those to which the shareholder thus represented would be entitled. All the proxies must be received by the Company no later than the day preceding the fifth (5th) Business Day before the General Meeting unless the Board of Directors fixes a shorter period. A person acting as proxy may represent more than one shareholder.
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- 13.13 Except as otherwise required by Luxembourg Law, the rules of the New York Stock Exchange, Toronto Stock Exchange, or any stock exchange on which any Shares of the Company are then listed and any additional requirements under the rules and regulations of the U.S. Securities and Exchange Commission, Canadian securities laws and other applicable law or by these Articles, resolutions at a duly convened General Meeting will be adopted by a simple majority of those present or represented and voting.
- 13.14 If all the shareholders of the Company are present or represented at a General Meeting, and consider themselves as being duly convened and informed of the agenda of the meeting, the meeting may be held without prior notice.
- 13.15 The minutes of the General Meeting will be signed by the members of the bureau of the General Meeting and by any shareholder who wishes to do so.
- 13.16 However, in case decisions of the General Meeting have to be certified, copies or extracts for use in court or elsewhere must be signed by the Chairman of the Board of Directors or by the secretary of the meeting.
- 13.17 Each shareholder may vote through voting forms in the manner set out in the convening notice in relation to a General Meeting. The shareholders may only use voting forms provided by the Company and which contain at least the place, date and time of the meeting, the agenda of the meeting, the proposal submitted to the decision of the meeting, as well as for each proposal three boxes allowing the shareholder to vote in favour, against, or abstain from voting on each proposed resolution by ticking the appropriate box. Voting forms which show neither a vote in favor, nor against the resolution, nor an abstention, shall be void. The Company will only take into account voting forms received three (3) days prior to the General Meeting to which they relate and which comply with the requirements set out on the convening notice.
- 13.18 Without prejudice to any legal requirements in relation to such matters being approved by a meeting of the Board of Directors and without prejudice of any other matters that must be approved by the General Meeting according to Luxembourg Law, the General Meeting is in particular (but not limited to) vested with the rights and powers in relation to the matters set out in Articles 13.18.1 and 13.18.2.
- 13.18.1 Decisions by the General Meeting with regard to the following matters shall be adopted by a simple majority of the votes validly cast, regardless of the portion of the capital represented:
- (a) approval of the annual accounts and respective inventory and balance sheet of the Company;
 - (b) distribution of dividends;
 - (c) appointment and removal of Directors, as provided in Article 6 above;
-

- (d) appointment and removal of Statutory Auditor(s), as the case may be, as provided in Article 12 above; and
- (e) the appointment and dismissal of liquidators and judgment of their accounts.

13.18.2 Decisions by the General Meeting with regard to the following matters shall be adopted with a majority of two-thirds of the votes validly cast at a meeting in which holders of at least half of the Company's issued share capital are present or represented:

- (a) amendments to the Articles;
- (b) transfer of the registered office of the Company outside the Grand Duchy of Luxembourg;
- (c) capital increases other than under the Authorized Capital and capital decreases; and
- (d) the dissolution of the Company.

13.18.3 If the quorum requirement set out in the preceding paragraph is not satisfied, a second meeting may be convened, in the manner prescribed by these Articles or by the Commercial Companies Law. The second convening notice shall reproduce the agenda and indicate the date and the results of the previous notice.

13.19 Bondholders cannot attend a General Meeting. This does not preclude shareholders who are also bondholders to attend a General Meeting in their quality as shareholders of the Company.

TITLE VI - ACCOUNTING YEAR, ALLOCATION OF PROFITS

14. ARTICLE 14.-

The accounting year of the Company shall begin on the 1st of January and shall terminate on the 31st of December of each year.

15. ARTICLE 15.

15.1 Each year on the 31st of December, the accounts are closed and the Board of Directors prepares an inventory including an indication of the value of the Company's assets and liabilities. Each shareholder may inspect the above inventory and balance sheet at the Company's registered office.

15.2 From the annual net profits of the Company, five per cent (5%) shall be allocated to the legal reserve. This allocation shall cease to be mandatory as soon and as long as such reserve amounts to ten per cent (10%) of the subscribed capital of the Company, as stated in Article 5 hereof or as increased or reduced from time to time as provided in Article 5 hereof.

15.3 The balance is at the disposal of the General Meeting.

15.4 Under the terms and conditions provided by the Luxembourg Law, the Board of Directors may proceed to the payment of interim dividends to the shareholder(s) which shall be paid at the places and on the dates decided by the Board of Directors with respect to Article 13.10.

- 15.5 The share premium, if any, may be freely distributed to the shareholder(s) according to Luxembourg Law by a resolution of the Board of Directors.

TITLE VII - DISSOLUTION, LIQUIDATION

16. ARTICLE 16.-

The Company may be dissolved by a resolution of the General Meeting. If the Company is dissolved, the liquidation will be carried out by one or more liquidators, physical or legal persons, appointed by the General Meeting, which will specify their powers and fix their remuneration.

TITLE VIII.- GENERAL PROVISIONS

17. ARTICLE 17.

17.1 In these Articles:

17.1.1 a reference to:

- (a) one gender shall include each gender;
- (b) (unless the context otherwise requires) the singular shall include the plural and vice versa;
- (c) a "**person**" includes a reference to any individual, firm, company, corporation or other body corporate, government, state or agency of a state or any joint venture, association or partnership, works council or employee representative body (whether or not having a separate legal personality);
- (d) a statutory provision or statute includes all modifications thereto and all re-enactments (with or without modifications) thereof;
- (e) a "**Business Day**" shall mean any day (other than a Saturday or a Sunday) on which banks in the Grand Duchy of Luxembourg are open for the conduct of non-automated banking operations.

17.1.2 the words "include" and "including" shall be deemed to be followed by the words "without limitation" and general words shall not be given a restrictive meaning by reason of their being preceded or followed by words indicating a particular class of acts, matters or things or by examples falling within the general words;

17.1.3 the headings to these Articles do not affect their interpretation or construction.

17.2 All matters not governed by these Articles are to be construed in accordance with the Commercial Companies Law, as amended.

NEXA RESOURCES S.A.
as Issuer,

NEXA RESOURCES CAJAMARQUILLA S.A.

NEXA RESOURCES PERU S.A.A.

and

NEXA RECURSOS MINERAIS S.A.
as Guarantors,

and

THE BANK OF NEW YORK MELLON
as Trustee, Principal Paying Agent, Transfer Agent and Registrar,

Indenture

Dated as of June 18, 2020

U.S.\$500,000,000

6.500% Notes due 2028

Table of Contents

Page

Article I

DEFINITIONS AND OTHER PROVISIONS OF GENERAL APPLICATION

Section 1.1.	Definitions	2
Section 1.2.	Compliance Certificates and Opinions	15
Section 1.3.	Form of Documents Delivered to Trustee	15
Section 1.4.	Acts of Holders; Record Date	16
Section 1.5.	Notices, Etc., to Trustee, the Paying Agents and the Issuer	18
Section 1.6.	Notice to Holders; Waiver	19
Section 1.7.	Effect of Headings and Table of Contents	19
Section 1.8.	Successors and Assigns	19
Section 1.9.	Separability Clause	19
Section 1.10.	Benefits of Indenture	19
Section 1.11.	Governing Law	20
Section 1.12.	Legal Holidays	20
Section 1.13.	Consent to Jurisdiction and Service of Process	20
Section 1.14.	Currency of Account; Conversion of Currency; Foreign Exchange Restrictions	22
Section 1.15.	Counterparts	24
Section 1.16.	Force Majeure	24
Section 1.17.	U.S.A. PATRIOT Act	24
Section 1.18.	Anti-Money Laundering, Terrorism and Economic Sanctions	24
Section 1.19.	Effective Date	25

Article II

NOTE FORMS

Section 2.1.	Forms Generally	25
Section 2.2.	Form of Face of Note	26
Section 2.3.	Form of Reverse of Note	29
Section 2.4.	Form of Trustee's Certificate of Authentication	34

Article III

THE NOTES

Section 3.1.	Title and Terms	35
Section 3.2.	Denominations	35
Section 3.3.	Execution, Authentication, Delivery and Dating	35
Section 3.4.	Global Notes; Registration, Registration of Transfer and Exchange	36

Section 3.5.	Mutilated, Destroyed, Lost and Stolen Notes	40
Section 3.6.	Payment of Interest; Interest Rights Preserved	41
Section 3.7.	Persons Deemed Owners	42
Section 3.8.	Cancellation	42
Section 3.9.	Computation of Interest	43
Section 3.10.	CUSIP Numbers	43
Section 3.11.	Paying Agents; Discharge of Payment Obligations; Indemnity of Holders	43

Article IV

REDEMPTION OF NOTES

Section 4.1.	Redemption for Tax Reasons	44
Section 4.2.	Optional Redemption	45
Section 4.3.	Applicability of Article	46
Section 4.4.	Election to Redeem; Notice to Trustee, Registrar and Paying Agent	46
Section 4.5.	Notice of Redemption	46
Section 4.6.	Deposit of Redemption Price	47
Section 4.7.	Notes Payable on Redemption Date	47

Article V

SATISFACTION AND DISCHARGE

Section 5.1.	Satisfaction and Discharge of Indenture	47
Section 5.2.	Application of Trust Money	48

Article VI

REMEDIES

Section 6.1.	Events of Default	49
Section 6.2.	Collection of Indebtedness and Suits for Enforcement by Trustee	50
Section 6.3.	Trustee May File Proofs of Claim	51
Section 6.4.	Trustee May Enforce Claims Without Possession of Notes	51
Section 6.5.	Application of Money Collected	52
Section 6.6.	Limitation on Suits	52
Section 6.7.	Unconditional Right of Holders to Receive Principal, Premium and Interest	53
Section 6.8.	Restoration of Rights and Remedies	53
Section 6.9.	Rights and Remedies Cumulative	53
Section 6.10.	Delay or Omission Not Waiver	53
Section 6.11.	Control by Holders	54
Section 6.12.	Waiver of Past Defaults	54
Section 6.13.	Undertaking for Costs	54

Article VII

THE TRUSTEE

Section 7.1.	Certain Duties and Responsibilities	55
Section 7.2.	Notice of Defaults	57
Section 7.3.	Certain Rights of Trustee and the Agents	57
Section 7.4.	Not Responsible for Recitals or Issuance of Notes	59
Section 7.5.	May Hold Notes	59
Section 7.6.	Money Held in Trust	59
Section 7.7.	Compensation and Reimbursement	59
Section 7.8.	Corporate Trustee Required; Eligibility	60
Section 7.9.	Resignation and Removal; Appointment of Successor	60
Section 7.10.	Acceptance of Appointment by Successor	62
Section 7.11.	Merger, Conversion, Consolidation or Succession to Business	62
Section 7.12.	Appointment of Authenticating Agent	62

Article VIII

HOLDERS LISTS AND COMMUNICATIONS BY TRUSTEE AND ISSUER

Section 8.1.	Issuer to Furnish Trustee; Names and Addresses of Holders	64
Section 8.2.	Preservation of Information; Communications to Holders	64

Article IX

CONSOLIDATION, MERGER, CONVEYANCE, TRANSFER OR LEASE

Section 9.1.	Mergers, Consolidations and Certain Sales of Assets	65

Article X

SUPPLEMENTAL INDENTURES

Section 10.1.	Supplemental Indentures Without Consent of Holders	66
Section 10.2.	Supplemental Indentures with Consent of Holders	67
Section 10.3.	Execution of Supplemental Indentures	68
Section 10.4.	Effect of Supplemental Indentures	68
Section 10.5.	Reference in Notes to Supplemental Indentures	68
Section 10.6.	Notice to Holders	68

Article XI

COVENANTS

Section 11.1.	Payment Under the Notes	69
Section 11.2.	Maintenance of Office or Agency	69
Section 11.3.	Money for Note Payments to Be Held in Trust	69

Section 11.4.	Maintenance of Corporate Existence	71
Section 11.5.	Repurchases at the Option of the Holders upon Change of Control	71
Section 11.6.	Payment of Taxes and Other Claims	73
Section 11.7.	Provision of Financial Information	73
Section 11.8.	Statement by Officers as to Default	73
Section 11.9.	Payment of Additional Amounts	74
Section 11.10.	Limitation on Liens	76
Section 11.11.	[Intentionally Omitted]	78
Section 11.12.	Performance Obligations Under Other Documents	78
Section 11.13.	Compliance with Laws	78
Section 11.14.	Maintenance of Government Approvals	78
Section 11.15.	[Intentionally Omitted]	78
Section 11.16.	Maintenance of Books and Records	78
Section 11.17.	Ranking	79

Article XII

LEGAL DEFEASANCE AND COVENANT DEFEASANCE

Section 12.1.	Option to Effect Defeasance or Covenant Defeasance	79
Section 12.2.	Defeasance and Discharge	79
Section 12.3.	Covenant Defeasance	79
Section 12.4.	Conditions to Defeasance or Covenant Defeasance	80
Section 12.5.	Deposited Money and U.S. Government Obligations to Be Held in Trust; Other Miscellaneous Provisions	81
Section 12.6.	Reinstatement	82
Section 12.7.	Repayment to Issuer or the Guarantors	82

Article XIII

SUBSTITUTION OF THE ISSUER

Section 13.1.	Substitution of the Issuer	83

Article XIV

GUARANTEES

Section 14.1.	Guarantees	85
Section 14.2.	Delivery of the Guarantee	87
Section 14.3.	Release of Guarantor	87

Article XV

MEETINGS OF HOLDERS OF SECURITIES

Section 15.1.	Purposes for Which Meetings May Be Called	87
Section 15.2.	Call, Notice and Place of Meetings	87

Section 15.3.	Persons Entitled to Vote at Meetings	88
Section 15.4.	Quorum; Action	88
Section 15.5.	Determination of Voting Rights; Conduct and Adjournment of Meetings	89
Section 15.6.	Counting Votes and Recording Action of Meetings	90

EXHIBITS

Exhibit A	—	FORM OF CERTIFICATION FOR TRANSFER OR EXCHANGE OF RESTRICTED GLOBAL SECURITY TO REGULATION S GLOBAL SECURITY
Exhibit B	—	FORM OF CERTIFICATION FOR TRANSFER OR EXCHANGE OF REGULATION S GLOBAL SECURITY TO RESTRICTED GLOBAL SECURITY
Exhibit C-1	—	FORM OF CERTIFICATION FOR TRANSFER OR EXCHANGE OF NON-GLOBAL RESTRICTED SECURITY TO RESTRICTED GLOBAL SECURITY
Exhibit C-2	—	FORM OF CERTIFICATION FOR TRANSFER OR EXCHANGE OF NON-GLOBAL RESTRICTED SECURITY TO REGULATION S GLOBAL SECURITY
Exhibit D-1	—	FORM OF CERTIFICATION FOR TRANSFER OR EXCHANGE OF NON-GLOBAL REGULATION S SECURITY TO RESTRICTED GLOBAL SECURITY
Exhibit D-2	—	FORM OF CERTIFICATION FOR TRANSFER OR EXCHANGE OF NON-GLOBAL REGULATION S SECURITY TO REGULATION S GLOBAL SECURITY

Note: This Table of Contents shall not, for any purpose, be deemed to be part of this Indenture.

THIS INDENTURE, dated as of June 18, 2020, among Nexa Resources S.A., a public limited liability company validly organized under the laws of the Grand Duchy of Luxembourg having its registered office at 37A Avenue J.F. Kennedy, L-1855, Luxembourg, Grand Duchy of Luxembourg and registered with the *Registre de Commerce et des Sociétés* in Luxembourg under number B 185.489 (the “Issuer”), Nexa Resources Cajamarquilla S.A., a corporation (*sociedad anónima*) validly organized under the laws of the Republic of Peru (“Nexa CJM”), Nexa Resources Perú S.A.A., a publicly held corporation (*sociedad anónima abierta*) validly organized under the laws of the Republic of Peru (“Nexa Peru”), Nexa Recursos Minerais S.A., a corporation (*sociedade anônima*) validly organized under the laws of the Federative Republic of Brazil (“Nexa Brazil”, and, together with Nexa CJM and Nexa Peru, the “Guarantors”), and The Bank of New York Mellon, a New York banking corporation, as trustee (the “Trustee”), a paying agent (the “Principal Paying Agent” and any other paying agents to be appointed hereunder, the “Paying Agents”), transfer agent (the “Transfer Agent”), and registrar (the “Registrar”) and any other paying agents to be appointed hereunder, the “Paying Agents”.

RECITALS

WHEREAS, the Issuer has duly authorized the creation of an issue of U.S.\$500,000,000 of its 6.500% Notes due 2028 (the “Initial Notes” and, together with any Additional Notes (as defined herein) issued as provided for in Section 2.2 and 2.17 hereof, the “Notes”) of substantially the tenor and amount hereinafter set forth, and to provide therefor the Issuer has duly authorized the execution and delivery of this Indenture.

WHEREAS, Nexa CJM, Nexa Peru and Nexa Brazil have duly authorized the execution and delivery of this Indenture to provide for their Guarantees with respect to the Notes as set forth in this Indenture.

WHEREAS, all things necessary (i) to make the Initial Notes, when executed by the Issuer and authenticated and delivered hereunder and duly issued by the Issuer, the valid obligations of the Issuer, (ii) to make the Guarantees of Nexa CJM, Nexa Peru and Nexa Brazil, when executed by Nexa CJM, Nexa Peru and Nexa Brazil and endorsed on the Notes executed, authenticated and delivered hereunder, the valid obligations of Nexa CJM, Nexa Peru and Nexa Brazil and (iii) to make this Indenture a valid agreement of the Issuer, Nexa CJM, Nexa Peru and Nexa Brazil, all, in accordance with their respective terms, have been done.

NOW, THEREFORE, THIS INDENTURE WITNESSETH:

For and in consideration of the premises and the purchase of the Notes by the Holders (as defined below) thereof, it is mutually covenanted and agreed, for the equal and proportionate benefit of all Holders of the Notes, as follows:

ARTICLE I

DEFINITIONS AND OTHER PROVISIONS
OF GENERAL APPLICATION

Section 1.1. Definitions.

For all purposes of this Indenture, except as otherwise expressly provided or unless the context otherwise requires:

- (1) the terms defined in this Article have the meanings assigned to them in this Article and include the plural as well as the singular;
- (2) all accounting terms not otherwise defined herein have the meanings assigned to them in accordance with GAAP (whether or not such is indicated herein);
- (3) the words "herein," "hereof" and "hereunder" and other words of similar import refer to this Indenture as a whole and not to any particular Article, Section or other subdivision;
- (4) whenever there is mentioned in this Indenture, in any context, the payment of, or in respect of, a Redemption Price, the principal of or any premium or interest on any Note or the net proceeds received on the sale or exchange of any Notes, such mention shall be deemed to include mention of the payment of Additional Amounts to the extent that, in such context, Additional Amounts are, were or would be payable in respect thereof pursuant to this Indenture;
- (5) All references in this Indenture to "\$," "U.S.\$," "dollars" or "United States dollars" shall refer to the lawful currency of the United States.

"Act" when used with respect to any Holder, has the meaning specified in Section 1.4. "Additional Amounts" has the meaning specified in Section 11.9.

"Additional Notes" means additional 6.500% Notes due 2028 issued from time to time after the Issue Date under the terms of this Indenture.

"Affiliate" of any Person means any other Person controlling or controlled by or under direct or indirect common control with such Person. For the purposes of this definition, "control," when used with respect to any Person, means the power to direct the management and policies of such Person, directly or indirectly, whether through the ownership of voting securities, by contract or otherwise; and the terms "controlling" and "controlled" have meanings correlative to the foregoing.

"Agent Member" means any member of, or participant in, the Depositary.

"Agents" means any Paying Agent, the Registrar, the Transfer Agent and any Principal Paying Agent appointed hereunder.

“Bankruptcy Law” means Title 11, United States Code, Brazilian Federal Law No. 11,101, dated February 9, 2005, as amended, or any similar federal or state law relating to bankruptcy, insolvency, receivership, winding-up, suspension of payments, liquidation, reorganization or relief of debtors or the law of any other jurisdiction relating to bankruptcy, insolvency, receivership, winding-up, suspension of payments, liquidation, dissolution, *“procedimiento concursal ordinario,” “procedimiento concursal preventivo,” “procedimiento acelerado de refinanciación concursal,” “recuperação judicial,” “recuperação extrajudicial,”* reorganization or relief of debtors, the judicial proceedings referred to in article 13, items 2 to 11 of the Luxembourg law dated 19 December 2002 relating to the register of commerce and companies as well as the accounting and the annual accounts of companies, as amended, including in particular, bankruptcy (*faillite*), controlled management (*gestion contrôlée*), suspension of payments (*sursis de paiement*), arrangement with creditors (*concordat préventif de la faillite*) and judicial liquidation (*liquidation judiciaire*) proceedings or any amendment to, succession to or change in any such law, procedure or process.

“Bankruptcy Order” means any court order made in a proceeding pursuant to or within the meaning of any Bankruptcy Law, containing an adjudication of bankruptcy or insolvency, or providing for liquidation, receivership, winding-up, dissolution, *“procedimiento concursal ordinario,” “procedimiento concursal preventivo,” “procedimiento acelerado de refinanciación concursal,” “recuperação judicial,” “recuperação extrajudicial,”* or reorganization, or appointing a custodian of a debtor or of all or any substantial part of a debtor’s property, or providing for the staying, arrangement, adjustment or composition of Indebtedness or other relief of a debtor or in any court order made in connection with the judicial proceedings referred to in article 13, items 2 to 11 of the Luxembourg law dated 19 December 2002 relating to the register of commerce and companies as well as the accounting and the annual accounts of companies, as amended, including in particular, bankruptcy (*faillite*), controlled management (*gestion contrôlée*), suspension of payments (*sursis de paiement*), arrangement with creditors (*concordat préventif de la faillite*) and judicial liquidation (*liquidation judiciaire*) proceedings.

“Base Currency” has the meaning set forth in Section 1.14.

“Board of Directors” means the board of directors of the Issuer.

“Board Resolution” means a duly adopted resolution of the Board of Directors in full force and effect at the time of determination.

“Brazil” means the Federative Republic of Brazil and any ministry, department, authority (including the Central Bank of Brazil) or statutory corporation or other entity (including a trust), owned or controlled directly or indirectly by the Federative Republic of Brazil or any of the foregoing.

“Business Day” means each day that is not a Saturday, Sunday or other day on which banking institutions in New York, United States, Luxembourg, Grand Duchy of Luxembourg, São Paulo, Brazil or Lima, Peru are authorized or required by law to close.

“Capital Lease Obligation” of any Person means the obligation to pay rent or other payment amounts under a lease of (or other Indebtedness arrangements conveying the right to use) real or personal property of such Person which is required to be classified and accounted for as a capital lease or a liability set forth on a balance sheet of such Person in accordance with applicable GAAP. The stated maturity of such obligation shall be the date of the last payment of rent or any other amount due under such lease prior to the first date upon which such lease may be terminated by the lessee without payment of a penalty. The principal amount of such obligation shall be the capitalized amount thereof that would appear on the face of a balance sheet of such Person in accordance with applicable GAAP.

“Capital Stock” of any Person means any and all shares, interests, participations or other equivalents (however designated and whether voting or non-voting) of corporate stock or other equity participations or ownership interests, including quotas in a Brazilian limited liability quota company (*limitada*) or partnership interests, whether general or limited, of such Person.

“Cash Equivalents” means:

(1) United States dollars, Brazilian *reais*, Peruvian *soles*, euros, or money in other currencies received in the ordinary course of business of the Issuer and its Subsidiaries that are readily convertible into United States dollars or euros,

(2) any evidence of Debt with a maturity of 180 days or less issued or directly and fully guaranteed or insured by Brazil, Peru or the United States or any agency or instrumentality thereof, provided that the full faith and credit of Brazil, Peru or the United States is pledged in support thereof,

(3) (i) demand deposits, (ii) time deposits and certificates of deposit with maturities of one year or less from the date of acquisition, (iii) bankers’ acceptances with maturities not exceeding one year from the date of acquisition, and (iv) overnight bank deposits, in each case with any bank or trust company organized or licensed under the laws of Luxembourg, Brazil, Peru or the United States or any political subdivision or state thereof having capital, surplus and undivided profits in excess of U.S.\$500.0 million whose short-term debt is rated “A-2” or higher by S&P or “P-2” or higher by Moody’s,

(4) repurchase obligations with a term of not more than seven days for underlying securities of the type described in clauses (2) and (3) above entered into with any financial institution meeting the qualifications specified in clause (3) above,

(5) commercial paper rated at least P-1 by Moody’s or A-1 by S&P and maturing within six months after the date of acquisition, and

(6) money market funds at least 95% of the assets of which consist of investments of the type described in clauses (1) through (5) above.

“Change of Control” means that the Permitted Holders shall cease to own, directly or indirectly, at least a majority of the outstanding voting power of the Voting Stock of the Issuer and shall cease to have the power to direct or cause the direction of the management and policies of the Issuer.

“Change of Control Offer” has the meaning specified in Section 11.5.

“Change of Control Payment” has the meaning specified in Section 11.5.

“Change of Control Payment Date” has the meaning specified in Section 11.5.

“Central Bank” means (i) the Central Bank of Luxembourg, (ii) the Central Bank of Brazil and (iii) the Central Reserve Bank of Peru or, in each case, any successor entity thereto.

“Change of Law” has the meaning specified in Section 3.1.

“Clearstream” means Clearstream Banking, *société anonyme*.

“Code” means the United States Internal Revenue Code of 1986, as amended.

“Comparable Treasury Issue” means the United States Treasury security or securities selected by an Independent Investment Banker as having an actual or interpolated maturity comparable to the period from the Redemption Date to the Par Call Date that would be utilized, at the time of selection and in accordance with customary financial practice, in pricing new issues of corporate debt securities of a comparable maturity to the period from the Redemption Date to the Par Call Date.

“Comparable Treasury Price” means, with respect to any Redemption Date, (1) the average of the Reference Treasury Dealer Quotations for such redemption date, after excluding the highest and lowest such Reference Treasury Dealer Quotation, or (2) if the Issuer or a Guarantor obtains fewer than four such Reference Treasury Dealer Quotations, the average of all such quotations.

“Consolidated Total Assets” means, on a consolidated basis, the Issuer’s total amount of assets, calculated based on the most recent balance sheet delivered by the Issuer to the Trustee pursuant to this Indenture, after giving pro forma effect to any acquisition or disposition of companies, divisions, lines of businesses, operations or assets by the Issuer and its Subsidiaries subsequent to such date.

“Corporate Trust Office” means the principal office of the Trustee in The City of New York, New York, at which at any particular time its corporate trust business shall be administered, which at the date hereof is located at 240 Greenwich Street, New York, New York 10286, United States, Attention: Global Corporate Trust, Fax: (212) 815-5603, and such other offices as the Trustee may designate from time to time.

“corporation” means a corporation, association, company, limited liability company, joint stock company or business trust.

“covenant defeasance” has the meaning specified in Section 12.3.

“Default” means an event that with the passing of time or the giving of notice or both shall constitute an Event of Default.

“Defaulted Interest” has the meaning specified in Section 3.6.

“Depository” means, with respect to the Notes issuable or issued in whole or in part in the form of one or more Global Notes, DTC for so long as it shall be a clearing agency registered under the Exchange Act, or such successor as the Issuer shall designate from time to time in an Officer’s Certificate delivered to the Trustee.

“Designated Subsidiary” means (i) each Guarantor and (ii) any other Subsidiary of the Issuer which, as of the date of the Issuer’s most recent quarterly or annual, as applicable, consolidated balance sheet, constituted 15% or more of the Consolidated Total Assets of the Issuer, after giving pro forma effect to any acquisition or disposition of companies, divisions, lines of businesses, operations or assets by the Issuer and its Subsidiaries subsequent to such date.

“Director” means a member of the Board of Directors.

“Disqualified Stock” of any Person means any Capital Stock of such Person which, by its terms (or by the terms of any security into which it is convertible or for which it is exchangeable), or upon the happening of any event, matures or is mandatorily redeemable, pursuant to a sinking fund obligation or otherwise, or is redeemable at the option of the holder thereof, in whole or in part, on or prior to the Stated Maturity of the Notes.

“DTC” means The Depository Trust Company.

“Euroclear” means Euroclear Bank S.A./N.V., as operator of the Euroclear system or its successors.

“Event of Default” has the meaning specified in Section 6.1.

“Exchange Act” means the United States Securities Exchange Act of 1934, as amended (or any successor act), and the rules and regulations thereunder.

“Expiration Date” has the meaning set forth in Section 1.4.

“FATCA” means Sections 1471 to 1474 of the U.S. Internal Revenue Code of 1986, as amended.

“Fitch” means Fitch Rating Service, Inc. and its successors.

“GAAP” means, as elected from time to time by the Issuer, (i) generally accepted accounting principles prescribed by the laws, rules and regulations applicable in the jurisdiction of incorporation of the Issuer, (ii) International Financial Reporting Standards, or (iii) accounting practices generally accepted in the United States, in each case, as in effect from time to time.

“Global Note” means, as the context may require, any or all of the Regulation S Global Note(s) and the Restricted Global Note(s), evidencing all or part of a series of Notes which is issued to the Depositary or its nominee and is registered in the name of the Depositary or its nominee.

“guarantee” by any Person means any obligation, contingent or otherwise, of such Person guaranteeing, or having the economic effect of guaranteeing, any Indebtedness of any other Person (the “primary obligor”) in any manner, whether directly or indirectly, and including, without limitation, any obligation of such Person, (i) to purchase or pay (or advance or supply funds for the purchase or payment of) such Indebtedness or to purchase (or to advance or supply funds for the purchase of) any security for the payment of such Indebtedness, (ii) to purchase property, securities or services for the purpose of assuring the holder of such Indebtedness of the payment of such Indebtedness, or (iii) to maintain working capital, equity capital or other financial statement condition or liquidity of the primary obligor so as to enable the primary obligor to pay such Indebtedness (and “guaranteed,” “guaranteeing” and “guarantor” shall have meanings correlative to the foregoing); provided that, the guarantee by any Person shall not include endorsements by such Person for collection or deposit, in either case, in the ordinary course of business; provided further that, the Incurrence by the Issuer or a Designated Subsidiary of a Lien permitted under clause (2) of Section 11.10 shall not be deemed to constitute a guarantee by the Issuer or a Designated Subsidiary of any purchase money debt of such Person secured thereby.

“Guarantee” means the guarantee by the Guarantors of the due and punctual payment of the principal (and premium, if any) and interest (including any Additional Amounts) on, the Notes and other amounts due under this Indenture.

“Guarantors” mean Nexa CJM, Nexa Peru and Nexa Brazil.

“Holder” means a Person in whose name a Note is registered on the Registrar’s books.

“Incur” means, with respect to any Indebtedness or other obligation of any Person, to create, issue, incur (by conversion, exchange or otherwise), assume, guarantee or otherwise become liable in respect of such Indebtedness or other obligation including by acquisition of Subsidiaries or the recording, as required pursuant to applicable GAAP or otherwise, of any such Indebtedness or other obligation on the balance sheet of such Person (and “Incurrence,” “Incurred,” “Incurable” and “Incurring” shall have meanings correlative to the foregoing); provided that a change in applicable GAAP that results in an obligation of such Person that exists at such time becoming Indebtedness shall not be deemed an Incurrence of such Indebtedness and that neither the accrual of interest nor the accretion of original issue discount shall be deemed an Incurrence of Indebtedness; provided further that, the Issuer may elect to treat all or any portion of revolving credit debt commitments, whether or not then outstanding, of the Issuer or a Subsidiary as being incurred from and after any date beginning the date the relevant revolving credit commitment is extended to the Issuer or a Subsidiary, as the case may be, by furnishing written notice thereof to the Trustee, and any borrowings or reborrowings by the Issuer or a Subsidiary under such commitment up to the amount of such commitment designated by the Issuer or such Subsidiary as Incurred shall not be deemed to be new Incurrences of Indebtedness by the Issuer or such Subsidiary, as the case may be.

"Indebtedness" means (without duplication), with respect to any Person, whether recourse is to all or a portion of the assets of such Person and whether or not contingent, (i) every obligation of such Person for money borrowed, (ii) every obligation of such Person evidenced by bonds, debentures, notes or other similar instruments, including any such obligations Incurred in connection with the acquisition of property, assets or businesses, (iii) every reimbursement obligation of such Person with respect to letters of credit, bankers' acceptances or similar facilities issued for the account of such Person, (iv) every obligation of such Person issued or assumed as the deferred purchase price of property or services (including securities repurchase agreements but excluding trade accounts payable or accrued liabilities arising in the ordinary course of business which are payable on customary trade terms or which are being contested in good faith), (v) all obligations to redeem Disqualified Stock issued by such Person, (vi) every Net Obligation under Interest Rate or Currency Protection Agreements of such Person, (vii) every Capital Lease Obligation of such Person, and (viii) every obligation of the type referred to in clauses (i) through (vii) of another Person and all dividends of another Person the payment of which, in either case, such Person has guaranteed, other than with respect to clauses (iii) and (vi) above, in each case, if and to the extent any of the preceding items would appear as a liability upon the financial statements of the specified Person in accordance with applicable GAAP.

"Indenture" means this instrument as originally executed or as it may from time to time be supplemented or amended by one or more supplemental indentures hereto entered into pursuant to the applicable provisions hereof.

"Independent Investment Banker" means one of the Reference Treasury Dealers appointed by the Issuer or a Guarantor.

"Initial Notes" means the U.S.\$500,000,000 of Notes designated in the first paragraph of the Recitals.

"Interest Payment Date" means each January 18 and July 18, commencing January 18, 2021.

"Interest Rate or Currency Protection Agreement" of any Person means any forward contract, futures contract, swap, option, hedge or other financial agreement or arrangement (including, without limitation, caps, floors, collars and similar agreements) relating to, or the value of which is dependent upon, interest rates or currency exchange rates or indices.

"Investment Grade Rating" means a rating equal to or higher than (i) BBB- (or the equivalent) by S&P, (ii) Baa3 (or the equivalent) by Moody's or (iii) BBB- (or the equivalent) by Fitch.

"Issuer" means the Person named as the "Issuer" in the first paragraph of this instrument until a successor Person shall have become such pursuant to the applicable provisions of this Indenture and thereafter "Issuer" shall mean such successor Person.

"Issue Date" means June 18, 2020.

"Issuer Request" or "Issuer Order" means a written request or order signed in the name of the Issuer by an authorized signatory of the Issuer and delivered to the Trustee.

“Lien” means any mortgage, pledge, security interest, encumbrance or charge of any kind (including, without limitation, any conditional sale or other title retention agreement or lease in the nature thereof or any agreement to give any security interest).

“Luxembourg” means the Grand Duchy of Luxembourg and any ministry, department, authority (including the Central Bank of Luxembourg) or statutory corporation or other entity (including a trust), owned or controlled directly or indirectly by the Grand Duchy of Luxembourg or any of the foregoing.

“Maturity” when used with respect to any Note, means the date on which the principal of such Note becomes due and payable as therein or herein provided, whether at the Stated Maturity or by declaration of acceleration, call for redemption or otherwise.

“Maturity Date” means January 18, 2028.

“Moody’s” means Moody’s Investors Service, Inc. and its successors.

“Net Obligation” at any date of determination means the net amount, exclusive of any commissions or administrative fees that a Person would be obligated to pay upon the termination of an Interest Rate or Currency Protection Agreement as of such date.

“Nexa Brazil” means the Person named as “Nexa Brazil” in the first paragraph of this instrument until a successor Person shall have become such pursuant to the applicable provisions of this Indenture and thereafter “Nexa Brazil” shall mean such successor Person.

“Nexa CJM” means the Person named as “Nexa CJM” in the first paragraph of this instrument until a successor Person shall have become such pursuant to the applicable provisions of this Indenture and thereafter “Nexa CJM” shall mean such successor Person.

“Nexa Peru” means the Person named as “Nexa Peru” in the first paragraph of this instrument until a successor Person shall have become such pursuant to the applicable provisions of this Indenture and thereafter “Nexa Peru” shall mean such successor Person.

“Note Register” has the meaning specified in Section 3.4(b).

“Notes” has the meaning specified in the first paragraph of the Recitals.

“Notice of Default” has the meaning set forth in Section 7.2.

"OECD" means the Organization for Economic Co-operation and Development.

"Officer's Certificate" means a certificate signed by any of the following: the Chief Executive Officer, President, Chief Financial Officer or a Vice President; and delivered to the Trustee and containing the statements provided for in Section 1.2 hereof (if applicable).

"Opinion of Counsel" means a written opinion of legal counsel, who may be counsel for the Issuer or a Guarantor, containing the statements provided for in Section 1.2 in form and substance reasonably acceptable to the Trustee.

"Outstanding" when used with respect to the Notes, means, as of the date of determination, all the Notes theretofore authenticated and delivered under this Indenture (including, as of such date, all the Notes represented by Global Notes authenticated and delivered under this Indenture), except the reduced portion or portions of any Global Note, as such reduction or reductions shall have been endorsed on such Global Note by the Trustee as provided herein and, except:

(i) the Notes theretofore cancelled by the Trustee or delivered to the Trustee for cancellation;

(ii) the Notes for whose payment or redemption money in the necessary amount has been theretofore deposited with the Trustee or any Paying Agent (other than the Issuer) in trust or set aside and segregated in trust by the Issuer (if the Issuer shall act as its own Paying Agent) for the Holders of such Notes; provided that if such Notes are to be repurchased, notice of such repurchase has been duly given pursuant to this Indenture; and

(iii) Notes which have been issued pursuant to Section 3.5 or in exchange for or in lieu of which other Notes have been authenticated and delivered pursuant to this Indenture, other than any such Notes in respect of which there shall have been presented to the Trustee proof satisfactory to it that such Notes are held by a bona fide purchaser in whose hands such Notes are valid obligations of the Issuer;

provided, however, that in determining whether the Holders of the requisite principal amount of the Outstanding Notes have given any request, demand, authorization, direction, notice, consent or waiver hereunder, Notes owned by the Issuer or any other obligor upon the Notes or any Affiliate of the Issuer or of such other obligor shall be disregarded and deemed not to be Outstanding, except that, in determining whether the Trustee shall be protected in relying upon any such request, demand, authorization, direction, notice, consent or waiver, only Notes which a Responsible Officer of the Trustee actually knows to be so owned shall be so disregarded. Notes so owned which have been pledged in good faith may be regarded as Outstanding if the pledgee establishes to the satisfaction of the Trustee the pledgee's right so to act with respect to such Notes and that the pledgee is not the Issuer or any other obligor upon the Notes or any Affiliate of the Issuer or of such other obligor.

"Paying Agent" means any Person authorized by the Issuer to pay the principal of (and premium, if any) or interest on any Notes on behalf of the Issuer. The Issuer has initially appointed the Principal Paying Agent to act as Paying Agent.

"Payment Date" has the meaning set forth in Section 3.11(b).

"Permitted Holders" mean (i) the estate of Mr. Antonio Ermírio de Moraes and any of Mr. Ermírio Pereira de Moraes, Mrs. Maria Helena de Moraes Scripilliti and Mr. José Ermírio de Moraes Filho and any of their descendants, (ii) any Affiliate of any of the foregoing and (iii) any corporation, partnership, joint venture, association, trust, fund, unincorporated organization, or any other entity or group formed pursuant to a shareholders, control or voting agreement or similar agreement, of which any one or more of the Permitted Holders referred to in clauses (i) or (ii) hereof is a shareholder, partner, beneficiary, member or party.

"Permitted Holding Company" means any entity which owns at least 95% of the outstanding Capital Stock or other ownership interests (other than directors' qualifying shares) of the Issuer.

"Person" means any individual, corporation, partnership, joint venture, association, trust, unincorporated organization, government or agency or political subdivision thereof or any other entity.

"Peru" means the Republic of Peru and any ministry, department, authority (including the Central Reserve Bank of Peru) or statutory corporation or other entity (including a trust), owned or controlled directly or indirectly by the Republic of Peru or any of the foregoing.

"Predecessor Note" of any particular Note means every previous Note evidencing all or a portion of the same debt as that evidenced by such particular Note; and, for the purposes of this definition, any Note authenticated and delivered under Section 3.5 in exchange for or in lieu of a mutilated, destroyed, lost or stolen Note shall be deemed to evidence the same debt as the mutilated, destroyed, lost or stolen Note.

"Principal Paying Agent" means The Bank of New York Mellon, a New York banking corporation, or any successor in its capacity as Principal Paying Agent.

"Rating Agency" means each of S&P, Moody's and Fitch; provided that if any of S&P, Moody's or Fitch ceases to rate the Notes or fails to make a rating on the Notes publicly available, the Issuer will appoint a replacement for such Rating Agency that is a "nationally recognized statistical rating organization" within the meaning of Rule 15c3-1(c)(2)(vi)(F) under the Exchange Act.

"Rating Date" means the date which is 90 days prior to the earlier of (i) a Change of Control and (ii) public notice of the occurrence of a Change of Control or of the intention of the Permitted Holders or the Issuer to effect a Change of Control.

"Rating Decline" means the occurrence of the following on, or within 90 days after, the date of public notice of the occurrence of a Change of Control or of the intention by a Permitted Holder or the Issuer to effect a Change of Control (which period shall be extended so long as the rating of the Notes is under publicly announced consideration for possible downgrade by any of the Rating Agencies): (i) in the event the Notes are assigned an Investment Grade Rating by at least two of the Rating Agencies on the Rating Date, the rating of the Notes by at least two of the Rating Agencies shall be below an Investment Grade Rating; or (ii) in the event the Notes are rated below an Investment Grade Rating by at least two of the Rating Agencies on the Rating Date, the rating of the Notes by at least two of the Rating Agencies shall be decreased by one or more gradations (including gradations (but not outlooks) within rating categories as well as between rating categories); provided that any such Rating Decline is in whole or in part in connection with a Change of Control. The Issuer will provide the Trustee with prompt written notice of any Rating Decline, and the Trustee shall not be deemed to have knowledge of any Rating Decline until it receives such notice.

“rate(s) of exchange” has the meaning set forth in Section 1.14.

“Receivables” means receivables, chattel paper, instruments, documents or intangibles evidencing or relating to the right to payment of money in respect of the sale of goods or services.

“Redemption Date” when used with respect to any Note to be redeemed, means the date fixed for such redemption by or pursuant to this Indenture.

“Redemption Price” when used with respect to any Note to be redeemed, means the price at which it is to be redeemed pursuant to this Indenture.

“Reference Treasury Dealer” means at least four dealers which are primary United States government securities dealers in New York City reasonably designated by the Issuer or a Guarantor.

“Reference Treasury Dealer Quotation” means, with respect to each Reference Treasury Dealer and any Redemption Date, the average, as determined by the Issuer, of the bid and asked prices for the Comparable Treasury Issue (expressed in each case as a percentage of its principal amount) quoted in writing to the Issuer or a Guarantor by such Reference Treasury Dealer at 3:30p.m. New York time on the third business day preceding such Redemption Date.

“Registrar” has the meaning specified in Section 3.4(b).

“Regular Record Date” for the interest payable on any Interest Payment Date means the second day (whether or not a Business Day), as the case may be, next preceding such Interest Payment Date.

“Responsible Officer” means any officer within the corporate trust department of the Trustee, including any director, managing director, vice president, assistant vice president, trust officer, assistant trust officer or any other officer or assistant officer of the Trustee customarily performing functions similar to those performed by the persons who at that time shall be such officers having direct responsibility for the administration of this Indenture, and also means, with respect to a particular corporate trust matter, any other officer to whom such trust matter is referred because of his or her knowledge of and familiarity with the particular subject.

“Regulation S” means Regulation S (including any successor regulation thereto) under the Securities Act, as it may be amended from time to time.

“Regulation S Global Note” has the meaning set forth in Section 2.1

“Restricted Global Note” has the meaning set forth in Section 2.1.

“Restricted Notes” means the Restricted Global Note and any Successor Note, other than (i) any Note issued upon a transfer or exchange for which a certificate substantially in the form set forth in (a) Exhibit A is required to be provided and is provided pursuant to Section 3.4(c)(2) or (b) Exhibit C-2 is required to be provided and is provided pursuant to Section 3.4(c)(5), (ii) any Note issued in exchange for or in lieu of any Note specified in clause (i) of this definition or any Note issued in exchange therefor or in lieu thereof, or (iii) any Note as to which the Issuer has removed and has not replaced the legend described in Section 3.4(b).

“Restricted Property” means any mineral property (including any mineral concessions, authorizations or rights in respect of minerals granted by any governmental authority), concentrate plant, manufacturing or processing plant used in connection with the processing, refining or manufacturing of metals or minerals, power plant or transmission lines of the Issuer or any Designated Subsidiary and any capital stock of any Subsidiary directly owning any such mineral property, concentrate, manufacturing or processing plant, power plant or transmission lines.

“Reuters” means Reuters Group plc, a U.K. corporation, and its successors and assigns.

“Rule 144A” means Rule 144A (including any successor regulation thereto) under the Securities Act, as it may be amended from time to time.

“S&P” means S&P Global Ratings, a business unit of Standard & Poor’s Financial Services LLC and its successors.

“SEC” means the United States Securities and Exchange Commission.

“Securities Act” means the United States Securities Act of 1933, as amended, and the rules and regulations of the SEC promulgated thereunder.

“Securitization Transaction” means a transaction in which the Issuer or a Subsidiary thereof sells or transfers an interest in Receivables (and/or any rights arising under the documentation governing or relating to such Receivables covered by such transaction, any proceeds of Receivables and any lockboxes or accounts in which such proceeds are deposited and any related assets) to a special purpose entity that issues securities payable from collections of such Receivables or other assets.

“Special Record Date” for the payment of any Defaulted Interest means a date fixed by the Trustee pursuant to Section 3.6.

“Stated Maturity” when used with respect to any Note or any installment of interest thereon, means the date specified in such Note as the date on which the principal of such Note or such installment of interest, as the case may be, is due and payable.

“Subsidiary” of any Person means (i) a corporation more than 50% of the combined voting power of the outstanding Voting Stock of which is owned, directly or indirectly, by such Person or by one or more other Subsidiaries of such Person or by such Person and one or more Subsidiaries thereof or (ii) any other Person (other than a corporation) in which such Person, or one or more other Subsidiaries of such Person or such Person and one or more other Subsidiaries thereof, directly or indirectly, has at least a majority ownership and power to direct the policies, management and affairs thereof.

“Successor Note” of any particular Note means every Note issued after, and evidencing all or a portion of the same debt as that evidenced by, such particular Note; and, for the purposes of this definition, any Note authenticated and delivered under Section 3.5 in exchange for or in lieu of a mutilated, destroyed, lost or stolen Note shall be deemed to evidence the same debt as the mutilated, destroyed, lost or stolen Note.

“Taxes” has the meaning set forth in Section 11.9.

“Transaction Documents” has the meaning set forth in Section 11.1.

“Transfer Agent” means the agent designated by the Issuer (not including the Registrar) for the registration of transfer of securities as provided in Section 11.2.

“Treasury Rate” means, with respect to any Redemption Date, the rate per annum equal to the semi-annual equivalent yield to maturity or interpolated maturity (on a day count basis) of the Comparable Treasury Issue, assuming a price for the Comparable Treasury Issue (expressed as a percentage of its principal amount) equal to the Comparable Treasury Price for such Redemption Date.

“Trustee” means the Person named as the “Trustee” in the first paragraph of this instrument until a successor Trustee shall have been appointed pursuant to the applicable provisions of this Indenture, and thereafter “Trustee” shall mean such successor Trustee.

“United States” means the United States of America.

“U.S. Dollar Equivalent” means, with respect to any monetary amount in a currency other than the U.S. Dollar, at any time for the determination thereof, the amount of U.S. Dollars obtained by converting such foreign currency involved in such computation into U.S. Dollars at the spot rate for the purchase of U.S. Dollars with the applicable foreign currency as quoted by Reuters at approximately 11:00 a.m. (New York time) on the date not more than two Business Days prior to such determination.

“U.S. Global Notes” has the meaning specified in Section 2.1.

“Vice President” when used with respect to the Issuer or any Guarantor, means any vice president, whether or not designated by a number or a word or words added before or after the title “vice president.”

“Voting Stock” of a Person means all classes of Capital Stock of such Person then outstanding that are entitled (without regard to the occurrence of any contingency) to vote in the election of the directors of such Person, but excluding such classes of Capital Stock or other interests that are entitled, as a group in a separate cast, to appoint one director of such Person as representative of the minority shareholders.

“Wholly Owned Subsidiary” of any Person means any entity owned by such Person of which at least 95% of the outstanding Capital Stock or other ownership interests (other than directors’ qualifying shares) of such entity shall at the time be owned by such Person or by one or more Wholly Owned Subsidiaries of such Person.

Section 1.2. Compliance Certificates and Opinions.

Upon any application or request by the Issuer or a Guarantor to the Trustee to take any action under any provision of this Indenture, the Issuer or such Guarantor shall furnish to the Trustee such certificates and opinions as may be required under this Indenture; provided, however, that such certificate and opinion shall not be required in the case of the initial issuance of Notes hereunder. Each such certificate or opinion, and any certificate evidencing a determination required to be made by the Issuer or a Guarantor under this Indenture, shall be given in the form of an Officer's Certificate, if to be given by an officer of the Issuer or such Guarantor, or an Opinion of Counsel, if to be given by counsel, and shall comply with the requirements set forth in this Indenture.

Every certificate or opinion with respect to compliance by or on behalf of the Issuer or a Guarantor with a condition or covenant provided for in this Indenture shall include:

- (1) a statement that each individual signing such certificate or opinion has read such covenant or condition and the definitions herein relating thereto;
- (2) a brief statement as to the nature and scope of the examination or investigation upon which the statements or opinions contained in such certificate or opinion are based;
- (3) a statement that, in the opinion of each such individual, he has made such examination or investigation as is necessary to enable him or her to express an informed opinion as to whether or not such covenant or condition has been complied with; and
- (4) a statement as to whether, in the opinion of each such individual, such condition or covenant has been complied with.

Section 1.3. Form of Documents Delivered to Trustee.

In any case where several matters are required to be certified by, or covered by an opinion of, any specified Person, it is not necessary that all such matters be certified by, or covered by the opinion of, only one such Person, or that they be so certified or covered by only one document, but one such Person may certify or give an opinion with respect to some matters and one or more other such Persons as to other matters, and any such Person may certify or give an opinion as to such matters in one or several documents.

Any certificate of an officer of the Issuer or a Guarantor may be based, insofar as it relates to legal matters, upon an Opinion of Counsel submitted therewith, unless such officer knows, or in the exercise of reasonable care should know, that the opinion with respect to the matters upon which his certificate is based is erroneous. Any Opinion of Counsel may be based, insofar as it relates to factual matters, upon a certificate of an officer or officers of the Issuer or a Guarantor submitted therewith stating the information on which counsel is relying, unless such counsel knows, or in the exercise of reasonable care should know, that the certificate with respect to such matters is erroneous.

Where any Person is required to make, give or execute two or more applications, requests, consents, certificates, statements, opinions or other instruments under this Indenture, they may, but need not, be consolidated and form one instrument.

Section 1.4. Acts of Holders; Record Date.

Any request, demand, authorization, direction, notice, consent, waiver or other action provided by this Indenture to be given or taken by Holders may be embodied in and evidenced by one or more instruments of substantially similar tenor signed by such Holders in person or by an agent duly appointed in writing; and, except as herein otherwise expressly provided, such action shall become effective when such instrument or instruments are delivered to the Trustee and, where it is hereby expressly required, to the Issuer. Such instrument or instruments (and the action embodied therein and evidenced thereby) are herein sometimes referred to as the “Act” of the Holders signing such instrument or instruments. Proof of execution of any such instrument or of a writing appointing any such agent shall be sufficient for any purpose of this Indenture and (subject to Section 6.1) conclusive in favor of the Trustee and the Issuer, if made in the manner provided in this Section.

The fact and date of the execution by any Person of any such instrument or writing pursuant to this Section 1.4 may be proved by the affidavit of a witness of such execution or by a certificate of a notary public or other officer authorized by law to take acknowledgments of deeds, certifying that the individual signing such instrument or writing acknowledged to him or her the execution thereof. Where such execution is by a signer acting in a capacity other than his individual capacity, such certificate or affidavit shall also constitute sufficient proof of his authority. The fact and date of the execution of any such instrument or writing, or the authority of the Person executing the same, may also be proved in any other manner which the Trustee deems sufficient.

The ownership of Notes shall be proved by the Note Register.

Any request, demand, authorization, direction, notice, consent, waiver or other Act of the Holder of any Note shall bind every future Holder of the same Note and the Holder of every Note issued upon the registration of transfer thereof or in exchange therefor or in lieu thereof in respect of anything done, omitted or suffered to be done by the Trustee or the Issuer in reliance thereon, whether or not notation of such action is made upon such Note.

The Issuer may set any day as a record date for the purpose of determining the Holders of Outstanding Notes entitled to give, make or take any request, demand, authorization, direction, notice, consent, waiver or other action provided or permitted by this Indenture to be given, made or taken by Holders of Notes, provided that the Issuer may not set a record date for, and the provisions of this paragraph shall not apply with respect to, the giving or making of any notice, declaration, request or direction referred to in the next paragraph. If not set by the Issuer prior to the first solicitation of a Holder made by any Person in respect of any such matter referred to in the foregoing sentence, the record date for any such matter shall be the 30th day (or, if later, the date of the most recent list of Holders required to be provided pursuant to Section 7.1) prior to such first solicitation. If any record date is set pursuant to this paragraph, the Holders of Outstanding Notes on such record date, and no other Holders, shall be entitled to take the relevant action, whether or not such Holders remain Holders after such record date; provided that no such action shall be effective hereunder unless taken on or prior to the applicable Expiration Date by Holders of the requisite principal amount of Outstanding Notes on such record date.

The Trustee may set any day as a record date for the purpose of determining the Holders of Outstanding Notes entitled to join in the giving or making of (i) any Notice of Default, (ii) any declaration of acceleration referred to in Section 5.1, (iii) any request to institute proceedings referred to in Section 5.6(2) or (iv) any direction referred to in Section 5.11. If any record date is set pursuant to this paragraph, the Holders of Outstanding Notes on such record date, and no other Holders, shall be entitled to join in such notice, declaration, request or direction, whether or not such Holders remain Holders after such record date; provided that no such action shall be effective hereunder unless taken on or prior to the applicable Expiration Date by Holders of the requisite principal amount of Outstanding Notes on such record date. Nothing in this paragraph shall be construed to prevent the Trustee from (i) giving or making any notice required to be made pursuant to the Trustee's duties and obligations under this Indenture and (ii) setting a new record date for any action for which a record date has previously been set pursuant to this paragraph (whereupon the record date previously set shall automatically and with no action by any Person be cancelled and of no effect), and nothing in this paragraph shall be construed to render ineffective any action taken by Holders of the requisite principal amount of Outstanding Notes on the date such action is taken. Promptly after any record date is set pursuant to this paragraph, the Trustee, at the Issuer's expense, shall cause notice of such record date, the proposed action by Holders and the applicable Expiration Date to be given to the Issuer in writing and to each Holder of Notes in the manner set forth in Section 1.6.

Nothing in this paragraph shall be construed to prevent the Issuer from setting a new record date for any action for which a record date has previously been set pursuant to this paragraph (whereupon the record date previously set shall automatically and with no action by any Person be cancelled and of no effect), and nothing in this paragraph shall be construed to render ineffective any action taken by Holders of the requisite principal amount of Outstanding Notes on the date such action is taken. Promptly after any record date is set pursuant to this paragraph, the Issuer, at its own expense, shall cause notice of such record date, the proposed action by Holders and the applicable Expiration Date to be given to the Trustee in writing and to each Holder of Notes in the manner set forth in Section 1.6.

With respect to any record date set pursuant to this Section, the party hereto which sets such record dates may designate any day as the "Expiration Date," and from time to time may change the Expiration Date to any earlier or later day; provided that no such change shall be effective unless notice of the proposed new Expiration Date is given to the other party hereto in writing, and to each Holder of Notes in the manner set forth in Section 1.6, on or prior to the existing Expiration Date. If an Expiration Date is not designated with respect to any record date set pursuant to this Section, the party hereto which set such record date shall be deemed to have initially designated the 180th day after such record date as the Expiration Date with respect thereto, subject to its right to change the Expiration Date as provided in this paragraph. Notwithstanding the foregoing, no Expiration Date shall be later than the 180th day after the applicable record date.

Without limiting the foregoing, a Holder entitled hereunder to take any action hereunder with regard to any particular Note may do so with regard to all or any part of the principal amount of such Note or by one or more duly appointed agents each of which may do so pursuant to such appointment with regard to all or any part of such principal amount.

Section 1.5. Notices, Etc., to Trustee, the Paying Agents and the Issuer.

Any request, demand, authorization, direction, notice, consent, waiver or Act of Holders or other document provided or permitted by this Indenture to be made upon, given or furnished to, or filed with:

(1) the Trustee or any Agent by any Holder or by the Issuer or the Guarantor shall be sufficient for every purpose hereunder if made, given, furnished or filed, in writing in English or accompanied by a certified translation to English, to or with the Trustee at The Bank of New York Mellon, 240 Greenwich Street, New York, New York 10286, United States, Attention: Global Corporate Trust, Fax: (212) 815-5630, and such other offices as the Trustee may designate from time to time or at any other address previously furnished in writing to the Holders, the Issuer by the Trustee;

(2) the Principal Paying Agent by the Trustee, the Issuer or any Holder shall be sufficient for every purpose hereunder (except as otherwise expressly provided herein) if in writing and mailed, first class postage prepaid, to the Principal Paying Agent addressed to it at 240 Greenwich Street, New York, New York 10286, United States, Attention: Global Corporate Trust, or at any other address previously furnished in writing to the Trustee by the Principal Paying Agent;

(3) the Issuer by the Trustee or by any Holder shall be sufficient for every purpose hereunder (except as otherwise expressly provided herein) if in writing and mailed, first-class postage prepaid, to the Issuer addressed to it at 37A, Avenue J.F. Kennedy, L-1855, Luxembourg, Grand Duchy of Luxembourg, Attention: Rodrigo Menck (Group Chief Financial Officer), or at any other address previously furnished in writing to the Trustee by the Issuer;

(4) Nexa CJM by the Trustee or by any Holder shall be sufficient for every purpose hereunder (except as otherwise expressly provided herein) if in writing and mailed, first-class postage prepaid, to Nexa CJM addressed to it at Carretera Central Km 9.5, desvío a Huachipa, Lurigancho-Chosica, Provincia y Departamento de Lima, Peru, Attention: Rodrigo Menck (Group Chief Financial Officer), or at any other address previously furnished in writing to the Trustee by Nexa CJM;

(5) Nexa Peru by the Trustee or by any Holder shall be sufficient for every purpose hereunder (except as otherwise expressly provided herein) if in writing and mailed, first-class postage prepaid, to Nexa Peru addressed to it at Avenida San Borja Norte 523, Lima, Peru, Attention: Rodrigo Menck (Group Chief Financial Officer), or at any other address previously furnished in writing to the Trustee by Nexa Peru; and

(6) Nexa Brazil by the Trustee or by any Holder shall be sufficient for every purpose hereunder (except as otherwise expressly provided herein) if in writing and mailed, first-class postage prepaid, to Nexa Brazil addressed to it at Av. Engenheiro Luis Carlos Berrini, 105, São Paulo, SP 04571-010, Brazil, Attention: Rodrigo Menck (Treasurer), or at any other address previously furnished in writing to the Trustee by Nexa Brazil.

Section 1.6. Notice to Holders: Waiver.

Where this Indenture provides for notice to Holders of any event, such notice shall be sufficiently given (unless otherwise herein expressly provided) if (i) in the case of a Global Note, in writing by electronic mail, facsimile and/or by first-class mail to the Depositary, and (ii) in the case of securities other than Global Notes, in writing and mailed, first-class postage prepaid, to each Holder affected by such event, at his address as it appears in the Note Register on the Business Day immediately preceding the date of mailing, which shall be not later than the latest date (if any), and not earlier than the earliest date (if any), prescribed for the giving of such notice. In any case where notice to Holders is given by mail, neither the failure to mail such notice, nor any defect in any notice so mailed, to any particular Holder shall affect the sufficiency of such notice with respect to other Holders. Where this Indenture provides for notice in any manner, such notice may be waived in writing by the Person entitled to receive such notice, either before or after the event, and such waiver shall be the equivalent of such notice. Waivers of notice by Holders shall be filed with the Trustee, but such filing shall not be a condition precedent to the validity of any action taken in reliance upon such waiver.

In case by reason of the suspension of regular mail service or by reason of any other cause it shall be impracticable to give such notice by mail, then such notification as shall be made with the approval of the Trustee shall constitute a sufficient notification for every purpose hereunder.

Any obligation the Issuer (and the Paying Agents on its behalf) may have to publish a notice to Holders shall have been met upon delivery of the notice to the Depositary.

Section 1.7. Effect of Headings and Table of Contents.

The Article and Section headings herein and the Table of Contents are for convenience only and shall not affect the construction hereof.

Section 1.8. Successors and Assigns.

All covenants and agreements in this Indenture by each of the Issuer and the Guarantors shall bind its successors and assigns, whether so expressed or not.

Section 1.9. Separability Clause.

In case any provision in this Indenture or in the Notes or in the Guarantees shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions of each of this Indenture, the Notes or the Guarantees shall not in any way be affected or impaired thereby.

Section 1.10. Benefits of Indenture.

Nothing in this Indenture or in the Notes, express or implied, shall give to any Person, other than the parties hereto and their successors hereunder and the Holders of Notes, any benefit or any legal or equitable right, remedy or claim under this Indenture, the Notes or the Guarantees.

Section 1.11. Governing Law.

THIS INDENTURE, THE NOTES AND THE GUARANTEES SHALL BE GOVERNED BY, AND CONSTRUED IN ACCORDANCE WITH, THE LAWS OF THE STATE OF NEW YORK, without regard to conflicts of laws principles thereof. For the purposes of paragraph 2 of article 9 of the Brazilian Decree-Law No. 4,567, dated September 4, 1942, as amended, the Trustee shall be deemed the “proponent” of the transactions contemplated by this Indenture. Articles 470-1 through 470-19 of the Luxembourg law dated August 10, 1915 on commercial companies, as amended, which set the provisions related to the representation of the Holders of the Notes, are not applicable to the Notes or the Guarantees.

EACH OF THE PARTIES HERETO HEREBY IRREVOCABLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, ANY AND ALL RIGHT TO TRIAL BY JURY IN ANY LEGAL PROCEEDING ARISING OUT OF OR RELATING TO THIS INDENTURE, THE NOTES OR THE TRANSACTION CONTEMPLATED HEREBY.

Section 1.12. Legal Holidays.

In any case where any Interest Payment Date, Redemption Date or Stated Maturity of any Note shall not be a Business Day, then (notwithstanding any other provision of this Indenture, the Notes or the Guarantees) payment of interest or principal (and premium, if any) need not be made on such date, but may be made on the next succeeding Business Day with the same force and effect as if made on the Interest Payment Date or Redemption Date, or at the Stated Maturity, provided that no interest shall accrue on account of such delay for the period from and after such Interest Payment Date or Redemption Date or Stated Maturity, as the case may be.

Section 1.13. Consent to Jurisdiction and Service of Process.

(a) Each of the Issuer and the Guarantors agrees that any suit, action or proceeding against it brought by any Holder or the Trustee arising out of or based upon this Indenture, the Notes or the Guarantees may be instituted in any state or Federal court in the Borough of Manhattan in The City of New York, New York, and waives any objection which it may now or hereafter have to the laying of venue of any such proceeding, and irrevocably submits to the non-exclusive jurisdiction of such courts in any suit, action or proceeding.

(b) By the execution and delivery of this Indenture or any amendment or supplement hereto, each of the Issuer and the Guarantors (i) acknowledges that it has, by separate written instrument, designated and appointed Cogency Global Inc. currently located at 122 East 42nd Street, 18th Floor, New York, NY 10168, as its authorized agent upon which process may be served in any suit, action or proceeding with respect to, arising out of, or relating to, the Notes, this Indenture or the Guarantees, that may be instituted in any Federal or state court in the State of New York, The City of New York, the Borough of Manhattan, or brought under Federal or state securities laws or brought by the Trustee or the Paying Agent (whether in its individual capacity or in its capacity as Trustee or the Paying Agent, as the case may be, hereunder), and acknowledges that Cogency Global Inc. has accepted such designation, (ii) submits to the jurisdiction of any such court in any such suit, action or proceeding, and (iii) agrees that service of process upon Cogency Global Inc. shall be deemed in every respect effective service of process upon the Issuer and the Guarantors, as the case may be, in any such suit, action or proceeding. Each of the Issuer and the Guarantors further agrees to take any and all action, including the execution and filing of any and all such documents and instruments as may be necessary to continue such designation and appointment of Cogency Global Inc. in full force and effect so long as this Indenture shall be in full force and effect; provided that the Issuer and the Guarantors may and shall (to the extent Cogency Global Inc. ceases to be able to be served on the basis contemplated herein), by written notice to the Trustee, designate such additional or alternative agents for service of process under this Section 1.13 that (i) maintains an office located in the Borough of Manhattan, The City of New York in the State of New York, (ii) are either (x) counsel for the Issuer and the Guarantors or (y) a corporate service company which acts as agent for service of process for other persons in the ordinary course of its business and (iii) agrees to act as agent for service of process in accordance with this Section 1.13. Such notice shall identify the name of such agent for process and the address of such agent for process in the Borough of Manhattan, The City of New York, State of New York. Upon the request of any Holder, the Trustee shall deliver such information to such Holder. Notwithstanding the foregoing, there shall, at all times, be at least one agent for service of process for the Issuer and the Guarantors appointed and acting in accordance with this Section 1.13.

(c) To the extent that the Issuer or the Guarantors has or hereafter may acquire any immunity from jurisdiction of any court or from any legal process (whether through service of notice, attachment prior to judgment, attachment in aid of execution, execution or otherwise) with respect to itself or its property, each of the Issuer and the Guarantors hereby irrevocably waives such immunity in respect of its obligations under this Indenture, the Notes and the Guarantees, to the fullest extent permitted by law.

Section 1.14. Currency of Account; Conversion of Currency; Foreign Exchange Restrictions.

(a) U.S. Dollars are the sole currency of account and payment for all sums payable by the Issuer and the Guarantors under or in connection with the Notes, the Guarantees or this Indenture, including damages. Any amount received or recovered in a currency other than U.S. dollars (whether as a result of, or of the enforcement of, a judgment or order of a court of any jurisdiction, in the winding-up or dissolution of the Issuer or the Guarantors or otherwise) by any Holder of the Notes in respect of any sum expressed to be due to it from the Issuer or the Guarantors shall only constitute a discharge to the Issuer or the Guarantors, as the case may be, to the extent of the U.S. dollar amount which the recipient is able to purchase with the amount so received or recovered in that other currency on the date of that receipt or recovery (or, if it is not practicable to make that purchase on that date, on the first date on which it is practicable to do so). If that U.S. dollar amount is less than the U.S. dollar amount expressed to be due to the recipient under the Notes, the Issuer and the Guarantors shall, jointly and severally, indemnify it against any loss sustained by it as a result as set forth in Section 1.14(b). In any event, the Issuer and the Guarantors shall, jointly and severally, indemnify the recipient against the cost of making any such purchase. For the purposes of this Section 1.14, it will be sufficient for the Holder of a Note to certify in a satisfactory manner (indicating sources of information used) that it would have suffered a loss had an actual purchase of U.S. dollars been made with the amount so received in that other currency on the date of receipt or recovery (or, if a purchase of U.S. dollars on such date had not been practicable, on the first date on which it would have been practicable, it being required that the need for a change of date be certified in the manner mentioned above). The indemnities set forth in this Section 1.14 constitute separate and independent obligations from other obligations of the Issuer and the Guarantors, shall give rise to a separate and independent cause of action, shall apply irrespective of any indulgence granted by any Holder of the Notes and shall continue in full force and effect despite any other judgment, order, claim or proof for a liquidated amount in respect of any sum due under the Notes.

(b) The Issuer and the Guarantors covenant and agree that the following provisions shall apply to conversion of currency in the case of the Notes, the Guarantors and this Indenture:

(i) (A) if for the purpose of obtaining judgment in, or enforcing the judgment of, any court in any country, it becomes necessary to convert into a currency (the “judgment currency”) an amount due in any other currency (the “Base Currency”), then the conversion shall be made at the rate of exchange prevailing on the Business Day before the day on which the judgment is given or the order of enforcement is made, as the case may be (unless a court shall otherwise determine), and

(B) if there is change in the rate of exchange prevailing between the Business Day before the day on which the judgment is given or an order of enforcement is made, as the case may be (or such other date as a court shall determine), and the date of receipt of the amount due, the Issuer or the Guarantors, as the case may be, will pay such additional (or, as the case may be, such lesser) amount, if any, as may be necessary so that the amount paid in the judgment currency when converted at the rate of exchange prevailing on the date of receipt will produce the amount in the Base Currency originally due;

(ii) in the event of the winding-up of the Issuer or the Guarantors at any time while any amount or damages owing under the Notes, the Guarantees and this Indenture, or any judgment or order rendered in respect thereof, shall remain outstanding, the Issuer and the Guarantors shall, jointly and severally, indemnify and hold the Holders and the Trustee harmless against any deficiency arising or resulting from any variation in rates of exchange between (1) the date as of which the U.S. Dollar Equivalent of the amount due or contingently due under the Notes, the Guarantees and this Indenture (other than under this Subsection (b)(ii)) is calculated for the purposes of such winding-up and (2) the final date for the filing of proofs of claim in such winding-up. For the purpose of this subsection (b)(ii), the final date for the filing of proofs of claim in the winding-up of the Issuer or the Guarantors, as the case may be, shall be the date fixed by the liquidator or otherwise in accordance with the relevant provisions of applicable law as being the latest practicable date as at which liabilities of the Issuer or the Guarantors, as the case may be, may be ascertained for such winding-up prior to payment by the liquidator or otherwise in respect thereto;

(iii) the obligations contained in Subsections (a), (b)(i)(B) and (b)(ii) of this Section 1.14 shall constitute separate and independent obligations from the other obligations of the Issuer and the Guarantors under the terms of this Indenture, shall give rise to separate and independent causes of action against the Issuer and the Guarantors, shall apply irrespective of any waiver or extension granted by any Holder or the Trustee or either of them from time to time and shall continue in full force and effect notwithstanding any judgment or order or the filing of any proof of claim in the winding-up of the Issuer or the Guarantors for a liquidated sum in respect of amounts due hereunder (other than under Subsection (b)(ii) above) or under any such judgment or order. Any such deficiency as aforesaid shall be deemed to constitute a loss suffered by the Holders or the Trustee, as the case may be, and no proof or evidence of any actual loss shall be required by the Issuer or the Guarantors or the liquidator or otherwise or any of them. In the case of subsection (b)(ii) above, the amount of such deficiency shall not be deemed to be reduced by any variation in rates of exchange occurring between the said final date and the date of any liquidating distribution; and

(iv) the term “rate(s) of exchange” shall mean the rate of exchange quoted by Reuters at 10:00 a.m. (New York time) for spot purchases of the Base Currency with the judgment currency other than the Base Currency referred to in Subsections (b)(i) and (b)(ii) above and includes any premiums and costs of exchange payable.

(c) In the event that on any Interest Payment Date, the Maturity Date or Redemption Date, as the case may be, in respect of the Guarantee provided by a Guarantor, any restrictions or prohibition of access to the foreign exchange market of the jurisdiction of incorporation of a Guarantor exists, such Guarantor agrees to pay all amounts payable under the Notes and such Guarantee in the currency of the Notes by means of any legal procedure existing in such jurisdiction of incorporation (except commencing legal proceedings against the relevant Central Bank), on any due date for payment under the Notes, for the purchase of the currency of such Notes. All costs and taxes payable in connection with the procedures referred to in this Section 1.14 shall be borne by the relevant Guarantor.

(d) Notwithstanding anything to the contrary contained herein, neither the Trustee nor the Principal Paying Agent shall have any liability for converting into U.S. Dollars any amount received by any Holder in a currency other than U.S. Dollars.

Section 1.15. Counterparts.

This Indenture may be executed in two or more counterparts, each of which shall be deemed to be an original, but all of which together shall constitute one and the same instrument. The words "execution," "signed," "signature," and words of like import in this Indenture or in any other certificate, agreement or document related to this Indenture shall include images of manually executed signatures transmitted by facsimile or other electronic format (including, without limitation, "pdf", "tif" or "jpg") and other electronic signatures (including, without limitation, DocuSign and AdobeSign). The use of electronic signatures and electronic records (including, without limitation, any contract or other record created, generated, sent, communicated, received, or stored by electronic means) shall be of the same legal effect, validity and enforceability as a manually executed signature or use of a paper-based recordkeeping system to the fullest extent permitted by applicable law, including, without limitation, the Federal Electronic Signatures in Global and National Commerce Act, the New York State Electronic Signatures and Records Act and any other applicable law, including, without limitation, any state law based on the Uniform Electronic Transactions Act or the Uniform Commercial Code.

Section 1.16. Force Majeure.

In no event shall the Trustee or any Agent be responsible or liable for any failure or delay in the performance of its obligations hereunder arising out of or caused by, directly or indirectly, forces beyond its control, including, without limitation, strikes, work stoppages, accidents, acts of war or terrorism, civil or military disturbances, nuclear or natural catastrophes or acts of God, and interruptions, loss or malfunctions of utilities, communications or computer (software and hardware) services; it being understood that the Trustee or such Agent shall use reasonable efforts which are consistent with accepted practices in the banking industry to resume performance as soon as practicable under the circumstances.

Section 1.17. U.S.A. PATRIOT Act.

In order to comply with the laws, rules, regulations and executive orders in effect from time to time applicable to banking institutions, including, without limitation, those relating to the funding of terrorist activities and money laundering, including Section 326 of the USA PATRIOT Act of the United States ("Applicable Law"), the Trustee and Agents are required to obtain, verify, record and update certain information relating to individuals and entities which maintain a business relationship with the Trustee and Agents. Accordingly, each of the parties agrees to provide to the Trustee and Agents, upon their request from time to time such identifying information and documentation as may be available for such party in order to enable the Trustee and Agents to comply with Applicable Law.

Section 1.18. Anti-Money Laundering, Terrorism and Economic Sanctions.

(a) The Trustee or any Agent may take and instruct any delegate to take any action which it in its sole discretion considers appropriate so as to comply with any applicable law, regulation, request of a public or regulatory authority or any internal group policy (including any "Know Your Client" and/or other compliance policy) which relates to the prevention of fraud, money laundering, terrorism or other criminal activities or the provision of financial and other services to sanctioned persons or entities. Such action may include but is not limited to the interception and investigation of transactions on the Issuer's or any Guarantor's accounts (particularly those involving the international transfer of funds) including the source of the intended recipient of funds paid into or out of the Issuer's or any Guarantor's accounts. None of the Trustee, any Agent or any delegate will be liable for any loss (whether direct or consequential and including, without limitation, loss of profit or interest) caused in whole or in part by any actions which are taken by the Trustee, any Agent or any delegate pursuant to this Section 1.18.

(b) The Issuer and each Guarantor covenants and represents, jointly and severally, that neither it nor any of their respective subsidiaries or their respective directors or officers, and, to the knowledge of the Issuer or any Guarantor, any of their affiliates are the target or subject of any sanctions enforced by the US Government, (including, without limitation, the Office of Foreign Assets Control of the US Department of the Treasury or the US Department of State), the United Nations Security Council, the European Union, Her Majesty's Treasury, or other relevant sanctions authority (collectively "Sanctions");

(c) The Issuer and each Guarantor covenants and represents, jointly and severally, that neither it nor any of their respective subsidiaries or their respective directors or officers will directly or indirectly use any repayments/reimbursements made pursuant to this Indenture, (i) to fund or facilitate any activities of or business with any person who, at the time of such funding or facilitation, is the subject or target of Sanctions, (ii) to fund or facilitate any activities of or business with any country or territory that is the target or subject of Sanctions, or (iii) in any other manner that will result in a violation of Sanctions by any Person.

Section 1.19. Effective Date.

This Indenture shall become effective on the date hereof and shall be binding upon the Issuer, the Guarantors, the Trustee, the Registrar, the Paying Agent and the Principal Paying Agent.

ARTICLE II

NOTE FORMS

Section 2.1. Forms Generally.

The Notes, the Trustee's certificates of authentication thereof and the Guarantees endorsed thereon shall be substantially in the forms set forth in this Article, with such appropriate legends, insertions, omissions, substitutions and other variations as are required or permitted by this Indenture, and may have such letters, numbers or other marks of identification and such legends or endorsements placed thereon as may be required to comply with the rules of any securities exchange or as may, consistently herewith, be determined by the officers executing such Notes or Guarantees, as the case may be, as evidenced by their execution of the Notes.

The definitive Notes and the Guarantees to be endorsed thereon shall be printed, lithographed or engraved or produced by any combination of these methods on steel engraved borders or may be produced in any other manner all as determined by the officers executing such Notes, as evidenced by their execution of such Notes or Guarantees, as the case may be.

In certain cases described elsewhere herein, the legends set forth in the first three paragraphs of Section 2.2 may be omitted from Notes issued hereunder.

Notes offered and sold in their initial distribution in reliance on Regulation S will be initially issued in the form of one or more Global Notes in fully registered form without interest coupons, substantially in the form of Note set forth in Section 2.2 and 2.3 (the "Regulation S Global Note"), which shall be registered in the name of the Depositary or its nominee and deposited with the Trustee, at its Corporate Trust Office, as custodian for the Depositary, duly executed by the Issuer and the Guarantors and authenticated by the Trustee as hereinafter provided, for credit by the Depositary to the respective accounts of the beneficial owners of the Notes represented thereby (or such other accounts as they may direct).

Notes offered and sold in their initial distribution in reliance on Rule 144A shall be issued in the form of one or more Global Notes (collectively, and, together with their Successor Notes, the “Restricted Global Note”) in fully registered form without interest coupons, substantially in the form of Note set forth in Section 2.2 and 2.3, with such applicable legends as are provided for in Section 2.2, except as otherwise permitted herein. Such Restricted Global Note shall be registered in the name of the Depositary or its nominee and deposited with the Trustee, at its Corporate Trust Office, as custodian for the Depositary, duly executed by the Issuer and the Guarantors and authenticated by the Trustee as hereinafter provided, for credit by the Depositary to the respective accounts of beneficial owners of the Notes represented thereby (or such other accounts as they may direct). The aggregate principal amount of the Restricted Global Note may be increased or decreased from time to time by adjustments made on the records of the Trustee, as custodian for the Depositary, in connection with a corresponding decrease or increase in the aggregate principal amount of the Regulation S Global Note, as hereinafter provided.

Section 2.2. Form of Face of Note.

[Include if Note is a Restricted Global Note — THIS NOTE (OR ITS PREDECESSOR) WAS ORIGINALLY ISSUED IN A TRANSACTION EXEMPT FROM REGISTRATION UNDER THE UNITED STATES SECURITIES ACT OF 1933, AS AMENDED, OR THE SECURITIES ACT, AND THIS NOTE MAY NOT BE REOFFERED, SOLD OR

OTHERWISE TRANSFERRED IN THE ABSENCE OF SUCH REGISTRATION OR AN APPLICABLE EXEMPTION THEREFROM. EACH PURCHASER OF THIS NOTE IS HEREBY NOTIFIED THAT THE SELLER OF THIS NOTE MAY BE RELYING ON THE EXEMPTION FROM THE PROVISIONS OF SECTION 5 OF THE SECURITIES ACT PROVIDED BY RULE 144A THEREUNDER. THE HOLDER OF THIS NOTE AGREES FOR THE BENEFIT OF THE ISSUER OR ANY SUBSIDIARY THAT (A) THIS NOTE MAY BE REOFFERED, RESOLD, PLEDGED OR OTHERWISE TRANSFERRED, ONLY (I) TO A PERSON WHOM THE SELLER REASONABLY BELIEVES IS A QUALIFIED INSTITUTIONAL BUYER (AS DEFINED IN RULE 144A UNDER THE SECURITIES ACT) IN A TRANSACTION MEETING THE REQUIREMENTS OF RULE 144A, (II) OUTSIDE THE UNITED STATES TO A PERSON THAT IS NOT A U.S. PERSON IN AN OFFSHORE TRANSACTION IN ACCORDANCE WITH RULE 904 UNDER THE SECURITIES ACT, (III) PURSUANT TO ANOTHER AVAILABLE EXEMPTION UNDER THE SECURITIES ACT, (IV) TO THE ISSUER OR ANY SUBSIDIARY OF THE ISSUER OR (V) PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT, IN EACH OF CASES (I) THROUGH (V) IN ACCORDANCE WITH ANY APPLICABLE SECURITIES LAWS OF ANY STATE OF THE UNITED STATES; AND (B) THE HOLDER WILL, AND EACH SUBSEQUENT HOLDER IS REQUIRED TO, NOTIFY ANY PURCHASER OF THIS NOTE FROM IT OF THE RESALE RESTRICTIONS REFERRED TO IN (A) ABOVE. THIS LEGEND MAY ONLY BE REMOVED AT THE OPTION OF THE ISSUER.]

[Include if Note is a Regulation S Global Note — THIS NOTE (OR ITS PREDECESSOR) WAS ORIGINALLY ISSUED IN A TRANSACTION EXEMPT FROM REGISTRATION UNDER THE UNITED STATES SECURITIES ACT OF 1933, AS AMENDED, OR THE SECURITIES ACT, AND MAY NOT BE TRANSFERRED IN THE UNITED STATES OR TO, OR FOR THE ACCOUNT OR BENEFIT OF, ANY U.S. PERSON EXCEPT PURSUANT TO AN AVAILABLE EXEMPTION FROM THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT AND ALL APPLICABLE STATE SECURITIES LAWS. TERMS USED ABOVE HAVE THE MEANINGS GIVEN TO THEM IN REGULATION S UNDER THE SECURITIES ACT.]

NEXA RESOURCES S.A.
(organized under the laws of the Grand Duchy of Luxembourg)

[REGULATION S GLOBAL NOTE/RESTRICTED GLOBAL NOTE] [Delete as appropriate for either Regulation S Global Security or Restricted Global Security]
representing
U.S.\$[]

6.500% NOTES DUE 2028
guaranteed by
NEXA RESOURCES CAJAMARQUILLA S.A.
NEXA RESOURCES PERU S.A.A.
and
NEXA RECURSOS MINERAIS S.A.

ISIN Number: [144A: US65290DAA19]

[REG S: USL67359AA48]

CUSIP Number: [144A: 65290D AA1]

[REG S: L67359 AA4]

Common Code: [144A: 219373309]

[REG S: 219373368]

[Delete as appropriate for either Regulation S Global Security or Restricted Global Security]

Nexa Resources S.A., a validly organized public limited liability company validly organized under the laws of the Grand Duchy of Luxembourg having its registered office at 37A Avenue J.F. Kennedy, L-1855, Luxembourg, Grand Duchy of Luxembourg and registered with the *Registre de Commerce et des Sociétés* in Luxembourg under number B 185.489 (herein called the “Issuer,” which term includes any successor Person under the Indenture hereinafter referred to), for value received, hereby promises to pay to Cede & Co. or its registered assigns, the principal sum of Dollars [*include if Note is a Global Note — (or such other Principal Sum as is noted in the records of the Custodian for the Depositary as being the Principal Amount of this Regulation S Global Note/Restricted Global Note for the time being)*] on January 18, 2028, and to pay interest thereon from June 18, 2020, or from the most recent Interest Payment Date to which interest has been paid or duly provided for, semi-annually on January 18 and June 18 in each year, commencing on January 18, 2021, at the rate of 6.500% per annum, until the principal hereof is paid or made available for payment. The interest so payable, and punctually paid or duly provided for, on any Interest Payment Date will, as provided in such Indenture, be paid to the Person in whose name this Note (or one or more Predecessor Notes) is registered at the close of business on the Regular Record Date for such interest, which shall be two calendar days prior to payment (whether or not a Business Day), as the case may be, next preceding such Interest Payment Date. Any such interest not so punctually paid or duly provided for will forthwith cease to be payable to the Holder on such Regular Record Date and may either be paid to the Person in whose name this Note (or one or more Predecessor Notes) is registered at the close of business on a Special Record Date for the payment of such Defaulted Interest to be fixed by the Trustee, notice whereof shall be given to Holders of Notes not less than 10 days prior to such Special Record Date, or be paid at any time in any other lawful manner not inconsistent with the requirements of any securities exchange on which the Notes may be listed, and upon such notice as may be required by such exchange, all as more fully provided in said Indenture. In addition, the Issuer will pay to the Holder of this Note such Additional Amounts as may become payable under Section 11.9 of the Indenture.

In the case of a default in payment of principal and premium, if any, upon acceleration or repayment, interest shall be payable pursuant to the preceding paragraph on such overdue principal (and premium, if any), such interest shall be payable on demand and, if not so paid on demand, such interest shall itself bear interest at the rate per annum stated above plus 1% (to the extent that the payment of such interest shall be legally enforceable), and shall accrue from the date such principal and/or premium, as the case may be, was due and payable to the date payment of such interest has been made or duly provided for, and such interest on unpaid interest shall also be payable on demand.

Payment of the principal of (and premium, if any) and interest on this Note will be made at the Corporate Trust Office of the Trustee, at the offices of a Paying Agent, at the office or agency of the Issuer maintained for that purpose in The City of New York, New York, and at any other office or agency maintained by the Issuer for such purpose, in such coin or currency of the United States as at the time of payment is legal tender for payment of public and private debts; provided, however, that at the option of the Issuer payment of interest may be made by check mailed to the address of the Person entitled thereto as such address shall appear in the Note Register.

Reference is hereby made to the further provisions of this Note set forth on the reverse hereof, which further provisions shall for all purposes have the same effect as if set forth at this place.

Unless the certificate of authentication hereon has been executed by the Trustee referred to on the reverse hereof by manual or electronic signature, this Note shall not be entitled to any benefit under the Indenture or be valid or obligatory for any purpose.

IN WITNESS WHEREOF, the Issuer has caused this instrument to be duly executed.

NEXA RESOURCES S.A.

By: _____
Name:
Title:

By: _____
Name:
Title:

Section 2.3. Form of Reverse of Note.

This Note is one of a duly authorized issue of Notes of the Issuer designated as its 6.500% Notes due 2028 (the “Notes”) issued under an Indenture, dated as of June 18, 2020 (herein called the “Indenture”), among the Issuer, the Guarantors named therein, and The Bank of New York Mellon, a New York banking corporation, as trustee (the “Trustee”), as principal paying agent (the “Principal Paying Agent” and any other paying agents to be appointed hereunder, the “Paying Agents”), as transfer agent (the “Transfer Agent”) and registrar (the “Registrar”). Reference is hereby made to the Indenture and all indentures supplemental thereto for a statement of the respective rights, limitations of rights, duties and immunities thereunder of the Issuer, the Guarantors, the Trustee, the Transfer Agent and the Notes are, and are to be, authenticated and delivered. Terms used but not defined in this Note are defined in the Indenture.

As provided in the Indenture and subject to certain limitations therein set forth, the obligations of the Issuer under the Indenture and this Note are guaranteed pursuant to the Guarantees set forth in the Indenture. Each Holder, by holding this Note, agrees to all of the terms and provisions of said Guarantees. Reference is hereby made to the Indenture for a statement of the respective rights, limitations of rights, duties and obligations thereunder of the Guarantors, the Trustee and the Holders.

The Issuer may from time to time, without the consent of the Holders of the Notes, create and issue Additional Notes having the same terms and conditions as the Notes in all respects, except that the issue date, the issue price and the first payment of interest thereon may differ; provided, however, that unless the Additional Notes are treated as part of the same “issue” of debt instruments as the original series or are issued pursuant to a “qualified reopening” of the original series, or are issued with no more than a *de minimis* amount of original issue discount, in each case for U.S. federal income tax purposes the additional notes will have a separate CUSIP, or ISIN number. Additional Notes shall be consolidated with and shall form a single series and vote together with the previously issued Notes for all purposes hereof.

If as a result of any Change of Law (as defined in the Indenture): (i) the Issuer or a Guarantor is or would be required on the next succeeding Interest Payment Date to pay any Additional Amounts referred to in Section 11.9 of the Indenture; or (ii) the issuers/borrowers of certain intercompany debt are or would be required on the next succeeding Interest Payment Date to pay Brazilian withholding taxes in excess of a general rate of 15%, or 25% in case of amounts paid to residents of countries which do not impose any income tax or which impose it at a maximum rate lower than 20% (or 17% if the relevant jurisdiction is committed to adopt international standards on tax transparency) or where the laws of that country or location impose restrictions on the disclosure of (x) shareholding composition; (y) the ownership of the investment; or (z) the beneficial ownership of income paid to non-resident persons, pursuant to Law No. 9,779, dated January 19, 1999; provided that, such requirement to pay such taxes in excess of such rate was not caused by, or otherwise the result of, whether directly or indirectly, wholly or in part, any amendment to the intercompany debt, and in either case, the payment of such excess amounts cannot be avoided by the use of any reasonable measures available to the Issuer or a Guarantor, the Notes may be repurchased, by the Issuer at the option of the Issuer or a Guarantor, in whole but not in part, upon not less than 30 nor more than 90 days' notice to the Holders, which notice will be published, at any time following such Change of Law at a repurchase price equal to the principal amount thereof, plus accrued and unpaid interest, if any, to the date fixed for repurchase.

The Issuer or a Guarantor will also pay to Holders of the Notes on the Redemption Date any Additional Amounts which are payable. Following such repurchase, the Notes will be cancelled, or remain Outstanding, at the Issuer's or a Guarantor's election. Prior to the delivery of any notice of repurchase in accordance with the foregoing, the Issuer or a Guarantor shall deliver to the Trustee and the Principal Paying Agent an Officer's Certificate stating that the Issuer or a Guarantor, as the case may be, is entitled to effect such repurchase based on an Opinion of Counsel or written advice of a qualified tax expert, that the Issuer or a Guarantor has or will, or there is a substantial probability that the Issuer or a Guarantor has or will, become obligated to pay such Additional Amounts as a result of such Change of Law. Such notice, once delivered by the Issuer or a Guarantor to the Trustee, will be irrevocable.

At any time before October 18, 2027 (which is the date that is three months prior to maturity of the notes (the "Par Call Date")), the Issuer or a Guarantor has the right to redeem the Notes, in whole or in part and from time to time, at a redemption price equal to the greater of (1) 100% of the principal amount of the Notes being redeemed and (2) the sum of the present values of the remaining scheduled payments of principal and interest on the Notes being redeemed that would be due if the Notes matured on the Par Call Date (inclusive of interest accrued to the redemption date), discounted to the Redemption Date on a semi-annual basis (assuming a 360-day year consisting of twelve 30-day months) at the Treasury Rate plus 50 basis points, and in the case of clause (1) only, accrued and unpaid interest on the principal amount of the Notes being redeemed to, but excluding, such Redemption Date.

At any time on or after the Par Call Date, the Issuer or a Guarantor has the right to redeem the Notes, in whole or in part and from time to time, at a redemption price equal to 100% of the principal amount of the Notes being redeemed plus accrued and unpaid interest on the principal amount of the Notes being redeemed to, but excluding, such Redemption Date.

The Issuer, any Guarantor or any of their respective Affiliates may at any time repurchase the Notes at any price in the open market or otherwise. The Issuer, any Guarantor or any of their respective Affiliates may hold or resell the Notes it purchases or may surrender them to the Trustee or an Agent for cancellation.

[Include if Note is a Regulation S Global Note — If the holder of a beneficial interest in this Regulation S Global Note at any time wishes to transfer such interest to a Person who wishes to take delivery thereof in the form of a beneficial interest in the Restricted Global Note, such transfer may be effected, subject to the rules and procedures of the Depositary, Euroclear and Clearstream, in each case to the extent applicable and as in effect from time to time, only in accordance with the terms of this paragraph. Upon receipt by the Trustee, as Registrar, of (A) written instructions given by or on behalf of the Depositary in accordance with the rules and procedures of the Depositary, Euroclear and Clearstream, in each case to the extent applicable and as in effect from time to time directing the Trustee to credit or cause to be credited to a specified Agent Member's account a beneficial interest in the Restricted Global Note in a specified principal amount and to cause to be debited from another specified Agent Member's account a beneficial interest in this Regulation S Global Note in an equal principal amount; and (B) a certificate in substantially the form set forth in Exhibit B to the Indenture signed by or on behalf of the Agent Member holding such beneficial interest in this Regulation S Global Note, the Trustee, as Registrar, shall reduce the principal amount of this Regulation S Global Note and increase the principal amount of the Restricted Global Note by such specified principal amount.]

[Include if Note is a Restricted Global Note — If the holder of a beneficial interest in this Restricted Global Note wishes at any time to transfer such interest to a Person who wishes to take delivery thereof in the form of a beneficial interest in the Regulation S Global Note, such transfer may be effected, subject to the rules and procedures of the Depositary, Euroclear and Clearstream, in each case to the extent applicable and as in effect from time to time, only in accordance with the terms of this paragraph. Upon receipt by the Trustee, as Registrar of:

(A) written instructions given by or on behalf of the Depositary in accordance with the rules and procedures of the Depositary, Euroclear and Clearstream, in each case to the extent applicable and as in effect from time to time directing the Trustee to credit or cause to be credited to a specified Agent Member's account a beneficial interest in the Regulation S Global Note in a specified principal amount and to cause to be debited from another specified Agent Member's account a beneficial interest in the Restricted Global Note in an equal principal amount; and

(B) a certificate in substantially the form set forth in Exhibit A of the Indenture signed by or on behalf of the Agent Member holding such beneficial interest in this Restricted Global Note,

the Trustee, as Registrar, shall reduce the principal amount of this Restricted Global Note, and increase the principal amount of the Regulation S Global Note by such specified principal amount.]

The Notes do not have the benefit of any sinking fund obligations.

In the event of redemption or purchase of this Note in part only, a new Note or Notes of like tenor for the unredeemed or unpurchased portion hereof will be issued in the name of the Holder hereof upon the cancellation hereof.

If an Event of Default shall occur and be continuing, the principal of all the Notes may be declared due and payable in the manner and with the effect provided in the Indenture.

The Indenture contains provisions for defeasance at any time of (i) the entire indebtedness of this Note, or (ii) certain restrictive covenants and Events of Default with respect to this Note, in each case upon compliance with certain conditions set forth therein.

Unless the context otherwise requires, the Notes shall constitute one series for all purposes under the Indenture, including without limitation, amendments, waivers or redemption.

The Indenture permits, with certain exceptions as therein provided, the amendment thereof and the modification of the rights and obligations of the Issuer and the Guarantors and the rights of the Holders of the Notes under the Indenture at any time by the Issuer and the Trustee with the consent of the Holders of a majority in aggregate principal amount of the Notes at the time Outstanding. The Indenture also contains provisions permitting the Holders of specified percentages in aggregate principal amount of the Notes at the time Outstanding, on behalf of the Holders of all the Notes, to waive compliance by the Issuer or the Guarantors with certain provisions of the Indenture and certain past defaults under the Indenture and their consequences.

Any such consent or waiver by the Holder of this Note shall be conclusive and binding upon such Holder and upon all future Holders of this Note and of any Note issued upon the registration of transfer hereof or in exchange herefor or in lieu hereof, whether or not notation of such consent or waiver is made upon this Note.

No reference herein to the Indenture and no provision of this Note or of the Indenture shall alter or impair the obligation of the Issuer, which is absolute and unconditional, to pay the principal of (and premium, if any) and interest on this Note at the times, place and rate, and in the coin or currency, herein prescribed.

As provided in the Indenture and subject to certain limitations therein set forth, the transfer of this Note is registrable in the Note Register, upon surrender of this Note for registration of transfer at the office or agency of the Issuer in the Borough of Manhattan, The City of New York, New York, or of any of the Transfer Agents duly endorsed by, or accompanied by a written instrument of transfer in form satisfactory to the Issuer duly executed by, the Holder hereof or his attorney duly authorized in writing, and thereupon one or more new Notes, of authorized denominations and like tenor and for the same aggregate principal amount, will be issued to the designated transferee or transferees.

The Notes are issuable only in registered form without coupons in minimum denominations of U.S.\$200,000 and integral multiples of U.S.\$1,000 in excess thereof. As provided in the Indenture and subject to certain limitations therein set forth, Notes are exchangeable for a like tenor and aggregate principal amount of Notes of a different authorized denomination, as requested by the Holder surrendering the same.

No service charge shall be made for any such registration of transfer or exchange, but the Issuer or the Trustee may require payment of a sum sufficient to cover any tax or other governmental charge payable in connection therewith.

Prior to due presentment of this Note for registration of transfer, the Issuer, the Trustee, the Transfer Agents and any agent of the Issuer or the Trustee may treat the Person in whose name this Note is registered as the owner hereof for all purposes, whether or not this Note be overdue, and none of the Issuer, the Trustee or any such agent shall be affected by notice to the contrary.

Interest on this Note shall be computed on the basis of a 360-day year of twelve 30-day months each and, in the case of an incomplete month, on the number of days elapsed based on a 30-day month.

All terms used in this Note which are defined in the Indenture shall have the meanings assigned to them in the Indenture.

THE INDENTURE, THIS NOTE AND THE GUARANTEES SHALL BE GOVERNED BY, AND CONSTRUED IN ACCORDANCE WITH, THE LAWS OF THE STATE OF NEW YORK, without regard to conflicts of laws principles thereof. For the purposes of paragraph 2 of article 9 of the Brazilian Decree-Law No. 4,567, dated September 4, 1942, as amended, the Trustee shall be deemed the “proponent” of the transactions contemplated by the Indenture. Articles 84 through 94-8 of the Luxembourg law dated August 10, 1915 on commercial companies, as amended, which set the provisions related to the representation of the Holders of the Notes, are not applicable to the Notes or the Guarantees.

The Issuer and the Guarantors agree that any suit, action or proceeding against any of them brought by any Holder or the Trustee arising out of or based upon this Indenture, the Notes or the Guarantees may be instituted in any state or Federal court in The City of New York, New York, and waive any objection which any of them may now or hereafter have to the laying of venue of any such proceeding, and irrevocably submits to the non-exclusive jurisdiction of such courts in any suit, action or proceeding.

The Issuer may change any Paying Agent, the Registrar or Transfer Agent; provided that the Issuer will maintain an office or agency where the Notes may be presented or surrendered for payment and for registration of transfer in the Borough of Manhattan, The City of New York. Upon any such change, the Issuer shall give written notice thereof to the Trustee, the Principal Paying Agent and the Holders.

U.S. dollars are the sole currency of account and payment for all sums payable by the Issuer and the Guarantors under or in connection with the Notes, the Guarantees or the Indenture, including damages. The Issuer and the Guarantors have agreed that the provisions of Section 1.14 of the Indenture shall apply to conversion of currency in the case of the Notes, the Guarantees and the Indenture. Among other things, Section 1.14 specifies that if there is a change in the rate of exchange prevailing between the Business Day before the day on which a judgment is given or an order of enforcement is made, as the case may be (or such other date as a court shall determine), and the date of receipt of the amount due, the Issuer or the relevant Guarantor, as the case may be, will pay such additional (or, as the case may be, such lesser) amount, if any, as may be necessary so that the amount paid in the judgment currency when converted at the rate of exchange prevailing on the date of receipt will produce the amount in the Base Currency originally due.

Each of the Issuer and the Guarantors has appointed Cogency Global Inc., currently located at 122 East 42nd Street, 18th Floor, New York, NY 10168, as its authorized agent upon which process may be served in any suit, or proceeding with respect to, arising out of, or relating to, this Note, the Indenture or the Guarantees, that may be instituted in any Federal or state court in the State of New York, The City of New York, the Borough of Manhattan, or brought under Federal or state securities laws and has agreed that there shall, at all times, be at least one agent for service of process for the Issuer and the Guarantors appointed and acting in accordance with the provisions of Section 1.13 of the Indenture relating to agent for service of process. To the extent that the Issuer or the Guarantors has or hereafter may acquire any immunity from jurisdiction of any court or from any legal process (whether through service of notice, attachment prior to judgment, attachment in aid of execution, execution or otherwise) with respect to itself or its property, each of the Issuer and the Guarantors has irrevocably waived such immunity in respect of its obligations under the Indenture, this Note and the Guarantees, to the fullest extent permitted by law.

Section 2.4. Form of Trustee's Certificate of Authentication.

This is one of the Notes with the Guarantees referred to in the within-mentioned Indenture.

THE BANK OF NEW YORK MELLON *as Trustee*

By: _____
Authorized Signatory

Dated: _____

Each of the Guarantors, jointly and severally, guarantees the due and punctual payment of all sums from time to time payable in respect of the Notes as set forth in the Indenture.

NEXA RESOURCES CAJAMARQUILLA S.A.

By: _____
Name:
Title:

By: _____
Name:
Title:

NEXA RESOURCES PERU S.A.A.

By: _____
Name:
Title:

By: _____
Name:
Title:

NEXA RECURSOS MINERAIS S.A.

By: _____
Name:
Title:

By: _____
Name:
Title:

ARTICLE III

THE NOTES

Section 3.1. Title and Terms.

On the Issue Date, the Trustee shall authenticate and deliver U.S.\$500,000,000 aggregate principal amount of 6.500% Notes due 2028. The Issuer may from time to time, without the consent of the Holders of the Notes, create and issue Additional Notes having the same terms and conditions as the Notes in all respects, except that the issue date, the issue price and the first payment of interest thereon may differ; provided, however, that unless the Additional Notes are treated as part of the same “issue” of debt instruments as the original series or are issued pursuant to a “qualified reopening” of the original series, or are issued with no more than a *de minimis* amount of original issue discount, in each case for U.S. federal income tax purposes the additional notes will have a separate CUSIP, or ISIN number. Additional Notes shall be consolidated with and shall form a single series and vote together with the previously issued Notes for all purposes hereof.

The Notes shall be known and designated as the “6.500% Notes due 2028” of the Issuer. The Stated Maturity of the Notes shall be January 18, 2028. The Notes shall bear interest at the rate of 6.500% per annum, from June 18, 2020 or from the most recent Interest Payment Date thereafter to which interest has been paid or duly provided for, as the case may be, payable semiannually in arrears on January 18 and June 18, commencing January 18, 2021, until the principal thereof is paid or made available for payment.

In the case of a default in payment of principal and premium, if any, upon acceleration or redemption, interest (and Additional Amounts, if any) shall be payable pursuant to the second paragraph of this Section 3.1 on such overdue principal (and premium, if any), such interest shall be payable on demand and, if not so paid on demand, such interest shall itself bear interest at the rate per annum stated in the form of security contained herein plus 1% per annum (to the extent that the payment of such interest shall be legally enforceable), and shall accrue from the date such principal and/or premium, as the case may be, was due and payable to the date payment of such interest (and Additional Amounts, if any) has been made or duly provided for, and such interest on unpaid interest shall also be payable on demand.

The principal of and premium, if any, and interest on the Notes shall be payable at the Corporate Trust Office, the office of the Paying Agents and at any other office or agency maintained by the Issuer for such purpose; provided, however, that at the option of the Issuer upon five (5) Business Days’ notice to the applicable Paying Agent, payment of interest may be made by check mailed to the address of the Person entitled thereto as such address shall appear in the Note Register.

The Notes shall be redeemable or repurchasable as provided in Article XI. The Notes shall not have the benefit of any sinking fund obligations.

The Notes shall be subject to defeasance at the option of the Issuer as provided in Article XII.

Unless the context otherwise requires, the Notes shall constitute one series for all purposes under this Indenture, including, without limitation, amendments, waivers or redemptions

Section 3.2. Denominations.

The Notes are issuable only in fully registered form, without coupons, in a minimum denomination of U.S.\$200,000 and integral multiples of U.S.\$1,000 in excess thereof.

Section 3.3. Execution, Authentication, Delivery and Dating.

The Notes shall be executed on behalf of the Issuer by an authorized signatory or authorized signatories of the Issuer. The signature of any signatory on the Notes may be manual, electronic or facsimile.

Notes bearing the manual, electronic or facsimile signatures of individuals who were at any time the proper officers of the Issuer shall bind the Issuer, notwithstanding that such individuals or any of them have ceased to hold such offices prior to the authentication and delivery of such Notes or did not hold such offices at the date of such Notes.

At any time and from time to time after the execution and delivery of this Indenture, the Issuer may deliver Notes executed by the Issuer and having endorsed (by attachment or imprint) thereon the Guarantees executed as provided in Section 14.2 by the Guarantors, to the Trustee for authentication, together with an Issuer Order for the authentication and delivery of such Notes; and the Trustee in accordance with such Issuer Order shall authenticate and deliver such Notes as in this Indenture provided and not otherwise.

Each Note shall be dated the date of its authentication.

No Note or Guarantee shall be entitled to any benefit under this Indenture or be valid or obligatory for any purpose unless there appears on such Note a certificate of authentication substantially in the form provided for herein executed by the Trustee by manual or electronic signature, and such certificate upon any Note shall be conclusive evidence, and the only evidence, that such Note has been duly authenticated and delivered hereunder and that the Guarantees referred to therein have been duly executed and delivered hereunder.

Section 3.4. Global Notes; Registration, Registration of Transfer and Exchange.

(a) *Global Notes.* The provisions of clauses (1) through (7) below shall apply only to Global Notes:

(1) each Global Note authenticated under this Indenture shall be registered in the name of the Depositary or a nominee thereof and delivered to the Depositary or a nominee thereof or custodian therefore, and each such Global Note shall constitute a single Note for all purposes of this Indenture;

(2) notwithstanding any other provision in this Indenture, no Global Note may be exchanged in whole or in part for Notes registered, and no transfer of a Global Note in whole or in part may be registered, in the name of any Person other than the Depositary or a nominee thereof unless (A) the Depositary (i) has notified the Issuer that it is unwilling or unable to continue as Depositary for such Global Note and the Issuer thereupon fails to appoint a successor Depositary or (ii) has ceased to be a clearing agency registered under the Exchange Act, (B) the Issuer, at its option, notifies the Trustee in writing that it elects to cause the issuance of the Notes in definitive registered certificated form, or (C) an Event of Default has occurred and is continuing and the Registrar has received a written request from a beneficial owner of the Notes through an Agent Member to issue its proportionate interest in the Global Note in certificated form;

(3) if any Global Note is to be exchanged for other Notes or cancelled in whole, it shall be surrendered by or on behalf of the Depositary or its nominee to the Trustee, as Registrar, for exchange or cancellation as provided in this Article III. If any Global Note is to be exchanged for other Notes or cancelled in part, or if another Note is to be exchanged in whole or in part for a beneficial interest in any Global Note, such Global Note shall be so surrendered for exchange or cancellation as provided in this Article III or, if the Trustee is acting as custodian for the Depositary or its nominee (or is party to a similar arrangement) with respect to such Global Note, the principal amount thereof shall be reduced or increased by an amount equal to the portion thereof to be so exchanged or cancelled, or the principal amount of such other Note to be so exchanged for a beneficial interest therein, as the case may be, in each case by means of an appropriate adjustment made on the records of the Trustee, whereupon the Trustee, in accordance with the Applicable Procedures, shall instruct the Depositary or its authorized representatives to make a corresponding adjustment to its records (including by crediting or debiting any Agent Member's account as necessary to reflect any transfer or exchange of a beneficial interest pursuant to Section 3.4(c)). Upon any such surrender or adjustment of a Global Note, the Trustee shall, subject to Section 3.4(a)(2) and as otherwise provided in this Article III, authenticate and deliver any Notes issuable in exchange for such Global Note (or any portion thereof) to or upon the order of, and registered in such names as may be directed by, the Depositary or its authorized representative. Upon the request of the Trustee in connection with the occurrence of any of the events specified in the preceding paragraph, the Issuer shall promptly make available to the Trustee a reasonable supply of Notes that are not in the form of Global Notes. The Trustee shall be entitled to conclusively rely upon any order, direction or request of the Depositary or its authorized representative which is given or made pursuant to this Article III if such order, direction or request is given or made in accordance with the Applicable Procedures;

(4) every Note authenticated and delivered upon registration of transfer of, or in exchange for or in lieu of, a Global Note or any portion thereof, whether pursuant to this Article III or Section 10.5 or otherwise, shall be authenticated and delivered in the form of, and shall be, a Global Note, unless such Note is registered in the name of a Person other than the Depositary or a nominee thereof;

(5) none of the Issuer, the Guarantors, the Trustee, any agent of the Trustee, any Paying Agent or the Registrar will have any responsibility or liability for any aspect of the Depositary's records (or the records of the participant of such Depositary) relating to or payments made on account of beneficial ownership interests of a Global Note or for maintaining, supervising or reviewing any records of the Depositary relating to such beneficial ownership interests;

(6) subject to the provisions in the legends required by Section 2.2 above, the registered Holder may grant proxies and otherwise authorize any Person, including Agent Members and Persons who may hold interests in Agent Members, to take any action that such Holder is entitled to take under this Indenture;

(7) except as provided in Section 3.4(a)(2) herein, neither Agent Members nor any other Person on whose behalf Agent Members may act shall have any rights under this Indenture with respect to any Global Note held on their behalf by the Depositary or under the Global Note, and the Depositary may be treated by the Issuer, the Trustee and any agent of the Issuer or the Trustee as the absolute owner of such Global Note for all purposes whatsoever. Notwithstanding the foregoing, nothing herein shall prevent the Issuer, the Guarantors, the Trustee or any agent of the Issuer or the Trustee from giving effect to any written certification, proxy or other authorization furnished by the Depositary or impair, as between the Depositary and its Agent Members, the operation of customary practices governing the exercise of the rights of a Holder of any Note.

(b) *Registration, Registration of Transfer and Exchange and Legends.* The Issuer shall cause to be kept at the Corporate Trust Office of the Trustee a register (the register maintained in such office and in any other office or agency designated pursuant to Section 11.2 being herein sometimes collectively referred to as the "Note Register") in which, subject to such reasonable regulations as they may prescribe, the Issuer shall provide for the registration of Notes and of transfers and exchanges of Notes. The Trustee is hereby appointed "Registrar" for the purpose of registering Notes and transfers and exchanges of Notes as herein provided.

Upon surrender for registration of transfer of any Note at an office or agency of the Issuer designated pursuant to Section 11.2 for such purpose in accordance with the terms hereof, the Issuer shall, subject to the other provisions of this Section 3.4, execute, and the Trustee shall, upon receipt of an Issuer Order, authenticate and deliver, in the name of the designated transferee or transferees, one or more new Notes of any authorized denominations and of a like tenor and aggregate principal amount and bearing the applicable legends set forth in Section 2.2.

Subject to Section 3.4(c), at the option of the Holder, Notes may be exchanged for other Notes of any authorized denominations and of a like tenor and aggregate principal amount and bearing the applicable legend set forth in Section 2.2, if any, each such new Note having the benefit of the Guarantees executed by the Guarantors, upon surrender of the Note to be exchanged at such office or agency. Whenever any Note is so surrendered for exchange, the Issuer shall execute, and the Trustee shall, upon receipt of an Issuer Order, authenticate and deliver, the Note which the Holder making the exchange is entitled to receive.

The Trustee shall have no obligation or duty to monitor, determine or inquire as to compliance with U.S. securities laws, including but not limited to any restrictions on transfer imposed under this Indenture or under applicable law with respect to any transfer of any interest in any Note (including any transfers between or among Agent Members or beneficial owners of interests in any Global Note) other than to require delivery of such certificates and other documentation or evidence as are expressly required by, and to do so if and when expressly required by the terms of, this Indenture, and to examine the same to determine substantial compliance solely as to form with the express requirements hereof. Neither the Trustee nor any Agent shall have any responsibility or liability for any actions taken or not taken by the Depositary.

All Notes and the Guarantees issued upon any registration of transfer or exchange of Notes shall be the valid obligations of the Issuer and the Guarantors, evidencing the same debt, and entitled to the same benefits under this Indenture, as the Notes and the Guarantees endorsed thereon, respectively, surrendered upon such registration of transfer or exchange.

Every Note presented or surrendered for registration of transfer or for exchange shall (if so required by the Issuer or the Trustee) be duly endorsed, or be accompanied by a written instrument of transfer in form satisfactory to the Issuer and the Registrar duly executed, by the Holder thereof or his attorney duly authorized in writing.

No service charge shall be made to the Holder for any registration of transfer or exchange of Notes, but the Issuer or the Trustee may require payment of a sum sufficient to cover any tax or other governmental charge that may be imposed in connection with any registration of transfer or exchange of Notes, other than exchanges pursuant to Section 3.4, 3.5 or 10.5.

The Issuer and the Registrar shall not be required (i) to issue, register the transfer of or exchange any Note during a period beginning at the opening of business 15 days before the due date for any payment of principal in respect of the Notes selected for redemption under Section 4.6 and ending at the close of business on the day of such mailing, or (ii) to register the transfer of or exchange any Note so selected for redemption in whole or in part, except the unredeemed portion of any Note being redeemed in part.

All Notes, initially issued hereunder shall, upon issuance, bear the relevant legends specified in Section 2.2, if any, to be applied to such a Note and, in the case of the legend specifically required for the Restricted Global Note, such required legend shall not be removed unless the Issuer shall have delivered to the Trustee (and the Notes Registrar, if other than the Trustee) an Issuer Order which states that such Note may be issued without such legend thereon. If such legend has been removed from a Note as provided above, no other Note issued in exchange for all or any part of such Note shall bear such legend, unless the Issuer has reasonable cause to believe that such other Note is a “restricted security” within the meaning of Rule 144 of the Notes Act and instructs the Trustee to cause a legend to appear thereon:

(c) *Certain Transfers and Exchanges.* Upon presentation for transfer or exchange of any Note at the office of the Trustee, as Registrar, located in The City of New York, accompanied by a written instrument of transfer or exchange in the form approved by the Issuer (it being understood that, until notice to the contrary is given to Holders of Notes, the Issuer shall be deemed to have approved the form of instrument of transfer or exchange, if any, printed on any Note), executed by the registered Holder, in person or by such Holder’s attorney thereunto duly authorized in writing, and upon compliance with this Section 3.4, such Note shall be transferred upon the Note Register, and a new Note shall be authenticated and issued in the name of the transferee. Notwithstanding any provision to the contrary herein or in the Notes, transfers of a Global Note, in whole or in part, and transfers of interests therein of the kind described in this Section 3.4 (c), shall only be made in accordance with this Section 3.4(c). Transfers and exchanges subject to this Section 3.4(c) shall also be subject to the other provisions of this Indenture that are not inconsistent with this Section 3.4(c).

(1) *General.* A Global Note may not be transferred, in whole or in part, to any Person other than the Depositary or a nominee thereof, and no such transfer to any such other Person may be registered; provided, however, that this clause (1) shall not prohibit any transfer of a Note that is issued in exchange for a Global Note but is not itself a Global Note. No transfer of a Note to any Person shall be effective under this Indenture or the Notes unless and until such Note has been registered in the name of such Person. Nothing in this clause (1) shall prohibit or render ineffective any transfer of a beneficial interest in a Global Note effected in accordance with the other provisions of this Section 3.4(c).

(2) *Restricted Global Note to Regulation S Global Note.* If the holder of a beneficial interest in the Restricted Global Note wishes at any time to transfer such interest to a Person who wishes to take delivery thereof in the form of a beneficial interest in the Regulation S Global Note, such transfer may be effected, subject to the rules and procedures of the Depositary, Euroclear and Clearstream, in each case to the extent applicable and as in effect from time to time (the “Applicable Procedures”), only in accordance with this clause (2). Upon receipt by the Trustee, as Registrar, of (A) written instructions given by or on behalf of the Depositary in accordance with the Applicable Procedures directing the Trustee to credit or cause to be credited to a specified Agent Member’s account a beneficial interest in the Regulation S Global Note in a specified principal amount and to cause to be debited from another specified Agent Member’s account a beneficial interest in the Restricted Global Note in an equal principal amount and (B) a certificate in substantially the form set forth in Exhibit A signed by or on behalf of the Agent Member holding such beneficial interest in the Restricted Global Note, the Trustee, as Registrar, shall reduce the principal amount of a Restricted Global Note, and increase the principal amount of the Regulation S Global Note by such specified principal amount as provided in Section 3.4(a)(3).

(3) *Regulation S Global Note to Restricted Global Note.* If the holder of a beneficial interest in the Regulation S Global Note at any time wishes to transfer such interest to a Person who wishes to take delivery thereof in the form of a beneficial interest in the Restricted Global Note, such transfer may be effected, subject to the Applicable Procedures, only in accordance with this clause (3). Upon receipt by the Trustee, as Registrar, of (A) written instructions given by or on behalf of the Depositary in accordance with the Applicable Procedures directing the Trustee to credit or cause to be credited to a specified Agent Member's account a beneficial interest in the Restricted Global Note in a specified principal amount and to cause to be debited from another specified Agent Member's account a beneficial interest in the Regulation S Global Note and (B) a certificate in substantially the form set forth in Exhibit B signed by or on behalf of the Agent Member holding such beneficial interest in the Regulation S Global Note, the Trustee, as Registrar, shall reduce the principal amount of such Regulation S Global Note and increase the principal amount of the Restricted Global Note by such specified principal amount as provided in Section 3.4(a)(3).

(4) *Non-Global Restricted Note to Global Note.* If the holder of a Restricted Note (other than a Global Note) wishes at any time to transfer all or any portion of such Note to a Person who wishes to take delivery thereof in the form of a beneficial interest in the Restricted Global Note or the Regulation S Global Note, such transfer may be effected, subject to the Applicable Procedures, only in accordance with this clause (4). Upon receipt by the Trustee, as Registrar, of (A) such Note and written instructions given by or on behalf of such Holder as provided in Section 3.4(b) directing the Trustee to credit or cause to be credited to a specified Agent Member's account a beneficial interest in the Restricted Global Note or the Regulation S Global Note, as the case may be, in a specified principal amount equal to the principal amount of the Restricted Note (or portion thereof) to be so transferred, and (B) an appropriately completed certificate substantially in the form set forth in Exhibit C-1 hereto, if the specified account is to be credited with a beneficial interest in the Restricted Global Note, or Exhibit C-2 hereto, if the specified account is to be credited with a beneficial interest in the Regulation S Global Note, signed by or on behalf of such Holder, then the Trustee, as Registrar, shall cancel such Restricted Note (and issue a new Note in respect of any untransferred portion thereof) as provided in Section 3.4(b) and increase the principal amount of the Restricted Global Note or Regulation S Global Note, as the case may be, by the specified principal amount as provided in Section 3.4(a)(3).

(5) *Non-Global Regulation S Note to Restricted Global Note or Regulation S Global Note.* If the Holder of a Regulation S Note (other than a Global Note) wishes at any time to transfer all or any portion of such Note to a Person who wishes to take delivery thereof in the form of a beneficial interest in the Restricted Global Note or the Regulation S Global Note, as the case may be, such transfer may be effected only in accordance with this clause (5) and subject to the Applicable Procedures. Upon receipt by the Trustee, as Registrar, of (A) such Note and written instructions given by or on behalf of such Holder as provided in Section 3.4(b) directing the Trustee to credit or cause to be credited to a specified Agent Member's account a beneficial interest in the Restricted Global Note or the Regulation S Global Note, as the case may be, in a principal amount equal to the principal amount of the Note (or portion thereof) to be so transferred, and (B)(i) with respect to a transfer which is to be delivered in the form of a beneficial interest in the Restricted Global Note, a certificate in substantially the form set forth in Exhibit D-1, signed by or on behalf of such Holder, and (ii) with respect to a transfer which is to be delivered in the form of a beneficial interest in the Regulation S Global Note, a certificate in substantially the form set forth in Exhibit D-2, signed by or on behalf of such Holder, then the Trustee, as Registrar, shall cancel such Note (and issue a new Note in respect of any untransferred portion thereof) as provided in Section 3.4(b) and increase the principal amount of the Restricted Global Note or the Regulation S Global Note, as the case may be, by the specified principal as provided in Section 3.4(a)(3).

Section 3.5. Mutilated, Destroyed, Lost and Stolen Notes.

If any mutilated or defaced Note is surrendered to the Trustee, the Issuer shall execute and the Trustee shall, upon receipt of an Issuer Order, authenticate or cause to be authenticated and deliver in exchange therefore a new Note of like tenor and principal amount, having endorsed thereon the Guarantees executed by the Guarantors and bearing a number not contemporaneously outstanding.

If there shall be delivered to the Issuer and the Trustee (i) evidence to their satisfaction of the destruction, loss or theft of any Note and (ii) such security or indemnity as may be required by them to save each of them, the Guarantors and any agent of either of them harmless, then, in the absence of notice to the Issuer or the Trustee that such Note has been acquired by a bona fide purchaser, the Issuer shall execute and the Trustee shall, upon receipt of an Issuer Order, authenticate and deliver, in lieu of any such destroyed, lost or stolen Note, a new Note of like tenor and principal amount, having endorsed thereon the Guarantees executed by the Guarantors and bearing a number not contemporaneously outstanding.

In case any such mutilated, defaced, destroyed, lost or stolen Note has become or is about to become due and payable, the Issuer may in its discretion, instead of issuing a new Note, pay such Note.

Upon the issuance of any new Note under this Section, the Issuer may require the payment of a sum sufficient to cover any tax or other governmental charge that may be imposed in relation thereto and any other expenses (including the fees and expenses of the Trustee, its counsel, the Registrar and the Paying Agents) connected therewith.

Every new Note issued pursuant to this Section in lieu of any destroyed, defaced, lost or stolen Note, and the Guarantees endorsed thereon, shall constitute an original additional contractual obligation of the Issuer and the Guarantors, respectively, whether or not the destroyed, lost or stolen Note shall be at any time enforceable by anyone, and shall be entitled to all the benefits of this Indenture equally and proportionately with any and all other Notes and Guarantees, respectively duly issued hereunder.

The provisions of this Section are exclusive and shall preclude (to the extent lawful) all other rights and remedies with respect to the replacement or payment of mutilated, destroyed, lost or stolen Notes.

Section 3.6. Payment of Interest; Interest Rights Preserved.

Interest on any Note which is payable, and is punctually paid or duly provided for, on any Interest Payment Date shall be paid to the Person in whose name that Note (or one or more Predecessor Notes) is registered at the close of business on the Regular Record Date for such interest.

Any interest on any Note which is payable, but is not punctually paid or duly provided for, on any Interest Payment Date (herein called "Defaulted Interest") shall (a) bear interest at the rate per annum stated in the form of Note included herein, (to the extent that the payment of such interest shall be legally enforceable), and (b) forthwith cease to be payable to the Holder on the relevant Regular Record Date by virtue of having been such Holder, and such Defaulted Interest may be paid by the Issuer, at its election in each case, as provided in clause (1) or (2) below:

(1) the Issuer may elect to make payment of any Defaulted Interest to the Persons in whose names the Notes (or their respective Predecessor Notes) are registered at the close of business on a Special Record Date for the payment of such Defaulted Interest, which shall be fixed in the following manner. The Issuer shall notify the Trustee in writing of the amount of Defaulted Interest proposed to be paid on each Note and the date of the proposed payment, and at the same time the Issuer shall deposit with the Trustee an amount of money equal to the aggregate amount proposed to be paid in respect of such Defaulted Interest or shall make arrangements satisfactory to the Trustee for such deposit prior to the date of the proposed payment, such money when deposited to be held in trust for the benefit of the Persons entitled to such Defaulted Interest as in this clause provided.

Thereupon the Trustee shall fix a Special Record Date for the payment of such Defaulted Interest which shall be not more than 15 days and not less than 10 days prior to the date of the proposed payment and not less than 10 days after the receipt by the Trustee of the notice of the proposed payment. The Trustee shall promptly notify the Issuer of such Special Record Date and, in the name and at the expense of the Issuer, shall cause notice of the proposed payment of such Defaulted Interest and the Special Record Date therefore to be mailed, first- class postage prepaid, to each Holder at his address as it appears in the Note Register, not less than 10 days prior to such Special Record Date. Notice of the proposed payment of such Defaulted Interest and the Special Record Date therefore having been so mailed, such Defaulted Interest shall be paid to the Persons in whose names the Notes (or their respective Predecessor Notes) are registered at the close of business on such Special Record Date and shall no longer be payable pursuant to the following clause (2); and

(b) the Issuer may make payment of any Defaulted Interest in any other lawful manner not inconsistent with the requirements of any securities exchange on which the Notes may be listed, and upon such notice as may be required by such exchange, if, after notice given by the Issuer to the Trustee of the proposed payment pursuant to this clause, such manner of payment shall be deemed practicable by the Trustee.

Subject to the foregoing provisions of this Section, each Note delivered under this Indenture upon registration of transfer of or in exchange for or in lieu of any other Note shall carry the rights to interest accrued and unpaid, and to accrue, which were carried by such other Note.

Section 3.7. Persons Deemed Owners.

Prior to due presentment of a Note for registration of transfer and the effective registration of such transfer by the Registrar, the Issuer, the Guarantors, the Trustee and any agent of the Issuer, the Guarantors or the Trustee may treat the Person in whose name such Note is registered as the owner of such Note for the purpose of receiving payment of principal of and premium, if any, and (subject to Section 3.6) interest on such Note and for all other purposes whatsoever, whether or not such Note be overdue, and none of the Issuer, the Guarantors, the Trustee or any agent of the Issuer, the Guarantors or the Trustee shall be liable for so treating such Holder.

Section 3.8. Cancellation.

Except as provided for in Section 4.2 and 4.3, Notes surrendered for payment, redemption, registration of transfer or exchange shall, if surrendered to any Person other than the Trustee, be delivered to the Trustee and shall be promptly cancelled by it. The Issuer may at any time deliver to the Trustee for cancellation, accompanied by an Issuer Order, any Notes previously authenticated and delivered hereunder which the Issuer may have acquired in any manner whatsoever, and all Notes so delivered shall be promptly cancelled by the Trustee. No Notes shall be authenticated in lieu of or in exchange for any Notes cancelled as provided in this Section, except as expressly permitted by this Indenture. All cancelled Notes held by the Trustee shall be disposed of in accordance with its standard procedures or as directed by an Issuer Order; provided, however, that the Trustee shall not be required to destroy such Notes.

Section 3.9. Computation of Interest.

The amount of interest payable on the Notes for any interest period will be calculated by applying the rate of interest to the principal amount of such Note, on the basis of a year of 360 days consisting of 12 months of 30 days each and, in the case of an incomplete month, on the number of days elapsed based on a 30 day month provided, however, that Defaulted Interest shall be computed on the basis of a 365 or 366-day year, as the case may be, and the number of days actually elapsed.

Section 3.10. CUSIP Numbers.

The Issuer shall in issuing the Notes use CUSIP numbers, and the Trustee shall use the applicable CUSIP number in notices of redemption or exchange as a convenience to the Holders; provided, that any such notice may state that no representation is made as to the accuracy or correctness of the CUSIP number or numbers printed in the notice or on the certificates representing the Notes and that reliance may be placed only on the other identification numbers printed on the certificates representing the Notes. The Issuer shall promptly notify the Trustee in writing of any change in CUSIP numbers.

Section 3.11. Paying Agents; Discharge of Payment Obligations; Indemnity of Holders.

(a) The Issuer may from time to time appoint one or more paying agents under this Indenture and the Notes. By its execution and delivery of this Indenture, the Issuer hereby initially designates and appoints The Bank of New York Mellon, as Principal Paying Agent. Subject to Section 11.3, the Issuer or a Guarantor may act as paying agent.

(b) Unless the Issuer or a Guarantor shall be acting as paying agent as provided in Section 11.3, the Issuer shall, by 11:00 a.m. New York City time, no later than one Business Day prior to each Interest Payment Date, Redemption Date or Maturity Date on any Notes (whether on maturity, redemption or otherwise) (each, a "Payment Date"), deposit with the Principal Paying Agent in immediately available funds a sum sufficient to pay such principal, any premium, and interest when so becoming due (including any Additional Amounts). The Issuer shall request that the bank through which such payment is to be made agree to supply to the Principal Paying Agent in New York City by 11:00 a.m. (New York City time) two Business Days prior to the due date for any such payment an irrevocable confirmation (by authenticated SWIFT MT 100 Message) of its intention to make such payment. The Principal Paying Agent shall arrange with all other Paying Agents for the payment, from funds furnished by the Issuer or the Guarantors to the Principal Paying Agent pursuant to this Indenture, of the principal, and premium, if any, and interest (including Additional Amounts, if any) on the Notes and of the compensation of such Paying Agents for their services as such.

All Paying Agents will hold in trust, for the benefit of Holders or the Trustee, all money held by such Paying Agent for the payment of principal, or premium if any, of or interest on the Notes and shall notify the Trustee in writing of any default by the Issuer in making any such payment. The Issuer at any time may require a Paying Agent to pay all money held by it to the Trustee and to account for any funds disbursed by it. Upon complying with this Section 3.11 and the applicable provisions of Section 11.3, the Paying Agents shall have no further liability for the money delivered to the Trustee.

(c) Any payment to be made in respect of the Notes or the Guarantees by the Issuer or the Guarantors, as the case may be, to or to the order of any Paying Agent shall be in satisfaction *pro tanto* of the obligations of the Issuer under the Notes.

(d) Each payment in full of principal, redemption amount, Additional Amounts and/or interest payable under this Indenture in respect of any Note made by or on behalf of the Issuer to or to the order of any Paying Agent in the manner specified in this Indenture on the date due shall be valid and effective to satisfy and discharge the obligation of the Issuer to make payment of principal, redemption amount, Additional Amounts and/or interest payable under this Indenture on such date, provided, however, that the liability of any Paying Agent hereunder shall not exceed any amounts paid to it by the Issuer, or held by it, on behalf of the Holders under this Indenture; and provided further that, in the event that there is a default by the Paying Agent or the Principal Paying Agent in any payment of principal, redemption amount, Additional Amounts and/or interest in respect of any Note in accordance with this Indenture, the Issuer and the Guarantors shall pay on demand such further amounts as will result in receipt by the Holder of such amounts as would have been received by it had no such default. This obligation constitutes a separate and independent obligation from the other obligations of the Issuer under the Notes and the Guarantors under the Guarantees, shall give rise to a separate and independent cause of action, will apply irrespective of any waiver granted by the Trustee and/or any Holder of Notes and shall continue in full force and effect despite any judgment, order, claim, or proof for a liquidated amount in respect of any sum due under this Indenture, the Notes or any judgment or order.

ARTICLE IV

REDEMPTION OF NOTES

Section 4.1. Redemption for Tax Reasons.

If as a result of any Change of Law (as defined below):

(1) the Issuer or a Guarantor is or would be required on the next succeeding interest payment date to pay any Additional Amounts; or

(2) the issuers/borrowers of certain intercompany debt are or would be required on the next succeeding Interest Payment Date to pay Brazilian withholding taxes in excess of a general rate of 15%, or 25% in case of amounts paid to residents of countries which do not impose any income tax or which impose it at a maximum rate lower than 20% (or 17% if the relevant jurisdiction is committed to adopt international standards on tax transparency) or where the laws of that country or location impose restrictions on the disclosure of (x) shareholding composition; (y) the ownership of the investment; or (z) the beneficial ownership of income paid to non-resident persons, pursuant to Law No. 9,779, dated January 19, 1999; provided that, such requirement to pay such taxes in excess of such rate was not caused by, or otherwise the result of, whether directly or indirectly, wholly or in part, any amendment to the intercompany debt,

and in any such case the payment of such excess amounts cannot be avoided by the use of any reasonable measures available to the Issuer or a Guarantor, the Notes may be repurchased, by the Issuer at the option of the Issuer or a Guarantor, in whole but not in part, upon not less than 30 nor more than 90 days' notice to the Holders, which notice will be published, at any time following such Change of Law at a repurchase price equal to the principal amount thereof, plus accrued and unpaid interest, if any, to the date fixed for repurchase. The Issuer or a Guarantor will also pay to the Holders on the repurchase date any Additional Amounts which are payable. Following such repurchase, the Notes will be cancelled, or remain Outstanding, at the Issuer's or a Guarantor's election.

"Change of Law" means any change in or amendment to the laws or regulations of Luxembourg, Brazil or Peru (or of any political subdivision thereof or therein) or the adoption, amendment or modification of any resolution of the Central Bank of Luxembourg, the Central Bank of Brazil or the Central Reserve Bank of Peru (or any successor authority thereto) which becomes effective on or after the date of this Indenture (or with respect to a successor, on or after the date such successor assumes the obligations under the Notes), resulting in the Issuer or a Guarantor on a consolidated basis being required to pay amounts with respect to Taxes above in a total aggregate amount in excess of that payable immediately prior to such change or amendment.

Prior to the delivery of any notice of repurchase in accordance with the foregoing, the Issuer or a Guarantor shall deliver to the Trustee and the Principal Paying Agent an Officer's Certificate stating that the Issuer or a Guarantor, as the case may be, is entitled to effect such repurchase based on an Opinion of Counsel or written advice of a qualified tax expert, that the Issuer or a Guarantor has or will, or there is a substantial probability that the Issuer or a Guarantor has or will, become obligated to pay such excess amounts with respect to Taxes as a result of such Change of Law. Such notice, once delivered by the Issuer or a Guarantor to the Trustee, will be irrevocable.

If the Issuer or a Guarantor becomes subject at any time to any taxing jurisdiction other than Luxembourg, Brazil or Peru, references herein to Luxembourg, Brazil or Peru, as applicable, shall be construed to include such other jurisdiction.

Section 4.2. Optional Redemption.

At any time before October 18, 2027 (which is the date that is three months prior to maturity of the notes (the "Par Call Date")), the Issuer or a Guarantor has the right to redeem the Notes, in whole or in part and from time to time, at a redemption price equal to the greater of (1) 100% of the principal amount of the Notes being redeemed and (2) the sum of the present values of the remaining scheduled payments of principal and interest on the Notes being redeemed that would be due if the Notes matured on the Par Call Date (inclusive of interest accrued to the redemption date), discounted to the Redemption Date on a semi-annual basis (assuming a 360-day year consisting of twelve 30-day months) at the Treasury Rate plus 50 basis points, the case of clause (1) only, accrued and unpaid interest on the principal amount of the Notes being redeemed to, but excluding, such Redemption Date.

At any time on or after the Par Call Date, the Issuer or a Guarantor has the right to redeem the Notes, in whole or in part and from time to time, at a redemption price equal to 100% of the principal amount of the Notes being redeemed plus accrued and unpaid interest on the principal amount of the Notes being redeemed to, but excluding, such Redemption Date.

The Issuer, any Guarantor or any of their respective Affiliates may at any time repurchase the Notes at any price in the open market or otherwise. The Issuer, any Guarantor or any of their respective Affiliates may hold or resell the Notes it purchases or may surrender them to the Trustee or an Agent for cancellation.

Section 4.3. Applicability of Article.

Redemption of Notes at the election of the Issuer, as permitted or required by any provision of this Indenture, shall be made in accordance with such provision and this Article.

Section 4.4. Election to Redeem; Notice to Trustee, Registrar and Paying Agent.

In the case of any redemption of Notes prior to the expiration of any restriction on such redemption provided in the terms of such Notes or elsewhere in this Indenture, the Issuer shall furnish the Trustee with an Officer's Certificate evidencing compliance with such restriction.

The Issuer shall provide notice of redemption to the Trustee, Registrar and Paying Agents at least 15 days (or such shorter period as agreed to by the Trustee) prior to when such notice of redemption shall be provided to the Holders.

Section 4.5. Notice of Redemption.

Notice of redemption pursuant to Section 4.1 and 4.2 hereof shall be given in the manner provided for in Section 1.6 hereof. The Trustee, Registrar and Paying Agent will notify the Holders at such Holder's address appearing in the Note register at least 30 but not more than 60 days prior to the Redemption Date. A notice of any redemption may, at the Issuer's or a Guarantor's discretion, be subject to one or more conditions precedent.

All notices of redemption shall state:

- (1) the Redemption Date;
- (2) the Redemption Price;
- (3) that on the Redemption Date, the Redemption Price will become due and payable upon each such Note to be redeemed and that interest thereon will cease to accrue on and after said date;
- (4) the place or places where such Notes are to be surrendered for payment of the Redemption Price;

- (5) the aggregate principal amount of Notes being redeemed;
- (6) the CUSIP number or numbers of the Notes being redeemed;
- (7) if fewer than all the outstanding Notes are to be redeemed, or if a Note is to be redeemed in part only, the identification and principal amounts at maturity of the particular Notes (or portion thereof) to be redeemed; and
- (8) that no representation is made as to the correctness or accuracy of the CUSIP numbers, if any, listed in such notice or printed on the Notes.

Section 4.6. Deposit of Redemption Price.

By 11:00 a.m. (New York City time) on the Business Day prior to any Redemption Date, the Issuer or a Guarantor shall deposit with the Principal Paying Agent (or, if the Issuer is acting as its own Paying Agent, segregate and hold in trust as provided in Section 11.3) an amount of money sufficient to pay the Redemption Price on all of the Notes which are to be repurchased on that date. In the case of a partial redemption of Notes that are represented by a Global Note, the relevant Notes will be redeemed in accordance with the rules of DTC.

Section 4.7. Notes Payable on Redemption Date.

Notice of redemption having been given as aforesaid, the Notes so to be redeemed shall, on the Redemption Date, become due and payable at the Redemption Price therein specified, and from and after such date (unless the Issuer shall default in the payment of the Redemption Price and accrued and unpaid interest) such Notes shall cease to bear interest. Upon surrender of any such Note for redemption in accordance with said notice, such Note shall be paid by the Issuer at the Redemption Price, together with accrued and unpaid interest to the Redemption Date; provided, however, that installments of interest whose Maturity Date is on or prior to the Redemption Date shall be payable to the Holders of such Notes, or one or more Predecessor Notes, registered as such at the close of business on the relevant Record Dates according to their terms and the provisions of Section 3.7.

If any Note called for redemption shall not be so paid upon surrender thereof for redemption, the principal (and premium, if any) shall, until paid, bear interest from the Redemption Date at the rate provided by the Note.

ARTICLE V

SATISFACTION AND DISCHARGE

Section 5.1. Satisfaction and Discharge of Indenture.

This Indenture shall cease to be of further effect as to all Outstanding Notes, and the Trustee, on demand of and at the expense of the Issuer, shall execute proper instruments acknowledging satisfaction and discharge of this Indenture, when

- (1) (A) all Outstanding Notes (except lost, stolen or destroyed Notes which have been replaced or paid) have been delivered to the Trustee for cancellation; or
- (B) all Outstanding Notes that have not been delivered to the Trustee for cancellation (i) have become due and payable, (ii) will become due and payable at their Stated Maturity within one year, or (iii) are to be called for redemption within one year under arrangements satisfactory to the Trustee for the giving of notice of a redemption by the Issuer or a Guarantor; and, in each case, the Issuer or a Guarantor irrevocably deposits or causes to be deposited with the Trustee or its designee as funds in trust solely for the benefit of the Holders, cash, Cash Equivalents or U.S. Government Obligations in an amount as will be sufficient without consideration of any reinvestment of interest, to pay and discharge all principal, premium and Additional Amounts, if any, and accrued and unpaid interest to the date of maturity or redemption on the Notes not delivered to the Trustee for cancellation and delivers irrevocable instructions to the Trustee to apply the deposited money toward the payment of the Notes at maturity or the redemption date, as the case may be;

- (2) the Issuer or a Guarantor has paid or caused to be paid all other sums payable hereunder;
- (3) the Issuer or a Guarantor has delivered to the Trustee an Officer's Certificate and an Opinion of Counsel, each stating that all conditions precedent herein provided for relating to the satisfaction and discharge of this Indenture have been complied with; and
- (4) the Trustee shall have received such other documents and assurances as the Trustee shall have reasonably requested.

Notwithstanding the satisfaction and discharge of this Indenture, (i) the obligations of the Issuer to the Trustee under Section 7.7 hereof, (ii) substitution of apparently mutilated, defaced, destroyed, lost or stolen Notes, (iii) rights of Holders of Notes to receive payment of principal of and premium, if any, and interest (including Additional Amounts, if any) on the Notes, (iv) rights, obligations and immunities of the Trustee under this Indenture (including, if money shall have been deposited with the Trustee pursuant to subclause (B) of clause (1) of this Section, the obligations of the Trustee under Section 5.2 hereof and the last paragraph of Section 11.3 hereof), and (v) rights of Holders of the Notes as beneficiaries of this Indenture with respect to any property deposited with the Trustee payable to all or any of them, shall survive.

Section 5.2. Application of Trust Money.

Subject to the provisions of the last paragraph of Section 11.3, all money deposited with the Trustee pursuant to Section 5.1 hereof shall be held in trust and applied by it, in accordance with the provisions of the Notes and this Indenture, to the payment, either directly or through any Paying Agent (including the Issuer or a Guarantor acting as its own Paying Agent) as the Trustee may determine, to the Persons entitled thereto, of the principal (and premium, if any) and interest for whose payment such money has been deposited with the Trustee.

ARTICLE VI

REMEDIES

Section 6.1. Events of Default.

“Event of Default,” wherever used herein, means any one of the following events (whatever the reason for such Event of Default and whether it shall be voluntary or involuntary or be effected by operation of law or pursuant to any judgment, decree or order of any court or any order, rule or regulation of any administrative or governmental body):

- (1) failure to pay any amount of principal of (or premium, if any) any Note when due;
- (2) failure to pay any interest, including Additional Amounts, if any, on any Note when due and such failure shall continue for a period of 30 days;
- (3) failure to perform any covenant or agreement of the Issuer or any Guarantor under this Indenture or the Notes and such failure remains unremedied for 60 days after the Trustee has given written notice thereof to the Issuer or any Guarantor;
- (4) failure to pay when due or, as the case may be, within any originally applicable grace period, any amount of principal and premium, if any, or interest (including Additional Amounts, if any), due under the terms of any instrument evidencing Indebtedness of the Issuer or any of its Designated Subsidiaries, or any such Indebtedness of the Issuer or any of its Designated Subsidiaries that becomes due and payable prior to its stated maturity otherwise than at the option of the issuer thereof by reason of the occurrence of an event of default howsoever described; provided that the aggregate amount of any such Indebtedness equals with respect to such Person, on a consolidated basis U.S.\$100.0 million or more (or its equivalent in other currency or currencies);
- (5) the rendering of a final judgment or judgments (not subject to appeal) for the payment of money against the Issuer or any of its Designated Subsidiaries which remains undischarged, unbonded or unstayed (and otherwise not covered by enforceable insurance policies issued by reputable and creditworthy insurance companies) for a period of 60 consecutive days after the date on which the right to appeal all such judgments has expired or, if later, the date therein specified for payment; provided that the aggregate amount of any such final judgment equals or exceeds with respect to such Person, on a consolidated basis U.S.\$100.0 million (or its equivalent in other currency or currencies);
- (6) all or substantially all of the assets of the Issuer (on a consolidated basis) shall be condemned, seized or otherwise appropriated, or custody of such property shall be assumed by any governmental authority or court or other person purporting to act under the authority of the federal government of any jurisdiction, or the Issuer shall be prevented from exercising normal control over all or substantially all of its property or revenues (on a consolidated basis), if the whole or part of such property or revenues is material to the Issuer (on a consolidated basis);

(7) (a) a secured party takes possession of all or substantially all the assets or revenues of the Issuer (on a consolidated basis) or (b) a receiver or similar officer is appointed, of all or substantially all the assets or revenues of the Issuer (on a consolidated basis);

(8) the Issuer or any Guarantor pursuant to or under or within the meaning of any Bankruptcy Law (a) commences a voluntary case or proceeding; (b) consents to the making of a Bankruptcy Order in an involuntary case or proceeding or the commencement of any case against it; (c) consents to the appointment of a custodian of it or for substantially all its property; (d) makes a general assignment for the benefit of its creditors; (e) files an answer or consent seeking reorganization or relief; (f) shall admit in writing its inability to pay its debts generally; or (g) consents to the filing of a petition in bankruptcy;

(9) a court of competent jurisdiction in any involuntary case or proceeding enters a Bankruptcy Order against the Issuer or any Guarantor, and such Bankruptcy Order remains unstayed and in effect for 60 consecutive days; and

(10) any of the Guarantees is not (or is claimed by any Guarantor not to be) in full force and effect.

If any Event of Default (other than an Event of Default described in clause (8) with respect to the Issuer or Nexa Peru) shall occur and be continuing, either (i) the Trustee or (ii) the Holders, with written notice to the Trustee, of at least 25% in aggregate principal amount of the Outstanding Notes may accelerate the maturity of all Notes; provided that, after such acceleration, but before a judgment or decree based on acceleration, the Holders of a majority in aggregate principal amount of Outstanding Notes may, as provided in Section 6.12, rescind and annul such acceleration if all Events of Default, other than the nonpayment of accelerated principal, have been cured or waived as provided in this Indenture. The Trustee shall not be deemed to have notice of any Default or Event of Default (other than a payment default) unless a Responsible Officer of the Trustee has actual knowledge thereof or unless written notice of any event which is in fact such a default is received by a Responsible Officer of the Trustee at the Corporate Trust Office of the Trustee, and such notice references the Notes and this Indenture. If an Event of Default specified in clause (8) above occurs with respect to the Issuer or Nexa Peru, the Outstanding Notes will *ipso facto* become immediately due and payable without any declaration or other act on the part of the Trustee or any Holder.

Section 6.2. Collection of Indebtedness and Suits for Enforcement by Trustee. The Issuer and the Guarantors covenant that if

(1) default is made in the payment of any interest on any Note, (including Additional Amounts, if any), when such amounts become due and payable and such default continues for a period of 30 days; or

(2) default is made in the payment of the principal of (or premium, if any, on) any Note at the Maturity thereof or, with respect to any Note to be redeemed, at the Redemption Date thereof,

the Issuer and the Guarantors (subject to the limitations provided in this Indenture) will, jointly and severally, upon demand of the Trustee, pay to it, for the benefit of the Holders of such Notes, the whole amount then due and payable on such Notes for principal (and premium, if any) and interest (including Additional Amounts, if any), and, to the extent that payment of interest on overdue amounts shall be legally enforceable, interest on any overdue principal (and premium, if any) and on any overdue interest, at the rate provided by the Notes, and, in addition thereto, such further amount as shall be sufficient to cover the costs and expenses incurred by the Trustee under this Indenture, including the reasonable compensation, expenses, disbursements and advances of the Trustee, its agents and counsel.

If the Issuer and the Guarantors fail to pay such amounts forthwith upon such demand, the Trustee, in its own name and as trustee of an express trust, may institute a judicial proceeding for the collection of the sums so due and unpaid, may prosecute such proceeding to judgment or final decree, and may enforce the same against the Issuer, the Guarantors or any other obligor upon the Notes and collect the moneys adjudged or decreed to be payable in the manner provided by law out of the property of the Issuer, the Guarantors or any other obligor upon the Notes, wherever situated.

If an Event of Default occurs and is continuing, the Trustee may in its discretion proceed to protect and enforce its rights and the rights under this Indenture of the Holders by such appropriate judicial proceedings as the Trustee shall deem most effective to protect and enforce any such rights, whether for the specific enforcement of any covenant or agreement in this Indenture or in aid of the exercise of any power granted herein including, without limitation, seeking recourse against the Issuer or the Guarantors or proceeding to enforce any other proper remedy.

Section 6.3. Trustee May File Proofs of Claim.

The Trustee may file such proofs of claim and other papers or documents as may be necessary or advisable in order to have the claims of the Trustee and the Holders allowed in any judicial proceedings relative to the Issuer, the Guarantors, their respective creditors or its property and, unless prohibited by law or applicable regulations, may vote on behalf of the Holders at their direction in any election of a trustee in bankruptcy or other Person performing similar functions, and any custodian in any such judicial proceeding is hereby authorized by each Holder to make payments to the Trustee and, in the event that the Trustee shall consent to the making of such payments directly to the Holders, to pay to the Trustee any amount due it for the reasonable compensation, expenses, disbursements and advances of the Trustee, its agents and its counsel, and any other amounts due the Trustee under Section 7.7.

Section 6.4. Trustee May Enforce Claims Without Possession of Notes.

All rights of action and claims under this Indenture or the Notes may be prosecuted and enforced by the Trustee without the possession of any of the Notes or the production thereof in any proceeding relating thereto, and any such proceeding instituted by the Trustee shall be brought in its own name as trustee of an express trust, and any recovery of judgment shall, after provision for the payment of the reasonable compensation, expenses, disbursements and advances of the Trustee, its agents and counsel, be for the ratable benefit of the Holders of the Notes in respect of which such judgment has been recovered.

Section 6.5. Application of Money Collected.

Any money collected by the Trustee pursuant to this Article shall be applied in the following order, at the date or dates fixed by the Trustee and, in case of the distribution of such money on account of principal (or premium, if any) or interest, upon presentation of the Notes and the notation thereon of the payment if only partially paid and upon surrender thereof if fully paid;

FIRST: To the payment of all amounts due to the Trustee and the Agents under this Indenture; and

SECOND: To the payment of the amounts then due and unpaid for principal of (and premium, if any) and interest on the Notes in respect of which or for the benefit of which such money has been collected, ratably, without preference or priority of any kind, according to the amounts due and payable on such Notes for principal (and premium, if any) and interest, respectively.

The Trustee, upon prior written notice to the Issuer, may fix a record date and payment date for any payment to the Holders pursuant to this Section 6.5.

Section 6.6. Limitation on Suits.

No Holder of any Note shall have any right to institute any proceeding, judicial or otherwise, with respect to this Indenture, or for the appointment of a receiver or trustee, or for any other remedy hereunder, unless:

(1) such Holder shall have previously given written notice to the Trustee of a continuing Event of Default;

(2) the Holders of at least 25% in aggregate principal amount of the Outstanding Notes shall have made written request to the Trustee to institute proceedings in respect of such Event of Default in its own name as Trustee hereunder and shall have offered to the Trustee indemnity and/or security reasonably satisfactory to the Trustee against the costs, expenses and liabilities to be incurred in compliance with such request;

(3) the Trustee for 60 days after its receipt of such notice, request and offer shall have failed to institute any such proceeding;
and

(4) no direction inconsistent with such written request shall have been given to the Trustee during such 60-day period by the Holders of a majority in principal amount of the Outstanding Notes;

it being understood and intended that no one or more Holders shall have any right in any manner whatever by virtue of, or by availing of, any provision of this Indenture or any Note or the Guarantees to affect, disturb or prejudice the rights of any other Holders, or to obtain or to seek to obtain priority or preference over any other Holders or to enforce any right under this Indenture (it being understood that the Trustee does not have an affirmative duty to ascertain whether or not such actions or forbearances are unduly prejudicial to such Holders), any Note or the Guarantees, except in the manner herein provided and for the equal and ratable benefit of all the Holders.

Section 6.7. Unconditional Right of Holders to Receive Principal, Premium and Interest.

Notwithstanding any other provision in this Indenture, the Notes or the Guarantees, the Holder of any Note shall have the right, which is absolute and unconditional, to receive payment of the principal of (and premium, if any) and (subject to Section 3.6) interest on such Note on the respective Stated Maturities expressed in such Note (or earlier Redemption Date) and to institute suit for the enforcement of any such payment, and such rights shall not be impaired without the consent of such Holder.

Section 6.8. Restoration of Rights and Remedies.

If the Trustee or any Holder has instituted any proceeding to enforce any right or remedy under this Indenture, any Note or the Guarantees, and such proceeding has been discontinued or abandoned for any reason, or has been determined adversely to the Trustee or to such Holder, then and in every such case, subject to any determination in such proceeding, the Issuer, the Guarantor, the Trustee and the Holders shall be restored severally and respectively to their former positions hereunder and thereafter all rights and remedies of the Trustee and the Holders shall continue as though no such proceeding had been instituted.

Section 6.9. Rights and Remedies Cumulative.

Except as otherwise provided with respect to the replacement or payment of mutilated, destroyed, lost or stolen Notes in the last paragraph of Section 3.5 hereof, no right or remedy herein conferred upon or reserved to the Trustee or to the Holders is intended to be exclusive of any other right or remedy, and every right and remedy shall, to the extent permitted by law, be cumulative and in addition to every other right and remedy given hereunder or now or hereafter existing at law or in equity or otherwise. The assertion or employment of any right or remedy hereunder, or otherwise, shall not prevent the concurrent assertion or employment of any other appropriate right or remedy.

Section 6.10. Delay or Omission Not Waiver.

No delay or omission of the Trustee or of any Holder of any Note to exercise any right or remedy accruing upon any Event of Default shall impair any such right or remedy or constitute a waiver of any such Event of Default or an acquiescence therein. Every right and remedy given by this Article or by law to the Trustee or to the Holders may be exercised from time to time, and as often as may be deemed expedient, by the Trustee or by the Holders, as the case may be.

Section 6.11. Control by Holders.

The Holders of a majority of the aggregate principal amount of the Outstanding Notes shall have the right to direct the time, method and place of conducting any proceeding for any remedy available to the Trustee or exercising any trust or power conferred on the Trustee, provided that:

(1) such direction shall not be in conflict with any rule of law or with this Indenture or expose the Trustee to personal liability (as determined in the sole discretion of the Trustee); and

(2) the Trustee may take any other action deemed proper by the Trustee which is not inconsistent with such direction.

The Trustee may refuse, however, to follow any direction that the Trustee, in its sole discretion, determines may be unduly prejudicial to the rights of the Holders or that may subject the Trustee to any liability, loss or expense if the Trustee determines, in its sole discretion, that it lacks satisfactory indemnification and/or security against such liability, loss or expense.

Section 6.12. Waiver of Past Defaults.

The Holders of not less than a majority in aggregate principal amount of the Outstanding Notes may by written notice to the Issuer and the Trustee waive any past default hereunder and rescind and annul any declaration of acceleration and its consequences, except a default:

(1) in the payment of the principal of (or premium, if any) or interest on any Note; or

(2) in respect of a covenant or provision hereof which under Article X cannot be modified or amended without the consent of the Holder of each Outstanding Note affected.

Upon any such waiver, such default shall cease to exist, and any Event of Default arising therefrom shall be deemed to have been cured, for every purpose of this Indenture; but no such waiver shall extend to any subsequent or other default or impair any right consequent thereon.

Section 6.13. Undertaking for Costs.

In any suit for the enforcement of any right or remedy under this Indenture or in any suit against the Trustee for any action taken or omitted by it as a Trustee, a court in its discretion may require the filing by any party litigant in the suit of an undertaking to pay the costs of the suit, and the court in its discretion may assess reasonable costs, including reasonable attorney's fees and expenses, against any party litigant in the suit, having due regard to the merits and good faith of the claims or defenses made by the party litigant. This Section 6.13 does not apply to a suit by the Trustee, a suit by a Holder pursuant to Section 6.7 hereof, or a suit by Holders of more than 10% in principal amount of the then Outstanding Notes.

ARTICLE VII

THE TRUSTEE

Section 7.1. Certain Duties and Responsibilities.

(a) Except during the continuance of an Event of Default,

(1) the Trustee undertakes to perform solely such duties and only such duties as are specifically set forth in this Indenture, and Trustee shall not be liable except for the performance of such duties; and no implied covenants or obligations shall be read into this Indenture against the Trustee; and

(2) in the absence of gross negligence on its part, the Trustee may conclusively rely, as to the truth of the statements and the correctness of the opinions expressed therein, upon certificates or opinions furnished to the Trustee and conforming to the requirements of this Indenture; but in the case of any such certificates or opinions which by any provision hereof are specifically required to be furnished to the Trustee, the Trustee shall be under a duty to examine the same to determine whether or not they conform to the form requirements of this Indenture (but need not confirm or investigate the accuracy of mathematical calculations or other facts stated therein).

(b) In case an Event of Default has occurred and is continuing, the Trustee shall exercise such of the rights and powers vested in it by this Indenture, and use the same degree of care and skill in their exercise, as a prudent person would exercise or use under the circumstances in the conduct of such person's own affairs.

(c) No provision of this Indenture shall be construed to relieve the Trustee from liability for its own grossly negligent action or its own willful misconduct, *except* that:

(1) this Subsection shall not be construed to limit the effect of Subsection (a) of this Section;

(2) the Trustee shall not be liable for any error of judgment made in good faith by a Responsible Officer or Officers of the Trustee, unless it shall be proved that the Trustee was grossly negligent in ascertaining the pertinent facts;

(3) the Trustee shall not be liable with respect to any action taken or omitted to be taken by it in good faith in accordance with the direction of the Holders of a majority in principal amount of the Outstanding Note of any series, determined as provided in Section 6.2, relating to the time, method and place of conducting any proceeding for any remedy available to the Trustee, or exercising any trust or power conferred upon the Trustee, under this Indenture with respect to the Note;

(4) no provision of this Indenture shall require the Trustee to expend or risk its own funds or otherwise incur any financial liability in the performance of any of its duties hereunder, or in the exercise of any of its rights or powers, if it shall have reasonable grounds for believing that repayment of such funds or adequate indemnity and/or security against such risk or liability is not reasonably assured to it;

(5) the Trustee shall not be liable in respect of any payment (as to the correctness of amount, entitlement to receive or any other matters relating to payment) or notice effected by the Issuer or any Paying Agent or any records maintained by any co-Note Registrar with respect to the Notes;

(6) if any party fails to deliver a notice relating to an event the fact of which, pursuant to this Indenture, requires notice to be sent to the Trustee, the Trustee may conclusively rely on its failure to receive such notice as reason to act as if no such event occurred, unless a Responsible Officer of the Trustee had actual knowledge of such event;

(7) the delivery of any information to the Trustee under this Indenture, including but not limited to any Rule 144A information, or reports to the Trustee is for informational purposes only and the receipt of such information or reports by the Trustee shall not constitute constructive notice of any information contained therein;

(8) in the absence of written investment direction from the Issuer, all cash received by the Trustee shall be placed in a non-interest bearing trust account, and in no event shall the Trustee be liable for the selection of investments or for investment losses incurred thereon or for losses incurred as a result of the liquidation of any such investment prior to its maturity date or the failure of the party directing such investments prior to its maturity date or the failure of the party directing such investment to provide timely written investment direction, and the Trustee shall have no obligation to invest or reinvest any amounts held hereunder in the absence of such written investment direction from the Issuer;

(9) in the event that the Trustee is also acting as custodian, Registrar, Paying Agent, exchange agent, bid solicitation agent or transfer agent hereunder, the rights and protections afforded to the Trustee pursuant to this Article VII shall also be afforded to such custodian, Registrar, Paying Agent, exchange agent, bid solicitation agent or transfer agent;

(10) any application by the Trustee for written instructions from the Issuer (other than with regard to any action proposed to be taken or omitted to be taken by the Trustee that affects the rights of the Holders of the Notes under this Indenture) may, at the option of the Trustee, set forth in writing any action proposed to be taken or omitted by the Trustee under this Indenture and the date on and/or after which such action shall be taken or such omission shall be effective. The Trustee shall not be liable to the Issuer for any action taken by, or omission of, the Trustee in accordance with a proposal included in such application on or after the date specified in such application (which date shall not be less than three Business Days after the date any officer that the Issuer has indicated to the Trustee should receive such application actually receives such application, unless any such officer shall have consented in writing to any earlier date), unless, prior to taking any such action (or the effective date in the case of any omission), the Trustee shall have received written instructions in accordance with this Indenture in response to such application specifying the action to be taken or omitted.

(d) Whether or not therein expressly so provided, every provision of this Indenture relating to the conduct or affecting the liability of or affording protection to the Trustee shall be subject to the provisions of this Section.

Section 7.2. Notice of Defaults.

The Trustee shall give the Holders notice of any Default ("Notice of Default") that has occurred and is continuing and of which a Responsible Officer of the Trustee has actual knowledge, within 90 days after the occurrence of such Default (but not less than 15 days after knowledge thereof). The Trustee may withhold from Holders notice of any continuing Default or Event of Default (except a Default or Event of Default relating to the payment of principal, premium, if any, or interest on, the Notes) if it determines that withholding such notice is in their interest; provided that, in the case of a default of a character specified in Section 6.1(4), no such notice to Holders shall be given until at least 30 days after the occurrence thereof.

Section 7.3. Certain Rights of Trustee and the Agents.

Subject to the provisions of Section 7.1:

(a) the Trustee and the Agents may rely conclusively and shall be protected in acting or refraining from acting upon any resolution, certificate, statement, instrument, opinion, report, notice, request, direction, consent, order, bond, debenture, note, other evidence of indebtedness or other paper or document believed by it to be genuine and to have been signed or presented by the proper party or parties;

(b) any request or direction of the Issuer mentioned herein shall be sufficiently evidenced by an Issuer Request or an Issuer Order and any resolution of the Board of Directors of the Issuer may be sufficiently evidenced by a Board Resolution;

(c) whenever in the administration of this Indenture the Trustee or an Agent shall deem it desirable that a matter be proved or established prior to taking, suffering or omitting any action hereunder, the Trustee or such Agent, as the case may be, (unless other evidence be herein specifically prescribed) may, in the absence of gross negligence on its part, rely upon an Officer's Certificate or an Opinion of Counsel;

(d) the Trustee or the Agents may consult with counsel of its selection, at the expense of the Issuer, and the advice of such counsel or any Opinion of Counsel shall be full and complete authorization and protection in respect of any action taken, suffered or omitted by it hereunder in good faith and in reliance thereon;

(e) the Trustee and each Agent shall be under no obligation to exercise any of the rights or powers vested in it by this Indenture at the request or direction of any of the Holders pursuant to this Indenture, unless such Holders shall have offered to the Trustee or such Agent, as applicable, security and/or indemnity satisfactory to it against the costs, expenses and liabilities which might be incurred by it in compliance with such request or direction satisfactory to the Trustee or such Agent, as applicable;

(f) neither the Trustee nor any Agent shall be bound to make any investigation into the facts or matters stated in any resolution, certificate, statement, instrument, report, opinion, notice, request, direction, consent, order, bond, debenture, note, other evidence of indebtedness or other paper or document, but the Trustee and each Agent, in its discretion, may make such further inquiry or investigation into such facts or matters as it may see fit, and, if the Trustee or an Agent shall determine to make such further inquiry or investigation, it shall be entitled to examine the books, records and premises of the Issuer and the Guarantor, personally or by agent or attorney at the sole cost of the Issuer and shall incur no liability or additional liability of any kind by reason of such inquiry or investigation;

(g) the Trustee and each Agent may execute any of the trusts or powers hereunder or perform any duties hereunder either directly or by or through agents or attorneys and the Trustee and each Agent shall not be responsible for any misconduct or negligence on the part, or for the supervision of, any agent or attorney appointed with due care by it hereunder;

(h) neither the Trustee nor any Agent shall be liable for any action taken, suffered or omitted by it in good faith which the Trustee or such Agent, as applicable, believed to have been authorized or within its rights or powers;

(i) neither the Trustee nor any Agent shall be charged with knowledge of any default or Event of Default with respect to the Notes, unless either (1) a Responsible Officer shall have actual knowledge of such default or Event of Default, or (2) written notice of such default or Event of Default shall have been received by a Responsible Officer of the Trustee by the Issuer, the Guarantor or by any Holder of the Notes;

(j) in no event shall the Trustee or any Agent be responsible or liable for special, indirect, punitive or consequential loss or damage of any kind whatsoever (including, but not limited to, loss of profit) irrespective of whether the Trustee or such Agent has been advised of the likelihood of such loss or damage and regardless of the form of action;

(k) the rights, privileges, protections, immunities and benefits given to the Trustee and the Agents, including, without limitation, its right to be indemnified, are extended to, and shall be enforceable by, the Trustee and the Agents in each of their capacities hereunder, and each agent, custodian and other Person employed to act hereunder;

(l) neither the Trustee nor the Agents shall be required to give any bond or surety in respect of the performance of its powers and duties hereunder;

(m) the Trustee and the Agents may request that the Issuer deliver a certificate setting forth the names of individuals and/or titles of officers authorized at such time to take specified actions pursuant to this Indenture; and

(n) the permissive rights of the Trustee enumerated herein shall not be construed as duties.

Section 7.4. Not Responsible for Recitals or Issuance of Notes.

The recitals contained herein, in the Notes and in the Guarantees endorsed thereon, except the Trustee's certificates of authentication, shall be taken as the statements of the Issuer or the Guarantors, as the case may be, and the Trustee assumes no responsibility for their correctness. The Trustee makes no representations as to the validity or sufficiency of this Indenture or the Notes. The Trustee shall not be accountable for the use or application by the Issuer of Notes or the proceeds thereof.

Section 7.5. May Hold Notes.

The Trustee, any Paying Agent or Transfer Agent, any Registrar (if other than the Trustee) or any other agent of the Issuer or the Guarantors, in its individual or any other capacity, may become the owner or pledgee of Notes and, subject to Section 7.8 and 7.12, may otherwise deal with the Issuer and the Guarantors with the same rights it would have if it were not Trustee, Paying Agent, Transfer Agent, Registrar or such other agent.

Section 7.6. Money Held in Trust.

All moneys received by the Trustee or any Paying Agent shall, until used or applied as herein provided, be held in trust for the purposes for which they were received, and need not be segregated from other funds of the Trustee or Paying Agent, except as otherwise required by law. Neither the Trustee nor any Paying Agent shall be under any liability for interest on any moneys received by it hereunder except such as it may agree in writing with the Issuer to pay thereon.

Section 7.7. Compensation and Reimbursement.

The Issuer and the Guarantors agree:

- (1) to, jointly and severally, pay to the Trustee and the Agents from time to time upon demand such compensation for all services rendered by it hereunder as shall be agreed upon in writing (which compensation shall not be limited by any provision of law in regard to the compensation of a trustee of an express trust), as such fees may be adjusted from time to time;
- (2) except as otherwise expressly provided herein, to, jointly and severally, reimburse each of the Trustee and the Agents upon its request for all reasonable expenses and disbursements incurred or made by it in accordance with any provision of this Indenture (including the reasonable compensation and the expenses and disbursements of their agents and counsel), except any such expense, disbursement or advance as may be attributable to its gross negligence or willful misconduct; and
- (3) to, jointly and severally, indemnify each the Trustee and the Agents for, and to hold each harmless against, any loss, liability, cost, damage, claim or expense (including taxes and the reasonable compensation, expenses and disbursements of its agents, accountants, experts and counsel) incurred without gross negligence or willful misconduct on its part as determined in a final judgment of a court with competent jurisdiction, arising out of or in connection with the acceptance or administration of this trust or the performance by it of its duties and obligations or the exercise of its rights hereunder, including the costs and expenses of enforcing this Indenture against the Issuer or the Guarantors, as the case may be (including, without limitation, this Section 7.7), and of defending against any claim (whether asserted by any Holder or the Issuer or the Guarantors or any other Person, as the case may be) or liability in connection with the exercise or performance of any of its powers or duties hereunder. The provisions of this Section 7.7 shall survive any termination of this Indenture and the resignation or removal of the Trustee, the Principal Paying Agent or other Paying Agent.

As security for the performance of the obligations of the Issuer or the Guarantors, as the case may be, under this Section 7.7, the Trustee shall have a lien prior to the Notes upon all property and funds held or collected by the Trustee, except funds held in trust for the payment of principal of (and premium, if any) or interest on particular Notes. The Trustee's right to receive payment of any amounts due under this Section 7.7 shall not be subordinate to any other liability or indebtedness of the Issuer or the Guarantors, as the case may be (even though the Notes may be so subordinated).

The obligation of the Issuer under this Section 7.7 shall survive the satisfaction and discharge of this Indenture and the earlier resignation or removal of the Trustee. The indemnification provided in this Section 7.7 shall extend to the officers, directors, agents and employees of the Trustee.

When the Trustee incurs expenses or renders services after an Event of Default specified in Section 6.1 occurs, the expenses and the compensation for such services are intended to constitute expenses of administration under Title 11, U.S. Code, or any similar Federal, State or analogous foreign law for the relief of debtors.

Section 7.8. Corporate Trustee Required; Eligibility.

There shall at all times be a Trustee hereunder which shall be a Person that is eligible pursuant to the Trust Indenture Act to act as such and has a combined capital and surplus of at least U.S.\$50,000,000 and its Corporate Trust Office in The City of New York, New York. If such Person publishes reports of condition at least annually, pursuant to law or to the requirements of a Federal, State, Territorial or District of Columbia supervising or examining authority, then for the purposes of this Section, the combined capital and surplus of such Person shall be deemed to be its combined capital and surplus as set forth in its most recent report of condition so published. If at any time the Trustee shall cease to be eligible in accordance with the provisions of this Section, it shall resign immediately in the manner and with the effect hereinafter specified in this Article.

Section 7.9. Resignation and Removal; Appointment of Successor.

(a) No resignation or removal of the Trustee and no appointment of a successor Trustee pursuant to this Article shall become effective until the acceptance of appointment by the successor Trustee under Section 7.10, at which time the retiring Trustee shall be fully discharged from its obligations hereunder.

(b) The Trustee and the Principal Paying Agent may resign at any time by giving written notice thereof to the Issuer. If an instrument of acceptance by a successor Trustee or Principal Paying Agent shall not have been delivered to the Trustee or Principal Paying Agent, as the case may be, within 30 days after the giving of such notice of resignation, the resigning Trustee or Principal Paying Agent may petition, at the expense of the Issuer, any court of competent jurisdiction for the appointment of a successor Trustee or Principal Paying Agent, as the case may be.

(c) The Trustee may be removed at any time by Act of the Holders of a majority in principal amount of the Outstanding Notes, delivered to the Trustee and to the Issuer. If an instrument of acceptance by a successor Trustee shall not have been delivered to the Trustee within 30 days after the giving of such notice of removal, the Issuer may petition, at its expense, any court of competent jurisdiction for the appointment of a successor Trustee.

(d) The Agents (other than the Principal Paying Agent) may resign at any time by giving written notice thereof to the Issuer. The Agents may appoint a successor Agent if the Issuer does not.

(e) So long as no Event of Default has occurred and is continuing, the Issuer may remove the Trustee or any Agent and appoint a new Trustee or Agent, as applicable, provided that such Trustee meets the eligibility requirements of Section 7.8.

(f) If at any time:

(1) the Trustee shall fail to comply with Section 7.8 after written request therefore by the Issuer or by any Holder who has been a bona fide Holder of a Note for at least six months; or

(2) the Trustee shall cease to be eligible under Section 7.8 and shall fail to resign after written request therefore by the Issuer or by any such Holder; or

(3) the Trustee shall become incapable of acting or shall be adjudged a bankrupt or insolvent or a receiver of the Trustee or of its property shall be appointed or any public officer shall take charge or control of the Trustee or of its property or affairs for the purpose of rehabilitation, conservation or liquidation, then, in any such case, (i) the Issuer by a Board Resolution may remove the Trustee, or (ii) any Holder who has been a bona fide Holder of a Note for at least six months may, on behalf of himself or herself and all others similarly situated, petition any court of competent jurisdiction for the removal of the Trustee and the appointment of a successor Trustee.

(g) If the Trustee shall resign, be removed or become incapable of acting, or if a vacancy shall occur in the office of Trustee for any cause, the Issuer, by a Board Resolution, shall promptly appoint a successor Trustee. If, within one year after such resignation, removal or incapability, or the occurrence of such vacancy, a successor Trustee shall be appointed by Act of the Holders of a majority in principal amount of the Outstanding Notes delivered to the Issuer and the retiring Trustee, the successor Trustee so appointed shall, forthwith upon its acceptance of such appointment, become the successor Trustee and supersede the successor Trustee appointed by the Issuer. If no successor Trustee shall have been so appointed by the Issuer or the Holders and accepted appointment in the manner hereinafter provided, any Holder who has been a bona fide Holder of a Note for at least six months may, on behalf of himself or herself and all others similarly situated, petition any court of competent jurisdiction at the expense of the Issuer for the appointment of a successor Trustee.

(h) The Issuer shall give notice of each resignation and each removal of the Trustee and each appointment of a successor Trustee to all Holders in the manner provided in Section 1.6. Each notice shall include the name of the successor Trustee and the address of its Corporate Trust Office at the expense of the Issuer.

Section 7.10. Acceptance of Appointment by Successor.

Every successor Trustee appointed hereunder shall execute, acknowledge and deliver to the Issuer, the Guarantors and to the retiring Trustee an instrument accepting such appointment, and thereupon the resignation or removal of the retiring Trustee shall become effective and such successor Trustee, without any further act, deed or conveyance, shall become vested with all the rights, powers, trusts and duties of the retiring Trustee; but, on request of the Issuer or the successor Trustee, such retiring Trustee shall, upon payment of its charges, execute and deliver an instrument transferring to such successor Trustee all the rights, powers and trusts of the retiring Trustee and shall duly assign, transfer and deliver to such successor Trustee all property and money held by such retiring Trustee hereunder, subject nevertheless to its Lien, if any, provided for in Section 7.7. Upon request of any such successor Trustee, the Issuer and the Guarantors shall execute any and all instruments for more fully and certainly vesting in and confirming to such successor Trustee all such rights, powers and trusts. No successor Trustee shall accept its appointment unless at the time of such acceptance such successor Trustee shall be qualified and eligible under this Article.

Section 7.11. Merger, Conversion, Consolidation or Succession to Business.

Any corporation or other entity into which the Trustee may be merged or convened or with which it may be consolidated, or any corporation or other entity resulting from any merger, conversion or consolidation to which the Trustee shall be a party, or any corporation or other entity succeeding to all or substantially all the corporate trust business of the Trustee, shall be the successor of the Trustee hereunder, provided that such corporation or other entity shall be otherwise qualified and eligible under this Article, without the execution or filing of any paper or any further act on the part of any of the parties hereto. In case any Notes shall have been authenticated, but not delivered, by the Trustee then in office, any successor by merger, conversion or consolidation to such authenticating Trustee may adopt such authentication and deliver the Notes so authenticated with the same effect as if such successor Trustee had itself authenticated such Notes.

Section 7.12. Appointment of Authenticating Agent.

The Trustee may appoint an Authenticating Agent or Agents with respect to the Notes which shall be authorized to act on behalf of the Trustee to authenticate Notes issued upon original issue and upon exchange, registration of transfer or partial redemption thereof or pursuant to Section 3.5, and Notes so authenticated shall be entitled to the benefits of this Indenture and shall be valid and obligatory for all purposes as if authenticated by the Trustee hereunder. Wherever reference is made in this Indenture to the authentication and delivery of Notes by the Trustee or the Trustee's certificate of authentication, such reference shall be deemed to include authentication and delivery on behalf of the Trustee by an Authenticating Agent and a certificate of authentication executed on behalf of the Trustee by an Authenticating Agent. Each Authenticating Agent shall be acceptable to the Issuer and shall at all times be a corporation organized and doing business under the laws of the United States, any State thereof or the District of Columbia, authorized under such laws to act as Authenticating Agent, having a combined capital and surplus of not less than U.S.\$50,000,000 and subject to supervision or examination by Federal or State authority. If such Authenticating Agent publishes reports of condition at least annually, pursuant to law or to the requirements of said supervising or examining authority, then for the purposes of this Section, the combined capital and surplus of such Authenticating Agent shall be deemed to be its combined capital and surplus as set forth in its most recent report of condition so published. If at any time an Authenticating Agent shall cease to be eligible in accordance with the provisions of this Section, such Authenticating Agent shall resign immediately in the manner and with the effect specified in this Section.

Any corporation or other entity into which an Authenticating Agent may be merged or converted or with which it may be consolidated, or any corporation or other entity resulting from any merger, conversion or consolidation to which such Authenticating Agent shall be a party, or any corporation or other entity succeeding to all or substantially all the corporate agency or corporate trust business of an Authenticating Agent, shall continue to be an Authenticating Agent, provided such corporation or other entity shall be otherwise eligible under this Section, without the execution or filing of any paper or any further act on the part of the Trustee or the Authenticating Agent.

An Authenticating Agent may resign at any time by giving written notice thereof to the Trustee and to the Issuer. The Trustee may at any time terminate the agency of an

Authenticating Agent by giving written notice thereof to such Authenticating Agent and to the Issuer. Upon receiving such a notice of resignation or upon such a termination, or in case at any time such Authenticating Agent shall cease to be eligible in accordance with the provisions of this Section, the Trustee may appoint a successor Authenticating Agent which shall be acceptable to the Issuer and shall give notice of such appointment in the manner provided in Section 1.6 to all Holders of Notes. Any successor Authenticating Agent upon acceptance of its appointment hereunder shall become vested with all the rights, powers and duties of its predecessor hereunder, with like effect as if originally named as an Authenticating Agent. No successor Authenticating Agent shall be appointed unless eligible under the provisions of this Section.

The Issuer agrees to pay to each Authenticating Agent from time to time reasonable compensation for its services under this Section.

If an appointment is made pursuant to this Section, the Notes may have endorsed thereon, in lieu of the Trustee's certificate of authentication, an alternative certificate of authentication in the following form:

"This is one of the Notes referred to in the within-mentioned Indenture.

THE BANK OF NEW YORK MELLON *as Trustee*

By: _____
as Authenticating Agent"

ARTICLE VIII

HOLDERS LISTS AND COMMUNICATIONS BY TRUSTEE AND ISSUER

Section 8.1. Issuer to Furnish Trustee; Names and Addresses of Holders.

The Issuer will furnish or cause to be furnished to the Trustee

- (a) semi-annually, not more than 15 days after each Regular Record Date, a list, in such form as the Trustee may reasonably require, of the names and addresses of the Holders as of such Regular Record Date; and
- (b) at such other times as the Trustee may request in writing, within 30 days after the receipt by the Issuer of any such request, a list of similar form and content as of a date not more than 15 days prior to the time such list is furnished;

excluding from any such list names and addresses received by the Trustee in its capacity as Registrar.

Section 8.2. Preservation of Information; Communications to Holders.

- (a) The Trustee shall preserve, in as current a form as is reasonably practicable, the names and addresses of Holders contained in the most recent list furnished to the Trustee as provided in Section 8.1 and the names and addresses of Holders received by the Trustee in its capacity as Registrar. The Trustee may destroy any list furnished to it as provided in Section 8.1 upon receipt of a new list so furnished.
- (b) If a Holder (herein referred to as an "applicant") applies in writing to the Trustee, and furnishes to the Trustee reasonable proof that each such applicant has owned a Note for a period of at least six months preceding the date of such application, and such application states that such applicant desires to communicate with other Holders with respect to their rights under this Indenture or under the Notes and is accompanied by a copy of the form of proxy or other communication which such applicant proposes to transmit, then the Trustee shall, within five Business Days after the receipt of such application, at its election, either

- (1) afford such applicant access to the information preserved at the time by the Trustee in accordance with Section 8.2(a);
- or

(2) inform such applications as to the approximate number of Holders whose names and addresses appear in the information preserved at the time by the Trustee in accordance with Section 8.2(a), as to the approximate cost of mailing to such Holders the form of proxy or other communication, if any, specified in such application.

(c) Every Holder of Notes, by receiving and holding the same, agrees with the Issuer and the Trustee that neither the Issuer nor the Trustee nor any agent of either of them shall be held accountable by reason of the disclosure of any such information as to the names and addresses of the Holders in accordance with Section 8.2(b), regardless of the source from which such information was derived, and that the Trustee shall not be held accountable by reason of mailing any material pursuant to a request made under Section 8.2(b).

ARTICLE IX

CONSOLIDATION, MERGER, CONVEYANCE, TRANSFER OR LEASE

Section 9.1. Mergers, Consolidations and Certain Sales of Assets.

So long as any of the Notes are Outstanding, neither the Issuer nor any Guarantor may, in a single transaction or a series of related transactions:

(1) unless the Issuer or such Guarantor, as applicable, is the surviving Person, consolidate with or merge into any other Person or permit any other Person to consolidate with or merge into the Issuer or such Guarantor, as applicable, (other than a consolidation or merger of a Wholly Owned Subsidiary organized under the laws of Luxembourg, Brazil, Peru, the United States or any OECD country, in each case, with or into the Issuer or such Guarantor, as applicable); or

(2) directly or indirectly, transfer, sell, lease or otherwise dispose of all or substantially all of its assets (determined on a consolidated basis of the Issuer and its Subsidiaries or the relevant Guarantor and its Subsidiaries, as applicable) to any Person (other than the Issuer or a Guarantor) (provided that the creation of a Lien on or in any of its assets shall not in and of itself constitute the transfer, sale, lease or disposition of the assets subject to the Lien),

unless the following conditions, to the extent applicable, are met:

(i) in the case of a transaction in which the Issuer or a Guarantor does not survive or in which the Issuer or a Guarantor sells, leases or otherwise disposes of all or substantially all of its assets to any other Person, the successor entity to the Issuer or such Guarantor (1) shall expressly assume, by a supplemental indenture executed and delivered to the Trustee, all of the Issuer's or such Guarantor's obligations under this Indenture and (2) shall be organized under the laws of (x) Luxembourg, Brazil, Peru or any state or political subdivision thereof, (y) the United States or any state thereof or the District of Columbia or (z) any other country if such successor entity undertakes, in such supplemental indenture, to pay such additional amounts in respect of principal (and premium, if any) and interest as may be necessary in order that the net amounts paid pursuant to the Notes after deduction or withholding of any present or future withholding taxes, levies, imposts or charges whatsoever imposed by or for the account of such country or any political subdivision or taxing authority thereof or therein shall equal the respective amounts of principal (and premium, if any) and interest specified in the Notes, subject to the same exceptions set forth under clauses (1) through (7) of Section 11.9, but replacing existing references in such clauses to the jurisdiction of incorporation of the Issuer or such Guarantor, as applicable, with references to such other country and references to the jurisdiction of incorporation of the Issuer or such Guarantor, as applicable, under Section 4.1 shall automatically be deemed to be references to such other country;

(ii) if, as a result of any such transaction, property or assets of the Issuer or such Guarantor would become subject to a Lien prohibited by Section 12.10, the Issuer or such Guarantor, as applicable, or the successor entity to the Issuer or such Guarantor, as applicable, shall have secured the Notes as described thereunder; and

(iii) the Issuer or such Guarantor, as applicable, has delivered to the Trustee an Officer's Certificate and an Opinion of Counsel, each stating that such consolidation, merger, conveyance, transfer, lease or acquisition and, if a supplemental indenture is required in connection with such transaction, such supplemental indenture complies with this covenant and that all conditions precedent provided for in this Indenture relating to such transaction have been complied with.

In the event of any transaction (other than a lease) described in and complying with the provisions of this Section 9.1 in which the Issuer or a Guarantor, as applicable, is not the surviving Person and the surviving Person assumes all the obligations of the Issuer or such Guarantor, as applicable, under this Indenture and the Notes or the Guarantee, as applicable, pursuant to a supplemental Indenture, such surviving Person shall succeed to, and be substituted for, and may exercise every right and power of, the Issuer or such Guarantor, as applicable, and the Issuer or such Guarantor, as applicable, will be discharged from its obligations under this Indenture and the Notes or the Guarantee, as applicable.

ARTICLE X

SUPPLEMENTAL INDENTURES

Section 10.1. Supplemental Indentures Without Consent of Holders.

Without the consent of any Holders, the Issuer and the Trustee, at any time and from time to time, may enter into one or more supplemental indentures hereto in form satisfactory to the Trustee, for any of the following purposes:

- (1) to evidence the succession of another Person to the Issuer or any Guarantor and the assumption by any such successor of the covenants of the Issuer or any Guarantor, as applicable, herein and in the Notes or the Guarantees, as applicable;
- (2) to add to the covenants of the Issuer for the benefit of the Holders, or to surrender any right or power herein conferred upon the Issuer;

- (3) to cure any ambiguity, defect or inconsistency or to correct a manifest error;
- (4) to provide for uncertificated Notes in addition to or in place of certificated Notes;
- (5) to comply with Section 9.1 of this Indenture;
- (6) to evidence and provide for the acceptance of an appointment by a successor trustee;
- (7) to provide for any additional guarantee of the Notes;
- (8) to secure the Notes or to confirm and evidence the release, termination or discharge of any guarantee of or Lien securing the Notes when such release, termination or discharge is permitted by this Indenture;
- (9) to provide for or confirm the issuance of Additional Notes;
- (10) to conform the provisions of this Indenture to the caption entitled "Description of the Notes" in the offering memorandum relating to the Notes; or
- (11) to make any other modification and any waiver or authorization of any breach or proposed breach of any provision of this Indenture or the Notes which is not materially prejudicial to the Holders.

Section 10.2. Supplemental Indentures with Consent of Holders.

With the consent of the Holders of not less than a majority in aggregate principal amount of the Outstanding Notes, by Act of said Holders delivered to the Issuer and the Trustee, and consistent with Section 6.13, the Issuer and the Trustee may enter into an indenture or supplemental indentures hereto for the purpose of adding any provisions to or changing in any manner or eliminating any of the provisions of this Indenture or of modifying in any manner the rights of the Holders under this Indenture; provided, however, that no such supplemental indenture shall, without the consent of the Holder of each outstanding Note affected thereby:

- (1) change the Stated Maturity of the principal of, or any installment of interest on, any Note, or reduce the principal amount thereof or the rate of interest thereon or any premium payable thereon, or change the place of payment where, or the coin or currency in which, any Note or any premium or interest thereon is payable, or impair the right to institute suit for the enforcement of any such payment on or with respect to any Note on or after the Stated Maturity thereof (or, in the case of redemption, on or after the Redemption Date),
- (2) reduce the percentage in principal amount of the Outstanding Notes, the consent of whose Holders is required for any such supplemental indenture, or the consent of whose Holders is required for any waiver (of compliance with certain provisions of this Indenture or certain defaults hereunder and their consequences) provided for in this Indenture;

(3) modify any of the provisions of this Section 10.2 or Section 6.12 or Section 11.9, except to increase any such percentage described in clause (2) above or to provide that certain other provisions of this Indenture cannot be modified or waived without the consent of the Holder of each Outstanding Note affected thereby;

(4) release any Guarantors from its obligations under its Guarantee or this Indenture, except in compliance with the terms of this Indenture.

It shall not be necessary for any Act of Holders under this Section to approve the particular form of any proposed supplemental indenture, but it shall be sufficient if such Act shall approve the substance thereof.

Section 10.3. Execution of Supplemental Indentures.

In executing, or accepting the additional trusts created by, any supplemental indenture permitted by this Article or the modifications thereby of the trusts created by this Indenture, the Trustee shall receive, and (subject to Section 7.1) shall be fully protected in conclusively relying upon, in addition to the documents required by Section 1.2, an Officer's Certificate and Opinion of Counsel stating that the execution of such supplemental indenture is authorized or permitted by this Indenture. The Trustee may, but shall not be obligated to, enter into any such supplemental indenture which affects the trustee's own rights, duties or immunities under this Indenture.

Section 10.4. Effect of Supplemental Indentures.

Upon the execution of any supplemental indenture under this Article, this Indenture shall be modified in accordance therewith, and such supplemental indenture shall form a part of this Indenture for all purposes; and every Holder of Notes theretofore or thereafter authenticated and delivered hereunder shall be bound thereby.

Section 10.5. Reference in Notes to Supplemental Indentures.

Notes authenticated and delivered after the execution of any supplemental indenture pursuant to this Article may, and shall if required by the Trustee, bear a notation in form approved by the Trustee as to any matter provided for in such supplemental indenture. If the Issuer shall so determine, new Notes so modified as to conform, in the opinion of the Issuer, to any such supplemental indenture may be prepared and executed by the Issuer and authenticated and delivered by the Trustee in exchange for Outstanding Notes.

Section 10.6. Notice to Holders.

After a supplemental indenture under this Article becomes effective, the Issuer will send to the Holders affected thereby a notice briefly describing the terms of the supplement. The Issuer will send supplemental indentures to Holders upon request. Any failure of the Issuer to send such notice, or any defect therein, will not, however, in any way impair or affect the validity of any such supplemental indenture.

ARTICLE XI

COVENANTS

Section 11.1. Payment Under the Notes.

Each of the Issuer and the Guarantors shall duly and punctually pay all amounts owed by it, and comply with all its other obligations, under the terms of the Notes, the Guarantees and this Indenture (collectively, the "Transaction Documents").

Section 11.2. Maintenance of Office or Agency.

The Issuer and the Guarantors will maintain in the Borough of Manhattan, The City of New York, New York, an office or agency where Notes may be presented or surrendered for payment, where Notes may be surrendered for registration of transfer or exchange and where notices and demands to or upon the Issuer or the Guarantors in respect of the Notes, the Guarantees and this Indenture may be served. Initially, this office will be at the Corporate Trust Office of the Trustee, unless the Issuer shall designate and maintain any other office or agency for one or more such purposes, and the Issuer and the Guarantors shall agree not to change the designation of such office without prior written notice to the Trustee and designation of a replacement office in the same general location. The Issuer will give prompt written notice to the Trustee of the location, and any change in the location, of such offices or agencies. If at any time the Issuer or the Guarantors shall fail to maintain any such required offices or agencies or shall fail to furnish the Trustee with the address thereof, such presentations, surrenders, notices and demands may be made or served at the Corporate Trust Office of the Trustee. The Issuer and the Guarantors hereby appoint the Trustee as their agent to receive all such presentations, surrenders, notices and demands.

The Issuer may also from time to time designate one or more other offices or agencies (in or outside the Borough of Manhattan, The City of New York, New York) where the Notes may be presented or surrendered for any or all such purposes and may from time to time rescind such designations (each, a "Transfer Agent"); provided, however, that no such designation or rescission shall in any manner relieve the Issuer of its obligation to maintain an office or agency in the Borough of Manhattan, The City of New York, New York. The Issuer has initially designated the offices of The Bank of New York Mellon to act as Transfer Agent. The Issuer will give prompt written notice to the Trustee of any such designation or rescission and of any change in the location of any such other office or agency.

Section 11.3. Money for Note Payments to Be Held in Trust.

If the Issuer shall at any time act as its own Paying Agent, it will, on or before each due date of the principal of (and premium, if any) or interest on any of the Notes, segregate and hold in trust for the benefit of the Persons entitled thereto a sum sufficient to pay the principal (and premium, if any) or interest so becoming due until such sums shall be paid to such Persons or otherwise disposed of as herein provided and will promptly notify the Trustee in writing of its action or failure so to act.

Whenever the Issuer shall have one or more Paying Agents, it will, prior to each due date of the principal of (and premium, if any) or interest on any Notes, deposit with the Principal Paying Agent a sum sufficient to pay the principal (and premium, if any) or interest (including Additional Amounts, if any) so becoming due, such sum to be held in trust for the benefit of the Persons entitled to such principal, premium or interest, and (unless such Paying Agent is the Trustee) the Issuer will promptly notify the Trustee in writing of its action or failure so to act.

The Issuer will cause each Paying Agent other than the Trustee and the Principal Paying Agent to execute and deliver to the Trustee an instrument in which such Paying Agent shall agree with the Trustee, subject to the provisions of this Section 11.3, that such Paying Agent will:

- (1) hold all sums held by it for the payment of the principal of (and premium, if any) or interest on Notes in trust for the benefit of the Persons entitled thereto until such sums shall be paid to such Persons or otherwise disclosed of as herein provided;
- (2) give the Trustee written notice of any default by the Issuer (or any other obligor upon the Notes) in the making of any payment of principal (and premium, if any) or interest;
- (3) at any time during the continuance of any such default, upon the written request of the Trustee, forthwith pay to the Trustee all sums so held in trust by such Paying Agent; and
- (4) acknowledge, accept and agree to comply in all respects with the provisions of this Indenture relating to the duties, rights and obligations of such Paying Agent.

The Issuer may at any time, for the purpose of obtaining the satisfaction and discharge of this Indenture or for any other purpose, pay, or by Issuer Order direct any Paying Agent to pay, to the Trustee all sums held in trust by the Issuer or such Paying Agent, such sums to be held by the Trustee upon the same trusts as those upon which such sums were held by the Issuer or such Paying Agent; and, upon such payment by any Paying Agent to the Trustee, such Paying Agent shall be released from all further liability with respect to such money.

Any money deposited with the Trustee or any Paying Agent, or then held by the Issuer, in trust for the payment of the principal of (and premium, if any) or interest on any Note and remaining unclaimed for two years after such principal (and premium, if any) or interest has become due and payable shall be paid to the Issuer on the Issuer's Request, or (if then held by the Issuer) shall be discharged from such trust; and the Holder of such Note shall thereafter, as an unsecured general creditor, look only to the Issuer for payment thereof, and all liability of the Trustee or such Paying Agent with respect to such trust money, and all liability of the Issuer as trustee thereof, shall thereupon cease.

Section 11.4. Maintenance of Corporate Existence.

The Issuer and the Guarantors shall, and shall cause each of their respective Subsidiaries to, maintain in effect its corporate existence and all registrations necessary therefore and take all actions to maintain all rights, privileges, titles to property, franchises and the like necessary or desirable in the normal conduct of its business, activities or operations provided that this covenant shall not require (i) the Issuer, the Guarantors or any of their respective Subsidiaries to maintain any such registration, right, privilege, title to property, franchise or the like or require the Issuer or the Guarantors to preserve the corporate existence of any of their respective Subsidiaries (other than a Subsidiary that is a Guarantor), if the failure to do so would not have a material adverse effect on the Issuer and its Subsidiaries taken as a whole or have a material adverse effect on the rights of the Holders or (ii) the Guarantors or the Issuer to preserve its corporate existence if it complies with the provisions of Section 9.1.

Section 11.5. Repurchases at the Option of the Holders upon Change of Control.

If a Change of Control occurs that results in a Rating Decline, each Holder will have the right to require the repurchase of all or any part (equal to U.S.\$200,000 and integral multiples of U.S.\$1,000 in excess thereof) of the Notes of that Holder pursuant to a Change of Control Offer by the Issuer or the Guarantors. No such purchase in part shall reduce the principal amount of the Notes held by any Holder to below U.S.\$200,000. In the Change of Control Offer, the Issuer or a Guarantor will offer a "Change of Control Payment" in U.S. dollars equal to 101% of the aggregate principal amount of Notes repurchased plus accrued and unpaid interest and Additional Amounts, if any, on the Notes repurchased, to the date of purchase (subject to the right of the Holders of record on the relevant Record Date to receive interest and Additional Amounts, if any, on the relevant Interest Payment Date).

Within 30 days following any Change of Control that results in a Rating Decline the Issuer or the Guarantor will make a "Change of Control Offer" by notice to each Holder of Notes in accordance with the provision set out under Section 1.6, describing the transaction or transactions that constitute the Change of Control and offering to repurchase Notes on the date specified in the notice (the "Change of Control Payment Date"), which date will be no earlier than 30 days and no later than 60 days from the date such notice is mailed, pursuant to the procedures required by this Indenture and described in such notice.

The Issuer or the applicable Guarantor will comply, to the extent applicable, with the requirements of Section 14(e)-1 of the Exchange Act and any other applicable securities laws or regulations in connection with the repurchase of Notes pursuant to this covenant. To the extent that the provisions of any applicable securities laws or regulations conflict with provisions of this covenant, the Issuer or the applicable Guarantor will comply with the applicable securities laws and regulations and will not be deemed to have breached its obligations under this covenant by virtue of its compliance with such securities laws or regulations.

On the Change of Control Payment Date, the Issuer or the applicable Guarantor will, to the extent lawful:

- (1) accept for payment all Notes or portions of Notes properly tendered pursuant to the Change of Control Offer; and
- (2) procure that the Change of Control Payment is made in respect of all Notes or portions of Notes properly tendered.

The Paying Agents will promptly mail to each Holder who properly tendered Notes the Change of Control Payment for such Notes, and the Trustee will promptly authenticate and mail (or cause to be transferred by book entry) to each Holder a new Note equal in principal amount to any unpurchased portion of the Notes surrendered, if any; provided that each new Note will be in minimum denominations of U.S.\$200,000 and integral multiples of U.S.\$1,000 in excess thereof.

The provisions described above that require the Issuer or a Guarantor to make a Change of Control Offer following a Change of Control will be applicable whether or not any other provisions of this Indenture are applicable. However, a Change of Control Offer is only required to be made in the event that a Change of Control results in a Rating Decline. Consequently, if a Change of Control were to occur which does not result in a Rating Decline, none of the Issuer and the Guarantors would be required to launch a Change of Control Offer. Except as described above with respect to a Change of Control, this Indenture does not contain provisions that permit the Holders to require that the Issuer or a Guarantor repurchase or redeem the Notes in the event of a takeover, recapitalization or similar transaction.

None of the Issuer or the Guarantors will be required to make a Change of Control Offer upon a Change of Control if (1) a third party makes the Change of Control Offer in the manner, at the times and otherwise in compliance with the requirements, set forth in this Indenture, that are applicable to a Change of Control Offer made by the Issuer or a Guarantor and such third party purchases all Notes properly tendered and not withdrawn under the Change of Control Offer or (2) a notice of redemption has been given for all outstanding Notes pursuant to this Indenture as described under Section 4.2 unless and until there is a default in payment of the applicable redemption price.

Notwithstanding anything to the contrary contained herein and subject to applicable law, a Change of Control Offer may be made in advance of a Change of Control and conditioned upon the occurrence of such Change of Control and Rating Decline if a definitive agreement is in place for the Change of Control at the time of making of the Change of Control Offer.

In the event that the Holders of not less than 90% of the aggregate principal amount of Outstanding Notes accept a Change of Control Offer and the Issuer or a Guarantor or a third party purchases all the Notes held by such holders, the Issuer or a Guarantor will have the right, on not less than 30 nor more than 60 days' prior notice to the Holders, given not more than 30 days following the purchase date pursuant to the Change of Control Offer, to redeem all of the Notes that remain outstanding following such purchase at the purchase price equal to that in the Change of Control Offer plus, to the extent not included in the purchase price, accrued and unpaid interest and additional amounts, if any, on the Notes that remain Outstanding, to, but excluding, the date of redemption.

Section 11.6. Payment of Taxes and Other Claims.

The Issuer and the Guarantors shall, and shall cause each of their respective Subsidiaries to, pay or discharge or cause to be paid or discharged before the same shall become delinquent, (i) all taxes, assessments and governmental charges levied or imposed upon the Issuer and the Guarantors or any of their respective Subsidiaries, as the case may be, and (ii) all lawful claims for labor, materials and supplies which, if unpaid, might by law become a lien upon the property of the Issuer or a Guarantor or any of their respective Subsidiaries, as the case may be; provided, however, that neither the Issuer nor any Guarantor nor any of their respective Subsidiaries shall be required to pay or discharge or cause to be paid or discharged any such tax, assessment, charge or claim whose amount, applicability or validity is being contested in good faith and, if appropriate, by appropriate legal proceedings, or where the failure to do so would not have a material adverse effect on the Issuer and its Subsidiaries taken as a whole or have a material adverse effect on the rights of the Holders.

Section 11.7. Provision of Financial Information.

The Issuer has agreed that it will furnish to the Trustee and the Holders and to any prospective purchasers of such Notes, to the extent permitted by applicable law or contractual restrictions, upon their request, the information required to be delivered pursuant to Rule 144A(d)(4) under the Securities Act; provided that the foregoing obligation will only apply to the Issuer if it ceases to be subject to and in compliance with the reporting requirements of Section 13 or 15(d) of the Exchange Act or exempt from reporting pursuant to Rule 12g3-2(b) under the Exchange Act.

Additionally, the Issuer shall provide the Trustee and the Holders, within 120 days of the end of each fiscal year and within 60 days of the end of each of the first three fiscal quarters, annual or quarterly financial statements, as applicable, in accordance with applicable GAAP and audited in the case of annual financial statements.

Notwithstanding the foregoing, if the Issuer makes available the information described above on the Issuer's or an Affiliate's website or on the Electronic Data Gathering, Analysis, and Retrieval (EDGAR) website of the SEC, the Issuer will be deemed to have satisfied the reporting requirement set forth in such applicable clause. It is understood that the Trustee shall have no responsibility to determine whether any information has been posted on such websites.

Delivery of such reports, information and documents to the Trustee is for informational purposes only and the Trustee's receipt of such reports shall not constitute constructive notice of any information contained therein or determinable from information contained therein, including the Issuer's compliance with any of its covenants hereunder (as to which the Trustee is entitled to rely exclusively on an Officer's Certificate or notice). The Trustee shall have no obligation to determine if and when the Issuer's statements or reports are publicly available and accessible electronically.

Section 11.8. Statement by Officers as to Default.

(a) The Issuer will be required to furnish to the Trustee together with the delivery (or the posting on the Issuer's or an Affiliate's website) of its annual financial statements and in any event within 120 days after the end of each such fiscal period, an Officer's Certificate stating whether or not to the best knowledge of the signer thereof none of the Issuer or any Guarantor is in default in the performance and observance of any of the terms, provisions and conditions of this Indenture and if the Issuer or any Guarantor is in default, specifying all such defaults and the nature and status thereof of which they may have knowledge.

(b) The Issuer shall deliver to the Trustee, as soon as is practicable and in any event within ten calendar days after the Issuer becomes aware of the occurrence of a Default or an Event of Default, an Officer's Certificate of the Issuer, setting forth the details of such Default or Event of Default and stating what action the Issuer, proposes to take with respect thereto. None of the Agents shall have notice of any Default or Event of Default unless a Responsible Officer of such Agent has actual knowledge thereof.

Section 11.9. Payment of Additional Amounts.

Any and all payments to a Holder of principal (and premium, if any) and interest in respect of the Notes, and any and all payments to indemnify a Holder for taxes or duties as a result of a substitution of the issuer, as provided in Section 13.1(a)(2), will be made free and clear of, and without withholding or deduction for, any and all present and future withholding taxes, duties, assessments, levies, imposts or charges ("Taxes") whatsoever imposed by or on behalf of, Luxembourg, Brazil, Peru or any political subdivision or taxing authority thereof or therein, unless such withholding or deduction is required by law. In that event, the Issuer or a Guarantor, as the case may be, shall pay such additional amounts (the "Additional Amounts") as will result in the receipt by the Holders of such amounts as would have been received by them if no such withholding or deduction had been required, except that no such Additional Amounts shall be payable in respect of any Note:

(1) held by, or by a third party on behalf of, a Holder or beneficial owner which is liable for such taxes, duties, assessments, levies, imposts or governmental charges in respect of such Note by reason of its (or a fiduciary, settlor, member or shareholder, beneficiary of, or possessor of a power over, such Holder, if such Holder is an estate, trust, partnership or corporation) having some present or former connection with Luxembourg, Brazil or Peru (including being or having been a citizen or resident of Luxembourg, Brazil or Peru or being or having been engaged in trade or business therein) other than the mere holding of such Note; or

(2) where (in the case of a payment of principal, premium, if any, or interest on the Maturity Date or date of earlier redemption) the relevant Note is surrendered for payment more than 30 days after the Relevant Date except to the extent that the relevant Holder would have been entitled to such Additional Amounts if it had surrendered the relevant Note on the last day of such period of 30 days; or

(3) if such Tax is an estate, inheritance, gift, sales, transfer or personal property tax or any similar Tax, assessment, levy, impost or governmental charge; or

(4) if such amount is (a) payable other than by withholding or deduction from a payment on such Note, or (b) required to be withheld or deducted by a Paying Agent and such Holder of a Note would have been able to avoid such withholding or deduction by presenting the relevant Note to another Paying Agent; or

(5) if such Tax, duty, assessment, levy, impost or governmental charge would not have been imposed but for the failure of such Holder to comply with applicable certification, information, documentation or other reporting requirements concerning the nationality, residence, identity or connection with Luxembourg, Brazil or Peru of the Holder or beneficial owner of such Note if (i) such compliance is required as a precondition to relief or exemption from withholding or deduction of all or part of such tax, duty, assessment, levy, impost or governmental charge and (ii) at least 30 days prior to the date on which the Issuer or a Guarantor, as the case may be, applies this clause (5), it will have notified such Holder or beneficial owner of a Note that it will be required to comply with such requirement; or

(6) if such amount to be paid with respect to a payment on a note to a Holder that is a fiduciary or partnership or other than the sole beneficial owner of such payment to the extent a beneficiary or settlor with respect to such fiduciary or a member of such partnership or a beneficial owner would not have been entitled to the additional interest had such beneficiary, settlor, member or beneficial owner been the Holder of such note; or

(7) in the case of any combination of items (1) through (6).

"Relevant Date" means whichever is the later of (a) the date on which the payment in question first becomes due and (b) if the full amount payable has not been received by the Principal Paying Agent on or prior to such due date, the date on which (the full amount having been so received) notice to that effect has been given to the Holders.

None of the Issuer, a Guarantor, the Trustee, any Paying Agent or any other person shall be required to pay any Additional Amounts with respect to any withholding or deduction imposed on or in respect of any Note pursuant to FATCA, any treaty, law, regulation or other official guidance enacted by any jurisdiction implementing FATCA, or any agreement between the Issuer and the United States or any authority thereof implementing FATCA.

The Issuer or the relevant Guarantor, as applicable, shall pay any present or future stamp, court or documentary taxes, or any other excise or property taxes, charges or similar levies which arise in any jurisdiction from the execution, delivery or registration of the Notes or any other document or instrument referred to therein, excluding any such taxes, charges or similar levies imposed by any jurisdiction outside of Luxembourg, Brazil or Peru, as applicable, except those resulting from, or required to be paid in connection with, (i) the execution in or bringing to Luxembourg, Brazil or Peru, as applicable, of the Notes or any document or instrument; (ii) the production before a court of Luxembourg, Brazil or Peru of the Notes or any document or instrument or (iii) the enforcement of the Notes or any other such document or instrument following the occurrence of any Event of Default with respect to the Notes.

References to principal or interest shall be deemed to include any Additional Amounts in respect of principal, premium, if any, or interest (as the case may be) which may be payable under the Notes.

If the Issuer or a Guarantor becomes subject at any time to any taxing jurisdiction other than Luxembourg, Brazil or Peru, references herein to Luxembourg, Brazil or Peru, as applicable, shall be construed to include such other jurisdiction.

The Trustee shall have no obligation to determine whether any Additional Amounts are owed or for the calculation thereof.

Section 11.10. Limitation on Liens.

The Issuer shall not, and shall not permit any of its Designated Subsidiaries to, Incur or suffer to exist any Lien on any of its Restricted Property to secure any Indebtedness of the Issuer or such Designated Subsidiary without making, or causing such Designated Subsidiary to make, effective provision for securing the Notes (x) equally and ratably with (or prior to) such Indebtedness as to such Restricted Property for so long as such Indebtedness will be so secured or (y) in the event such Indebtedness is Indebtedness of the Issuer or such Designated Subsidiary which is subordinate in right of payment to the Notes, prior to such Indebtedness as to any such Restricted Property for so long as such Indebtedness will be so secured.

The foregoing restrictions shall not apply to:

(1) any Lien on the inventory or receivables and related assets (other than those described in clause (3) below) securing obligations:

- (i) under any short term lines of credit, entered into in the normal course of business; or
- (ii) under any working capital facility;

(2) Liens created solely for the purpose of securing the payment of all or a part of the purchase price (or the cost of construction or improvement, and any related transaction fee and expenses) of assets or property (including Capital Stock of any Person) acquired, constructed or improved after the Issue Date; provided that (a) the aggregate principal amount of Indebtedness secured by such Liens shall not exceed the purchase price of the assets or property so acquired, constructed or improved, (b) such Liens shall not encumber any assets or property other than the assets or property so acquired, constructed or improved and other than any unimproved real property on which the property so constructed, or the improvement, is located and (c) such Lien shall attach to such assets or property within 365 days of the construction, acquisition or improvement of such assets or property; provided, further, that to the extent that the property or asset acquired is Capital Stock, and subject to the limitations in clause (c) above, the Lien also may encumber other property or assets of the Person so acquired, provided, further, that any Lien is permitted to be incurred on the Capital Stock of any Person securing any Indebtedness of that Person that is (a) non-recourse to the Issuer or the Designated Subsidiary, and (b) incurred solely for purposes of financing the acquisition, construction or improvement of any property or assets of such Person;

(3) Liens on accounts receivable and related assets in connection with any credit facility, including export or import financings and other trade transactions, or in connection with any Securitization Transaction provided that the aggregate amount of any Receivables sold or transferred in such Securitization Transaction securing Indebtedness shall not exceed (a) with respect to transactions related to revenues from exports, 80% of such Person's consolidated net sales from exports; or (b) with respect to transactions related to revenues from domestic sales, 80% of such Person's consolidated net sales in the jurisdiction in which such Person is located;

(4) Liens granted to secure borrowings from (i) *Banco Nacional de Desenvolvimento Econômico e Social-BNDES*, or any other federal, regional or state governmental development bank or credit agency, or (ii) any international or multilateral development bank, government-sponsored agency, export-import bank or official export-import credit insurer;

(5) Liens existing on the Issue Date;

(6) Liens on property or shares of Capital Stock of another Person at the time such other Person becomes a Subsidiary; provided, however, that the Liens may not extend to any other property owned by such Person;

(7) Liens on property at the time such Person or any of its Subsidiaries acquires the property, including any acquisition by means of a merger or consolidation with or into such Person or a Subsidiary of such Person; provided, however, that the Liens may not extend to any other property owned by such Person;

(8) Liens securing Indebtedness or other obligations of a Subsidiary of such Person owing to such Person or a Subsidiary of such Person;

(9) Liens in favor of surety bonds or letters of credit issued pursuant to the request of, and for the account of, such Person in the ordinary course of its business;

(10) any Lien securing obligations owed to the Peruvian Ministry of Energy and Mines or other governmental authorities incurred in the ordinary course of business, including but not limited to, mine closure plans;

(11) Liens securing obligations under hedging agreements not for speculative purposes;

(12) any Lien extending, renewing or replacing (or successive extensions, renewals or replacements of), in whole or in part, any Lien referred to in clauses (2), (4), (5), (6) or (7) above; provided that the principal amount of Indebtedness secured thereby shall not exceed the principal amount of Indebtedness so secured at the time of such extension, renewal or replacement except for any increase reflecting premiums, fees and expenses in connection with such extension, renewal or replacement, and that such extension, renewal or replacement shall be limited to all or a part of the property which secured the Lien so extended, renewed or replaced (plus improvements on such property); and

(13) Lien that do not fall within clauses (1) through (12) above and that secure Indebtedness which, exclusive of Indebtedness secured by other Liens permitted under this covenant, does not exceed an aggregate principal amount equal to 15% of Consolidated Total Assets.

For the avoidance of doubt, a Lien permitted by this Section 11.10 need not be permitted solely by reference to a single clause permitting such Lien, but may be permitted in part by such clause and in part by one or more other clauses of this covenant otherwise permitting such Lien.

Section 11.11. [Intentionally Omitted].

Section 11.12. Performance Obligations Under Other Documents.

The Issuer shall duly and punctually perform, comply with and observe all obligations and agreements to be performed by it set forth in the Transaction Documents.

Section 11.13. Compliance with Laws.

Each of the Issuer and the Guarantors shall comply, and shall cause their respective Subsidiaries to comply, at all times with all applicable laws, rules, regulations, orders and directives of any government or government agency or authority having jurisdiction over the Issuer or any Guarantors, any of their respective Subsidiaries or the business of any of them or any of the transactions contemplated herein, except where the failure to do so would not have a material adverse effect on the Issuer and its Subsidiaries taken as a whole or have a material adverse effect on the rights of the Holders.

Section 11.14. Maintenance of Government Approvals.

Each of the Issuer and the Guarantors shall, and shall cause their respective Subsidiaries to, duly obtain and maintain in full force and effect all governmental approvals, consents or licenses of any government or governmental agency or authority under the laws of Luxembourg, Brazil, Peru (including any Central Bank) or any other government or government agency having jurisdiction over the Issuer or necessary in all cases for the Guarantors and the Issuer to perform their respective obligations under the Transaction Documents or for the validity or enforceability thereof, except where the failure to do so would not have a material adverse effect on the Issuer and its Subsidiaries taken as a whole or have a material adverse effect on the rights of the Holders.

Section 11.15. [Intentionally Omitted].

Section 11.16. Maintenance of Books and Records.

Each of the Issuer and the Guarantors shall, and shall cause each of their respective Subsidiaries to, maintain books, accounts and records in all material respects in accordance with applicable GAAP, and in any case in the manner necessary to facilitate consolidation into the Guarantors' consolidated financial statements.

Section 11.17. Ranking.

The Issuer shall ensure that the Notes will constitute unsecured and unsubordinated obligations of the Issuer, and will rank at least equally to all other present and future unsecured and unsubordinated obligations of the Issuer (other than obligations preferred by statute or by operation of law). Each of the Guarantors shall ensure that its Guarantee will constitute unsecured and unsubordinated obligations of such Guarantor, and will rank at least equally to all other present and future unsecured and unsubordinated obligations of the Guarantors (other than obligations preferred by statute or by operation of law). No obligation will be considered to be senior to the Notes or the Guarantees by virtue of being secured on a first or junior priority basis.

ARTICLE XII

LEGAL DEFEASANCE AND COVENANT DEFEASANCE

Section 12.1. Option to Effect Defeasance or Covenant Defeasance.

The Issuer or a Guarantor may at its option, at any time elect to have either Section 12.2 or Section 12.3 applied to the Outstanding Notes upon compliance with the conditions set forth below in this Article XII.

Section 12.2. Defeasance and Discharge.

Upon the Issuer's or a Guarantor's exercise of the option provided in Section 12.1 applicable to this Section, the Issuer and a Guarantor shall be deemed to have been discharged from their obligations with respect to the Outstanding Notes on the date the conditions set forth below are satisfied (hereinafter, "defeasance"). For this purpose, such defeasance means that the Issuer and a Guarantor shall be deemed to have paid and discharged the entire indebtedness represented by the Outstanding Notes and to have satisfied all their other obligations under such Notes and this Indenture insofar as such Notes are concerned (and the Trustee, at the expense of the Issuer and a Guarantor, shall execute proper instruments acknowledging the same), except for the following which shall survive until otherwise terminated or discharged hereunder: (A) the rights of Holders of Outstanding Notes to receive, solely from the trust fund described in Section 12.4 and as more fully set forth in such Section, payments in respect of the principal of (and premium, if any) and interest (and Additional Amounts, if any) on such Notes when such payments are due, (B) the Issuer's and the Guarantors' obligations with respect to such Notes under Sections 3.3, 3.4, 3.5, 11.2 and 11.3, (C) the rights, powers, trusts, duties and immunities of the Trustee hereunder and (D) this Article XII. Subject to compliance with this Article XII, the Issuer and the Guarantors may exercise their option under this Section 12.2 notwithstanding the prior exercise of their option under Section 12.3.

Section 12.3. Covenant Defeasance.

Upon the Issuer or a Guarantor's exercise of the option provided in Section 12.1 applicable to this Section, (i) the Issuer and the Guarantors shall be released from their obligations under Sections 9.1 and 11.15 through 11.17, inclusive and the Guarantors shall be released from all of its obligations under the Guarantees and under Article XIII of this Indenture, and (ii) the occurrence of an event specified in Section 6.1(3) (with respect to Section 9.1 and Sections 11.15 through 11.17, inclusive) shall not be deemed to be or result in an Event of Default, on and after the date the conditions set forth below are satisfied (hereinafter, "covenant defeasance"). For this purpose, such covenant defeasance means that the Issuer and the Guarantors may omit to comply with and shall have no liability in respect of any term, condition or limitation set forth in any such Section or Article, whether directly or indirectly by reason of any reference elsewhere herein to any such Section or Article or by reason of any reference in any such Section or Article to any other provision herein or in any other document, but the remainder of this Indenture and such Notes shall be unaffected thereby.

Section 12.4. Conditions to Defeasance or Covenant Defeasance.

The following shall be the conditions to application of either Section 12.2 or Section 12.3 to the Outstanding Notes:

(1) the Issuer or a Guarantor shall irrevocably have deposited or caused to be deposited with the Trustee or its designee, in trust, for the benefit of the Holders (A) cash, (B) Cash Equivalents, (C) U.S. Government Obligations, or (D) a combination thereof, sufficient, in the written opinion of an internationally recognized firm of independent certified public accountants, investment bank or consulting firm to pay and discharge, the principal of, premium, if any, and each installment of interest (including Additional Amounts, if any) on the Notes on the Stated Maturity of such principal or installment of interest on the day on which such payments are due and payable in accordance with the terms of this Indenture and of such Notes. For this purpose, "U.S. Government Obligations" means securities that are (x) direct obligations of the United States for the payment of which its full faith and credit is pledged or (y) obligations of a Person controlled or supervised by and acting as an agency or instrumentality of the United States the payment of which is unconditionally guaranteed as a full faith and credit obligation by the United States, which, in either case, are not callable or redeemable at the option of the issuer thereof, and shall also include a depositary receipt issued by a bank (as defined in Section 3(a)(2) of the Securities Act) as custodian with respect to any such U.S. Government Obligation or a specific payment of principal of or interest on any such U.S. Government Obligation held by such custodian for the account of the Holder of such depositary receipt, provided that (except as required by law) such custodian is not authorized to make any deduction from the amount payable to the Holder of such depositary receipt from any amount received by the custodian in respect of the U.S. Government Obligation or the specific payment of principal of or interest on the U.S. Government Obligation evidenced by such depositary receipt;

(2) no Default or Event of Default shall have occurred and be continuing on the date of such deposit;

(3) the Issuer or a Guarantor shall have delivered to the Trustee an Officer's Certificate and an Opinion of Counsel, each stating that all conditions precedent provided for relating to either the defeasance under Section 12.2 or the covenant defeasance under Section 12.3 (as the case may be) have been complied with;

(4) in the case of an election under Section 12.2, the Issuer or a Guarantor shall have delivered to the Trustee an Opinion of Counsel in the United States stating that (x) the Issuer or a Guarantor has received from, or there has been published by, the Internal Revenue Service a ruling, or (y) since the date of this Indenture there has been a change in the applicable United States Federal income tax law, in either case to the effect that, and based thereon such Opinion of Counsel shall confirm that, the Holders of the Outstanding Notes will not recognize income, gain or loss for United States Federal income tax purposes as a result of such deposit, defeasance and discharge and will be subject to United States Federal income tax on the same amounts, in the same manner and at the same times as would have been the case if such deposit, defeasance and discharge had not occurred;

(5) in the case of an election under Section 12.3, the Issuer or a Guarantor shall have delivered to the Trustee an Opinion of Counsel in the United States to the effect that the Holders of the Outstanding Notes will not recognize income, gain or loss for United States Federal income tax purposes as a result of such deposit and covenant defeasance and will be subject to United States Federal income tax on the same amounts, in the same manner and at the same times as would have been the case if such covenant defeasance had not occurred.

Section 12.5. Deposited Money and U.S. Government Obligations to Be Held in Trust; Other Miscellaneous Provisions.

Subject to the provisions of the last paragraph of Section 11.3, all money and U.S. Government Obligations (including the proceeds thereof) deposited with the Trustee (or other qualifying trustee—collectively, for purposes of this Section 12.5, the “Defeasance Trustee”) pursuant to Section 12.4 in respect of the Notes shall be held in trust and applied by the Defeasance Trustee, in accordance with the provisions of such Notes and this Indenture, to the payment, either directly or through any Paying Agent (including the Issuer or a Guarantor acting as their own Paying Agent) as the Defeasance Trustee may determine, to the Holders of such Notes, of all sums due and to become due thereon in respect of principal (and premium, if any) and interest, but such money need not be segregated from other funds except to the extent required by law.

The Issuer and the Guarantors shall, jointly and severally, pay and indemnify the Defeasance Trustee against any tax, fee or other charge imposed on or assessed against the U.S. Government Obligations deposited pursuant to Section 12.4 or the principal and interest received in respect thereof other than any such tax, fee or other charge which by law is for the account of the Holders of the Outstanding Notes.

Anything in this Article to the contrary notwithstanding, the Defeasance Trustee shall deliver or pay to the Issuer from time to time upon Issuer Request any money or U.S. Government Obligations held by it as provided in Section 12.4 which, in the opinion of an internationally recognized accounting firm expressed in a written certification thereof delivered to the Defeasance Trustee, are in excess of the amount thereof which would then be required to be deposited to effect an equivalent defeasance or covenant defeasance.

Section 12.6. Reinstatement.

If the Defeasance Trustee or the Paying Agent is unable to apply any money in accordance with Section 12.2 or 12.3 by reason of any order or judgment of any court or governmental authority enjoining, restraining or otherwise prohibiting such application, then the obligations of the Issuer and the Guarantors under this Indenture, the Guarantees and the Notes, if any, shall be revived and reinstated as though no deposit had occurred pursuant to this Article until such time as the Defeasance Trustee or Paying Agent is permitted to apply all such money in accordance with Section 12.2 or 12.3; provided, however, that if the Issuer or the Guarantors makes any payment of principal of (and premium, if any) any Note following the reinstatement of such obligations, the Issuer or the Guarantors shall be subrogated to the rights of the Holders of such Notes to receive such payment from the money held by the Defeasance Trustee or the Paying Agent.

Section 12.7. Repayment to Issuer or the Guarantors.

Any money deposited with the Defeasance Trustee or any Paying Agent, or then held by the Issuer or a Guarantor, in trust for the payment of the principal of, premium, if any, or interest on any Note and remaining unclaimed for two years after such principal, and premium, if any, or interest has become due and payable shall be paid to the Issuer or the Guarantors on its written request or (if then held by the Issuer or the Guarantors) shall be discharged from such trust; and the Holder of such security shall thereafter, as a creditor, look only to the Issuer or the Guarantors for payment thereof, and all liability of the Defeasance Trustee or such Paying Agent with respect to such trust money, and all liability of the Issuer or the Guarantor as trustee thereof, shall thereupon cease; provided, however, that the Defeasance Trustee or such Paying Agent, before being required to make any such repayment, shall at the expense of the Issuer and the Guarantors cause to be published once, in *The New York Times* and *The Wall Street Journal* (national edition), notice that such money remains unclaimed and that, after a date specified therein, which shall not be less than 30 days from the date of such notification or publication, any unclaimed balance of such money then remaining will be repaid to the Issuer or the Guarantors.

ARTICLE XIII

SUBSTITUTION OF THE ISSUER

Section 13.1. Substitution of the Issuer.

Notwithstanding any other provision contained in this Indenture,

(a) the Issuer may, without the consent of the Holders of the Notes (and by subscribing for any Notes, each Holder of the Notes expressly consents to it), be replaced and substituted by (i) any Wholly Owned Subsidiary of the Issuer or (ii) any Permitted Holding Company as principal debtor (in such capacity, the “Substituted Issuer”) in respect of the Notes provided that:

(1) such documents (together, the “Issuer Substitution Documents”) shall be executed by the Substituted Issuer, the Issuer and the Trustee as may be necessary to give full effect to the substitution, including a supplemental indenture whereby (i) the Substituted Issuer assumes all Issuer’s obligations under this Indenture and the Notes and (ii) the Issuer (the “Additional Guarantor”) guarantees on an unsecured and unsubordinated basis the due and punctual payment of all amounts under this Indenture and with respect to the Notes (without limiting the generality of the foregoing) pursuant to which the Substituted Issuer shall undertake in favor of each Holder of the Notes to be bound by the terms and conditions of the Notes and the provisions of this Indenture as fully as if the Substituted Issuer had been named in the Notes and this Indenture as the principal debtor in respect of the Notes in place of the Issuer (or any previous substitute) and pursuant to which the Additional Guarantor will guarantee on an unsecured and unsubordinated basis the due and punctual payment of all amounts under this Indenture and with respect to the Notes (together, the “Substitution”);

(2) if the Substituted Issuer is incorporated, domiciled or resident in a territory other than Luxembourg, the Issuer Substitution Documents shall contain a covenant by the Substituted Issuer and/or such other provisions as may be necessary to ensure that each Holder of the Notes has the benefit of a covenant in terms corresponding to the obligations of the Issuer in respect of the payment of Additional Amounts set forth in Section 11.9 and tax repurchases in Section 4.1, with the substitution for the references to Luxembourg for references to the territory in which the Substituted Issuer is incorporated, domiciled and/or resident for taxation purposes;

(3) the Issuer Substitution Documents shall contain a covenant by the Additional Guarantor and/or such other provisions as may be necessary to ensure that each holder of the Notes has the benefit of a covenant in terms corresponding to the obligations of the Additional Guarantor as a guarantor of the Notes in respect of the payment of Additional Amounts set forth in Section 11.9 (but with references to Luxembourg as the jurisdiction of incorporation of the Additional Guarantor);

(4) if the Substituted Issuer is incorporated, domiciled or resident in a territory other than Luxembourg, the Issuer Substitution Documents shall also contain a covenant by the Substituted Issuer to indemnify and hold harmless each Holder and beneficial owner of the Notes, the Trustee, the Agents and each other against the actual amount of all taxes or duties required to be paid (including any taxes or duties imposed on the receipt of such indemnity payments) which arise by reason of a law or regulation in effect or contemplated on the effective date of the Substitution, which may be incurred or levied against such Holder or beneficial owner of the Notes as a result of the substitution and which would not have been so incurred or levied had the Substitution not been made, subject to similar exceptions set forth under Section 11.9(2) through (8), inclusive, *mutatis mutandis*; provided, that any holder making a claim with respect to such tax indemnity shall provide the Issuer with notice of such claim, along with supporting documentation, within four weeks of the announcement of the Substitution of the Substituted Issuer as issuer; provided further, that none of the Issuer (including the Substituted Issuer), the Guarantors (including the Additional Guarantor), any paying agent or any other person shall be required to indemnify any holder or beneficial owner of the notes for any taxes imposed pursuant to FATCA, any treaty, law, regulation or other official guidance enacted by any jurisdiction implementing FATCA, or any agreement between the Issuer and the United States or any authority thereof implementing FATCA;

(5) the Substituted Issuer shall have delivered, or procured the delivery to the Trustee of, an Opinion of Counsel addressed to the Substituted Issuer from a leading firm of lawyers in the country of incorporation of the Substituted Issuer, to the effect that the Issuer Substitution Documents constitute legal, valid and binding obligations of the Substituted Issuer and the Additional Guarantor;

(6) the Issuer shall have delivered, or procured the delivery to the Trustee of, an Opinion of Counsel addressed to the Issuer and the Substituted Issuer from a leading firm of New York lawyers to the effect that the Issuer Substitution Documents constitute legal, valid and binding obligations of the Substituted Issuer and the Additional Guarantor under New York law;

(7) the Issuer and the Substituted Issuer shall have appointed a process agent in the Borough of Manhattan, the City of New York to receive service of process on its behalf in relation to any legal action or proceedings arising out of or in connection with the Issuer Substitution Documents;

(8) there is no continuing Event of Default in respect of the Notes.

(b) Upon effectiveness of the substitution, the Substituted Issuer and the Issuer shall deliver to the Trustee an Officer's Certificate, executed by an authorized officer, certifying that the terms of this section have been complied with and attaching copies of all documents contemplated herein.

(c) Upon the execution of the Issuer Substitution Documents as referred to in paragraph (a)(1) above and compliance with the other conditions in paragraph (a), (1) the Substituted Issuer shall be deemed to be named in the Notes as the principal debtor in place of the Issuer (or of any previous substitute under these provisions), (2) the Additional Guarantor shall be deemed to be named as a guarantor of the Notes and (3) the Notes shall thereupon be deemed to be amended to give effect to the transactions referred to in (1) and (2). Except as set forth above, the execution of the Issuer Substitution Documents shall operate to release the Issuer (or such previous substitute as aforesaid) from all its obligations as issuer of the Notes.

(d) Not later than 10 Business Days after the execution of the Issuer Substitution Documents, the Substituted Issuer shall give notice thereof to the Holders of the Notes in accordance with the provisions described under Section 1.6.

ARTICLE XIV

GUARANTEES

Section 14.1. Guarantees.

Nexa CJM, Nexa Peru and Nexa Brazil hereby, jointly, severally, fully, absolutely and unconditionally guarantee on an unsecured basis to each Holder of a Note authenticated and delivered by the Trustee, and to the Trustee on behalf of such Holder, and for itself and the Paying Agents, the due and punctual payment of the principal of (and premium, if any) and interest (including any Additional Amounts) on such Note and all other obligations of the Issuer under this Indenture, when and as the same shall become due and payable, whether at the Stated Maturity or by acceleration, redemption, purchase or otherwise, in accordance with the terms of such Note and of this Indenture. In case of the failure of the Issuer punctually to make any such payment, each of the Guarantors hereby agrees to cause such payment to be made punctually when and as the same shall become due and payable, whether at the Stated Maturity or by acceleration, call for redemption, purchase or otherwise, and as if such payment were made by the Issuer.

The Guarantees constitute unconditional and unsubordinated obligations of each of the Guarantors that will at all times rank at least equally with all other present and future unsecured senior obligations of each such Guarantor, except for any obligations that may be preferred by provisions of law that are both mandatory and of general application.

Each of the Guarantors hereby agrees that its obligations hereunder shall be unconditional, irrespective of the validity, regularity or enforceability of any Note or this Indenture, the absence of any action to enforce the same, any release or amendment or waiver of any term of any other guarantee of, or any consent to depart from any requirement of any other guarantee, of all or any of the Notes, any waiver or consent by the Holder of any Note or by the Trustee with respect to any provisions thereof or of this Indenture, the obtaining of any judgment against the Issuer or any action to enforce the same or any other circumstances which might otherwise constitute a legal or equitable discharge or defense of a guarantor. Each of the Guarantors hereby waives notice of the acceptance of its Guarantee and of any of the obligations under this Indenture or the Notes (the "Obligations") or of the accrual thereof, and further waives presentment, protest, notice or demand. This is a continuing guarantee and is a guarantee of payment and not of collection, and each of the Guarantors waives any right to require the Holders to initiate collection proceeds or otherwise enforce payment of the Obligations or any security or other guarantee therefore before obtaining payment hereunder.

The Guarantees shall continue to be in effect or be reinstated, as the case may be, if at any time (i) any payment in respect of any of the Obligations is rescinded or must otherwise be returned by the Holders, whether by reason of the insolvency, bankruptcy, receivership, reorganization or liquidation of the Issuer or any Guarantor or any other obligor or otherwise, all as though such payment had not been made or (ii) a Substituted Issuer, as defined in Section 13.1, assumes the Issuer's obligations under the Notes pursuant to Article XIII hereof.

Each of the Guarantors hereby waives the benefits of diligence, presentment, demand of payment, any requirement that the Trustee or any of the Holders protect, secure, perfect or insure any security interest in or other Lien on any property subject thereto or exhaust any right or take any action against the Issuer or any other Person or any collateral, filing of claims with a court in the event of insolvency or bankruptcy of the Issuer, any right to require a proceeding first against the Issuer, protest or notice with respect to any Note or the indebtedness evidenced thereby and all demands whatsoever, and covenants, that these Guarantees will be discharged in respect of any Note except by complete performance of the obligations contained in such Note and in the Guarantees. Each of the Guarantors hereby agrees that, in the event of a default in payment of principal (or premium, if any) or interest on any Note, whether at its Stated Maturity or by acceleration, redemption, purchase or otherwise, legal proceedings may be instituted by the Trustee on behalf of, or by, the Holder of such Note, subject to the terms and conditions set forth in this indenture, directly against any or all of the Guarantors to enforce the Guarantees without first proceeding against the Issuer. Each of the Guarantors agrees that if, after the occurrence and during the continuance of an Event of Default, the Trustee or any of the Holders are prevented by applicable law from exercising their respective rights to accelerate the maturity of the Notes, to collect interest on the Notes or to enforce or exercise any other right or remedy with respect to the Notes, or the Trustee or the Holders are prevented from taking any action to realize on any collateral, each of the Guarantors agrees to pay to the Trustee for the account of the Holders, upon demand therefore, the amount that would otherwise have been due and payable had such rights and remedies been permitted to be exercised by the Trustee or any of the Holders.

No provision of the Guarantees, Notes or of this Indenture shall alter or impair the Guarantees of the Guarantors, of which the Guarantees are absolute and unconditional, of the due and punctual payment of the principal (and premium, if any) and interest (and Additional Amounts, if any) on the Note and the obligation under this Indenture upon which each Guarantee is endorsed.

Each of the Guarantors shall be subrogated to all rights of the Holders of the Notes upon which its Guarantee is endorsed against the Issuer in respect of any amounts paid by each of the Guarantors on account of such Note pursuant to the provisions of the Guarantees or this Indenture; provided, however, that none of the Guarantors shall be entitled to enforce or to receive any payments arising out of, or based upon, such right of subrogation until the principal of (and premium, if any) and interest (and Additional Amounts, if any) on all Notes issued hereunder shall have been paid in full.

The Guarantees shall remain in full force and effect and continue to be effective should any petition be filed by or against the Issuer for liquidation or reorganization, should the Issuer become insolvent or make an assignment for the benefit of creditors or should a receiver or trustee be appointed for all or any significant part of the Issuer's assets, and shall, to the fullest extent permitted by law, continue to be effective or be reinstated, as the case may be, if at any time payment and performance of the obligations under the Notes is, pursuant to applicable law, rescinded or reduced in amount, or must otherwise be restored or returned by any obligee on the Notes, whether as a "voidable preference," "fraudulent transfer" or otherwise, all as though such payment or performance had not been made. In the event that any payment, or any part thereof, is rescinded, reduced, restored or returned, the Notes shall, to the fullest extent permitted by law, be reinstated and deemed reduced only by such amount paid and not so rescinded, reduced, restored or returned.

Each of the Guarantors hereby irrevocably waives all benefits set forth in the following provisions of the Brazilian law: articles 333, sole paragraph, 366, 368, 827, 829, sole paragraph, 830, 834, 835, 837 and 838 of the Brazilian Civil Code and articles 130 and 794 of the Brazilian Civil Procedure Code.

No stockholder, officer, director, employer or incorporator, past, present or future, of any Guarantor, as such, shall have any personal liability under the Guarantee by reason of his, her or its status as such stockholder, officer, director, employer or incorporator.

Section 14.2. Delivery of the Guarantee.

The delivery of any Note by the Trustee, after the authentication thereof hereunder, shall constitute due delivery of the Guarantees set forth herein on behalf of the Guarantors.

Section 14.3. Release of Guarantor.

(a) Concurrently with any consolidation or merger of any of the Guarantors or any sale or conveyance of the property of any of the Guarantors as an entirety or substantially as an entirety, in each case as permitted by Section 9.1(a) hereof, and upon delivery by such Guarantor to the Trustee of an Officer's Certificate and an Opinion of Counsel to the effect that such consolidation, merger, sale or conveyance was made in accordance with Section 9.1(a) hereof, the Trustee shall execute any documents reasonably required in order to evidence the release of such Guarantor from its obligations under its Guarantee endorsed on the Notes and under this Article XIV.

(b) Concurrently with the defeasance of the Notes under Section 12.2 hereof or the covenant defeasance of the Notes under Section 12.3 hereof, each of the Guarantors shall be released from all of its obligations under its Guarantee endorsed on the Notes and under this Article XIV.

ARTICLE XV

MEETINGS OF HOLDERS OF SECURITIES

Section 15.1. Purposes for Which Meetings May Be Called.

A meeting of Holders of Notes may be called at any time and from time to time pursuant to this Article to consider any matter affecting their interests, including, if proposed by the Issuer, the modification of the terms and conditions of the Notes; provided that any modification postponing the date for payment of any interest, reducing or canceling any amount of principal or the rate of interest payable or altering the currency of payment in respect of the Notes will only be binding if passed at a meeting of Holders at which a special quorum (as set forth in Section 15.4) is present.

Section 15.2. Call, Notice and Place of Meetings.

(1) The Trustee may at any time call a meeting of Holders of Notes of any series for any purpose specified in Section 15.1, to be held at such time and at such place in the Borough of Manhattan, The City of New York as the Trustee shall determine. Notice of every meeting of Holders of Notes, setting forth the time and the place of such meeting and in general terms the action proposed to be taken at such meeting, shall be given, in the manner provided in Section 1.6, not less than 21 nor more than 180 days prior to the date fixed for the meeting.

(2) In case at any time the Issuer, pursuant to a Board Resolution, or the Holders of at least 10% in principal amount of the Outstanding Notes shall have requested the Trustee to call a meeting of the Holders of Notes for any purpose specified in Section 15.1, by written request setting forth in reasonable detail the action proposed to be taken at the meeting, and the Trustee shall not have made the first publication of the notice of such meeting within 21 days after receipt of such request or shall not thereafter proceed to cause the meeting to be held as provided herein, then the Issuer or the Holders of Notes in the amount specified above, as the case may be, may determine the time and the place in the Borough of Manhattan, The City of New York for such meeting and may call such meeting for such purposes by giving notice thereof as provided in subsection (1) of this Section.

Section 15.3. Persons Entitled to Vote at Meetings.

To be entitled to vote at any meeting of Holders of Notes, a Person shall be (i) a Holder on a record date established pursuant to Section 15.5 of one or more Outstanding Notes, or (ii) a Person appointed by an instrument in writing as proxy for a Holder or Holders of one or more Outstanding Notes by such Holder or Holders. The only Persons who shall be permitted to be present or to speak at any meeting of Holders of Notes of any series shall be the Persons entitled to vote at such meeting and their counsel, any representatives of the Trustee and its counsel and any representatives of the Issuer and its counsel.

Section 15.4. Quorum; Action.

The Persons entitled to vote a majority in principal amount of the Outstanding Notes shall constitute a “quorum” for a meeting of Holders of Notes, however, any modification postponing the date for payment of any interest, reducing or canceling any amount of principal or the rate of interest payable or altering the currency of payment in respect of the Notes will only be binding if passed at a meeting of Holders of at least 66 2/3% of the Notes (a “special quorum”). In the absence of a quorum or a special quorum, as the case may be, within 15 minutes (or such longer period not exceeding 30 minutes as the chairman may decide) of the time appointed for any such meeting, the meeting shall if convened upon the requisition of Holders be dissolved. In any other case it shall stand adjourned to the same day in the next week (or if such day is not a Business Day the next succeeding Business Day) at the same time and place. If within 15 minutes (or such longer period not exceeding 30 minutes as the chairman may decide) after the time appointed for any adjourned meeting a quorum or a special quorum, as the case may be, is not present for the transaction of any particular business, then, subject and without prejudice to the transaction of the business (if any) for which a quorum or a special quorum, as the case may be, is present, the chairman may either (with the approval of the Trustee) dissolve such meeting or adjourn the same for such period, being not less than ten calendar days (but without any maximum number of calendar days), and to such place as may be appointed by the chairman either at or subsequent to such adjourned meeting and approved by the Trustee, and the provisions of this sentence shall apply to all further adjourned such meetings.

Notice of the reconvening of any adjourned meeting shall be given as provided in Section 15.2(1), except that such notice need be given only once not less than five days prior to the date on which the meeting is scheduled to be reconvened. Notice of a reconvening of an adjourned meeting shall state expressly the percentage, as provided above, of the principal amount of the Outstanding Notes of such series which shall constitute a quorum.

Any resolution passed or decision taken at any meeting of Holders of Notes of any series duly held in accordance with this Section shall be binding on all the Holders of Notes of such series, whether or not presented or represented at the meeting. However, for the avoidance of doubt, no actions taken at such meeting shall be binding on all Holders of Notes unless such actions were approved by the minimum percentage in principal amount of the Outstanding Notes of the series as required elsewhere in this Indenture with respect to such actions.

Section 15.5. Determination of Voting Rights; Conduct and Adjournment of Meetings.

(a) Notwithstanding any other provisions of this Indenture, the Trustee may make such reasonable regulations as it may deem advisable for any meeting of Holders of Notes of a series in regard to proof of the holding of Notes of such series and the appointment of proxies and in regard to the appointment and duties of inspectors of votes, the submission and examination of proxies, certificates and other evidence of the right to vote, and such other matters concerning the conduct of the meeting as it shall deem appropriate. Except as otherwise permitted or required by any such regulations, the holding of Notes shall be proved in the manner specified in Section 1.4 and the appointment of any proxy shall be proved in the manner specified in Section 1.4. Such regulations may provide that written instruments appointing proxies, regular on their face, may be presumed valid and genuine without the proof specified in Section 1.4 or other proof.

(b) The Trustee shall, by an instrument in writing, appoint a temporary chairman of the meeting, unless the meeting shall have been called by the Issuer or by Holders of Notes as provided in Section 15.2(2), in which case the Issuer or the Holders of Notes of the series calling the meeting, as the case may be, shall in like manner appoint a temporary chairman. A permanent chairman and a permanent secretary of the meeting shall be elected by vote of the Persons entitled to vote a majority in principal amount of the Outstanding Notes of such series represented at the meeting.

(c) At any meeting each Holder of a Note of such series or proxy shall be entitled to one vote for each \$1,000 principal amount of the Outstanding Notes of such series held or represented by him or her; provided, however, that no vote shall be cast or counted at any meeting in respect of any Note challenged as not Outstanding and ruled by the chairman of the meeting to be not Outstanding. The chairman of the meeting shall have no right to vote, except as a Holder of a Note of such series or proxy.

(d) Any meeting of Holders of Notes of any series duly called pursuant to Section 15.2 at which a quorum is present may be adjourned from time to time by Persons entitled to vote a majority in principal amount of the Outstanding Notes of such series represented at the meeting, and the meeting may be held as so adjourned without further notice.

Section 15.6. Counting Votes and Recording Action of Meetings.

The vote upon any resolution submitted to any meeting of Holders of Notes of any series shall be by written ballots on which shall be subscribed the signatures of the Holders of Notes of such series or of their representatives by proxy and the principal amounts and serial numbers of the Outstanding Notes of such series held or represented by them. The permanent chairman of the meeting shall appoint two inspectors of votes who shall count all votes cast at the meeting for or against any resolution and who shall make and file with the secretary of the meeting their verified written reports in duplicate of all votes cast at the meeting. A record, at least in duplicate, of the proceedings of each meeting of Holders of Notes of any series shall be prepared by the secretary of the meeting and there shall be attached to said record the original reports of the inspectors of votes on any vote by ballot taken thereat and affidavits by one or more persons having knowledge of the facts setting forth a copy of the notice of the meeting and showing that said notice was given as provided in Section 15.2 and, if applicable, Section 15.5. Each copy shall be signed and verified by the affidavits of the permanent chairman and secretary of the meeting and one such copy shall be delivered to the Issuer, and another to the Trustee to be preserved by the Trustee, the latter to have attached thereto the ballots voted at the meeting. Any record so signed and verified shall be conclusive evidence of the matters therein stated.

IN WITNESS WHEREOF, the parties hereto have caused this Indenture to be duly executed as of the day and year first above written.

NEXA RESOURCES S.A.

By: _____
Name:
Title:

By: _____
Name:
Title:

Signature Page to Indenture

IN WITNESS WHEREOF, the parties hereto have caused this Indenture to be duly executed as of the day and year first above written.

NEXA RESOURCES CAJAMARQUILLA S.A.

By: _____
Name:
Title:

By: _____
Name:
Title:

Signature Page to Indenture

IN WITNESS WHEREOF, the parties hereto have caused this Indenture to be duly executed as of the day and year first above written.

NEXA RESOURCES PERU S.A.A.

By: _____
Name:
Title:

By: _____
Name:
Title:

Signature Page to Indenture

IN WITNESS WHEREOF, the parties hereto have caused this Indenture to be duly executed as of the day and year first above written.

NEXA RECURSOS MINERAIS S.A.

By: _____
Name:
Title:

By: _____
Name:
Title:

Witnesses:

By: /s/ Felipe Da Silva Azevedo
Name: Felipe Da Silva Azevedo

By: /s/ Junia Fontes Vieira Cidade
Name: Junia Fontes Vieira Cidade

Signature Page to Indenture

THE BANK OF NEW YORK MELLON,
as Trustee, Principal Paying Agent, Transfer Agent and Registrar

By: _____
Name:
Title:

Signature Page to Indenture

**FORM OF CERTIFICATION FOR TRANSFER OR EXCHANGE OF
RESTRICTED GLOBAL NOTE TO REGULATION S GLOBAL
NOTE**

*(Exchanges or transfers pursuant to
Section 3.4(c)(2) of the Indenture)*

The Bank of New York Mellon
240 Greenwich Street
New York, New York 10286
United States
Attention: Global Corporate Trust

**Re: Nexa Resources S.A.
6.500% Notes due 2028 (the “Notes”)**

Reference is hereby made to the Indenture, dated as of June 18, 2020 (the “Indenture”), among Nexa Resources S.A., as Issuer, Nexa Resources Cajamarquilla S.A., Nexa Resources Perú S.A.A. and Nexa Recursos Minerais S.A., as Guarantors, and The Bank of New York Mellon, a New York banking corporation, as trustee (the “Trustee”), as principal paying agent (the “Principal Paying Agent”), as transfer agent (the “Transfer Agent”) and registrar (the “Security Registrar”). Capitalized terms used but not defined herein shall have the meanings given to them in the Indenture.

This letter relates to U.S.\$[] aggregate principal amount of Notes which are held in the form of the Restricted Global Note (CUSIP No. 65290D AA1 / ISIN No. US65290DAA19 / Common Code 219373309) with the Depositary in the name of [*insert name of transferor*] (the “Transferor”). The Transferor has requested a transfer of such beneficial interest in the Notes to a Person who will take delivery thereof in the form of an equal aggregate principal amount of Notes evidenced by the Regulation S Global Note (CUSIP No. L67359 AA4 / ISIN No. USL67359AA48 / Common Code 219373368).

In connection with such request, and in respect of such Notes, the Transferor does hereby certify that such transfer has been effected in accordance with the transfer restrictions set forth in the Notes and that:

- (A) The offer of the Notes was not made to a person in the United States; and
- (B) either:
 - (i) at the time the buy order was originated, the transferee was outside the United States or the Transferor and any person acting on its behalf reasonably believed that the transferee was outside the United States; or
 - (ii) the transaction was executed in, on or through the facilities of a designated offshore securities market and neither the Transferor nor any person acting on our behalf knows that the transaction was pre-arranged with a buyer in the United States;
- (C) no directed selling efforts have been made in contravention of the requirements of Rule 903(a)(2) or 904(a)(2) of Regulation S, as applicable; and
- (D) the transaction is not part of a plan or scheme to evade the registration requirements of the Securities Act.

We understand that this certificate is required in connection with certain securities laws of the United States. In connection therewith, if administrative or legal proceedings are commenced or threatened in connection with which this certificate is or would be relevant, we irrevocably authorize you to produce this certificate to any interested party in such proceeding. This certificate and the statements contained herein are made for your benefit and the benefit of the Issuer and the Guarantors.

[INSERT NAME OF TRANSFEROR]

By: _____
Name: _____
Title: _____

Dated: _____

cc: Nexa Resources S.A.

**FORM OF CERTIFICATION FOR TRANSFER OR EXCHANGE OF
REGULATION S GLOBAL NOTE TO RESTRICTED GLOBAL
NOTE**

*(Exchanges or transfers pursuant to
Section 3,4(c)(3) of the Indenture)*

The Bank of New York Mellon
240 Greenwich Street
New York, New York 10286
United States
Attention: Global Corporate Trust

**Re: Nexa Resources S.A.
6.500% Notes due 2028 (the “Notes”)**

Reference is hereby made to the Indenture, dated as of June 18, 2020 (the “Indenture”), among Nexa Resources S.A., as Issuer, Nexa Resources Cajamarquilla S.A., Nexa Resources Perú S.A.A. and Nexa Recursos Minerais S.A., as Guarantors, and The Bank of New York Mellon, a New York banking corporation, as trustee (the “Trustee”), as principal paying agent (the “Principal Paying Agent”), as transfer agent (the “Transfer Agent”) and registrar (the “Security Registrar”). Capitalized terms used but not defined herein shall have the meanings given to them in the Indenture.

This letter relates to U.S.\$[] principal amount of Notes which are evidenced by an aggregate Regulation S Global Note (CUSIP No. L67359 AA4 / ISIN No. USL67359AA48 / Common Code 219373368) and held with the Depositary through [Euroclear] [Clearstream] in the name of [insert name of transferor] (the “Transferor”). The Transferor has requested a transfer of such beneficial interest in Notes to a person that will take delivery thereof in the form of an equal principal amount of Notes evidenced by a Restricted Global Note of the same series and of like tenor as the Notes (CUSIP No. 65290D AA1 / ISIN No. US65290DAA19 / Common Code 219373309).

In connection with such request and in respect of such Notes, the Transferor does hereby certify that such transfer is being effected pursuant to and in accordance with Rule 144A under the Securities Act and, accordingly, the Transferor does hereby further certify that the Notes are being transferred to a Person that the Transferor reasonably believes is purchasing the Notes for its own account, or for one or more accounts with respect to which such person exercises sole investment discretion, and such person and each such account is a “qualified institutional buyer” within the meaning of Rule 144A, in each case in a transaction meeting the requirements of Rule 144A and in accordance with any applicable securities laws of any state of the United States.

This certificate and the statements contained herein are made for your benefit and the benefit of the Issuer and the Guarantors.

[INSERT NAME OF TRANSFEROR]

By: _____
Name: _____
Title: _____

Dated: _____

cc: Nexa Resources S.A.

**FORM OF CERTIFICATION FOR TRANSFER
OR EXCHANGE OF NON-GLOBAL RESTRICTED NOTE TO
RESTRICTED GLOBAL NOTE**
*(Transfers and exchanges pursuant to
Section 3.4(c)(4) of the Indenture)*

The Bank of New York Mellon
240 Greenwich Street
New York, New York 10286
United States
Attention: Global Corporate Trust

**Re: Nexa Resources S.A.
6.500% Notes due 2028 (the “Notes”)**

Reference is hereby made to the Indenture, dated as of June 18, 2020 (the “Indenture”), among Nexa Resources S.A., as Issuer, Nexa Resources Cajamarquilla S.A., Nexa Resources Perú S.A.A. and Nexa Recursos Minerais S.A., as Guarantors, and The Bank of New York Mellon, a New York banking corporation, as trustee (the “Trustee”), as principal paying agent (the “Principal Paying Agent”), as transfer agent (the “Transfer Agent”) and registrar (the “Security Registrar”). Capitalized terms used but not defined herein shall have the meanings given to them in the Indenture.

This letter relates to U.S.\$[] principal amount of Restricted Notes held in definitive form (CUSIP No. 65290D AA1 / ISIN No. US65290DAA19 / Common Code 219373309) by [*insert name of transferor*] (the “Transferor”). The Transferor has requested an exchange or transfer of such Notes.

In connection with such request and in respect of such Notes, the Transferor does hereby certify that (i) such Notes are owned by the Transferor and are being exchanged without transfer or (ii) such transfer has been effected pursuant to and in accordance with Rule 144A or Rule 144 under the United States Securities Act of 1933, as amended (the “Securities Act”) and accordingly the Transferor does hereby further certify that:

- (A) the Notes are being transferred to a person that the Transferor reasonably believes is purchasing the Notes for its own account, or for one or more accounts with respect to which such Person exercises sole investment discretion;
- (B) such Person and each such account is a “qualified institutional buyer” within the meaning of Rule 144A; and
- (C) the Notes have been transferred in a transaction meeting the requirements of Rule 144A and in accordance with any applicable securities laws of any state of the United States.

We understand that this certificate is required in connection with certain securities laws of the United States. In connection therewith, if administrative or legal proceedings are commenced or threatened in connection with which this certificate is or would be relevant, we irrevocably authorize you to produce this certificate to any interested party in such proceeding. This certificate and the statements contained herein are made for your benefit and the benefit of the Issuer and the Guarantors.

[INSERT NAME OF TRANSFEROR]

By: _____
Name:
Title:

Dated: _____

cc: Nexa Resources S.A.

**FORM OF CERTIFICATION FOR TRANSFER
OR EXCHANGE OF NON-GLOBAL RESTRICTED NOTE TO
REGULATION S GLOBAL NOTE**
*(Transfers and exchanges pursuant to
Section 3.4(c)(4) of the Indenture)*

The Bank of New York Mellon
240 Greenwich Street
New York, New York 10286
United States
Attention: Global Corporate Trust

**Re: Nexa Resources S.A.
6.500% Notes due 2028 (the “Notes”)**

Reference is hereby made to the Indenture, dated as of June 18, 2020 (the “Indenture”), among Nexa Resources S.A., as Issuer, Nexa Resources Cajamarquilla S.A., Nexa Resources Perú S.A.A. and Nexa Recursos Minerais S.A., as Guarantors, and The Bank of New York Mellon, a New York banking corporation, as trustee (the “Trustee”), as principal paying agent (the “Principal Paying Agent”), as transfer agent (the “Transfer Agent”) and registrar (the “Security Registrar”). Capitalized terms used but not defined herein shall have the meanings given to them in the Indenture.

This Letter relates to U.S.\$[] principal amount of Restricted Notes held in definitive form (CUSIP No. 65290D AA1 / ISIN No. US65290DAA19 / Common Code 219373309) by [insert name of transferor] (the “Transferor”). The Transferor has requested an exchange or transfer of such Notes.

In connection with such request and in respect of such Notes, the Transferor does hereby certify that (i) such Notes are owned by the Transferor and are being exchanged without transfer or (ii) such transfer has been effected pursuant to and in accordance with (a) Rule 903 or Rule 904 under the Securities Act of 1933, as amended (the “Act”), or (b) Rule 144 under the Act, and accordingly the Transferor does hereby further certify that:

- (A) the offer of the Notes was not made to a person in the United States; (B) either:
 - (i) at the time the buy order was originated, the transferee was outside the United States or the Transferor and any person acting on its behalf reasonably believed that the transferee was outside the United States, or
 - (ii) the transaction was executed in, on or through the facilities of a designated offshore securities market and neither the Transferor nor any person acting on its behalf knows that the transaction was pre-arranged with a buyer in the United States;
- (C) no directed selling efforts have been made in contravention of the requirements of Rule 903(a)(2) or 904(b)(2)) of Regulation S, as applicable; and
- (D) the transaction is not part of a plan or scheme to evade the registration requirements of the Act.

We understand that this certificate is required in connection with certain securities laws of the United States. In connection therewith, if administrative or legal proceedings are commenced or threatened in connection with which this certificate is or would be relevant, we irrevocably authorize you to produce this certificate to any interested party in such proceeding. This certificate and the statements contained herein are made for your benefit and the benefit of the Issuer and the Guarantors.

[INSERT NAME OF TRANSFEROR]

By: _____
Name: _____
Title: _____

Dated: _____

cc: Nexa Resources S.A.

**FORM OF CERTIFICATION FOR TRANSFER
OR EXCHANGE OF NON-GLOBAL REGULATION S
NOTE TO RESTRICTED GLOBAL NOTE**
*(Transfers and exchanges pursuant to
Section 3.4(c)(5) of the Indenture)*

The Bank of New York Mellon
240 Greenwich Street
New York, New York 10286
United States
Attention: Global Corporate Trust

**Re: Nexa Resources S.A.
6.500% Notes due 2028 (the “Notes”)**

Reference is hereby made to the Indenture, dated as of June 18, 2020 (the “Indenture”), among Nexa Resources S.A., as Issuer, Nexa Resources Cajamarquilla S.A., Nexa Resources Perú S.A.A. and Nexa Recursos Minerais S.A., as Guarantors, and The Bank of New York Mellon, a New York banking corporation, as trustee (the “Trustee”), as principal paying agent (the “Principal Paying Agent”), as transfer agent (the “Transfer Agent”) and registrar (the “Security Registrar”). Capitalized terms used but not defined herein shall have the meanings given to them in the Indenture.

This letter relates to U.S.\$[] principal amount of Regulation S Global Notes held in definitive form (CUSIP No. L67359 AA4 / ISIN No. USL67359AA48 / Common Code 219373368) by [insert name of transferor] (the “Transferor”). The Transferor has requested an exchange or transfer of such Notes.

In connection with such request and in respect of such Notes, the Transferor does hereby certify that (i) such Notes are owned by the Transferor and are being exchanged without transfer or (ii) such transfer has been effected pursuant to and in accordance with Rule 144A under the United States Securities Act of 1933, as amended, and accordingly the Transferor does hereby further certify that the Notes are being transferred to a person that the Transferor reasonably believes is purchasing the Notes for its own account, or for one or more accounts with respect to which such Person exercises sole investment discretion, and such Person and each such account is a “qualified institutional buyer” within the meaning of Rule 144A, in each case in a transaction meeting the requirements of Rule 144A and in accordance with any applicable securities laws of any state of the United States.

We understand that this certificate is required in connection with certain securities laws of the United States. In connection therewith, if administrative or legal proceedings are commenced or threatened in connection with which this certificate is or would be relevant, we irrevocably authorize you to produce this certificate to any interested party in such proceeding. This certificate and the statements contained herein are made for your benefit and the benefit of the Issuer and the Guarantors.

[INSERT NAME OF TRANSFEROR]

By: _____
Name:
Title:

Dated: _____

cc: Nexa Resources S.A.

**FORM OF CERTIFICATION FOR TRANSFER
OR EXCHANGE OF NON-GLOBAL REGULATION S
NOTE TO REGULATION S GLOBAL NOTE**
*(Transfers and exchanges pursuant to
Section 3.4(c)(5) of the Indenture)*

The Bank of New York Mellon
240 Greenwich Street
New York, New York 10286
United States
Attention: Global Corporate Trust

**Re: Nexa Resources S.A.
6.500% Notes due 2028 (the “Notes”)**

Reference is hereby made to the Indenture, dated as of June 18, 2020 (the “Indenture”), among Nexa Resources S.A., as Issuer, Nexa Resources Cajamarquilla S.A., Nexa Resources Perú S.A.A. and Nexa Recursos Minerais S.A., as Guarantors, and The Bank of New York Mellon, a New York banking corporation, as trustee (the “Trustee”), as principal paying agent (the “Principal Paying Agent”), as transfer agent (the “Transfer Agent”) and registrar (the “Security Registrar”). Capitalized terms used but not defined herein shall have the meanings given to them in the Indenture.

This letter relates to U.S.\$[] principal amount of Regulation S Global Notes held in definitive form (CUSIP No. L67359 AA4 / ISIN No. USL67359AA48 / Common Code 219373368) by [insert name of transferor] (the “Transferor”). The Transferor has requested an exchange or transfer of such Notes.

In connection with such request and in respect of such Notes, the Transferor does hereby certify that (i) such Notes are owned by the Transferor and are being exchanged without transfer or (ii) such transfer has been effected pursuant to and in accordance with (a) Rule 903 or Rule 904 under the Securities Act of 1933, as amended (the “Act”), or (b) Rule 144 under the Act, and accordingly the Transferor does hereby further certify that:

- (A) the offer of the Notes was not made to a person in the United States; (B) either:
 - (i) at the time the buy order was originated, the transferee was outside the United States or the Transferor and any person acting on its behalf reasonably believed that the transferee was outside the United States, or
 - (ii) the transaction was executed in, on or through the facilities of a designated offshore securities market and neither the Transferor nor any person acting on its behalf knows that the transaction was pre-arranged with a buyer in the United States;
- (C) no directed selling efforts have been made in contravention of the requirements of Rule 903(a)(2) or 904(b)(2) of Regulation S, as applicable; and
- (D) the transaction is not part of a plan or scheme to evade the registration requirements of the Act.

We understand that this certificate is required in connection with certain securities laws of the United States. In connection therewith, if administrative or legal proceedings are commenced or threatened in connection with which this certificate is or would be relevant, we irrevocably authorize you to produce this certificate to any interested party in such proceeding. This certificate and the statements contained herein are made for your benefit and the benefit of the Issuer and the Guarantors.

[INSERT NAME OF TRANSFEROR]

By: _____
Name: _____
Title: _____

Dated: _____

cc: Nexa Resources S.A.

NEXA RESOURCES S.A.
as Issuer,

NEXA RESOURCES CAJAMARQUILLA S.A.

and

NEXA RECURSOS MINERAIS S.A.
as Guarantors,

and

THE BANK OF NEW YORK MELLON
as Trustee, Principal Paying Agent, Transfer Agent and Registrar,

Indenture

Dated as of April 9, 2024

U.S.\$600,000,000

6.750% Senior Unsecured Notes due 2034

Table of Contents

	<u>Page</u>
Article I	
DEFINITIONS AND OTHER PROVISIONS OF GENERAL APPLICATION	
Section 1.1.Definitions	2
Section 1.2.Compliance Certificates and Opinions	14
Section 1.3.Form of Documents Delivered to Trustee	15
Section 1.4.Acts of Holders; Record Date	15
Section 1.5.Notices, Etc., to Trustee, the Paying Agents and the Issuer	17
Section 1.6.Notice to Holders; Waiver	19
Section 1.7.Effect of Headings and Table of Contents	19
Section 1.8.Successors and Assigns	19
Section 1.9.Separability Clause	19
Section 1.10.Benefits of Indenture	20
Section 1.11.Governing Law	20
Section 1.12.Legal Holidays	20
Section 1.13.Consent to Jurisdiction and Service of Process	20
Section 1.14.Currency of Account; Conversion of Currency; Foreign Exchange Restrictions	21
Section 1.15.Counterparts	23
Section 1.16.Force Majeure	24
Section 1.17.U.S.A. PATRIOT Act	24
Section 1.18.Anti-Money Laundering, Terrorism and Economic Sanctions	24
Section 1.19.FATCA Reporting.	25
Section 1.20.Effective Date	25
Article II	
NOTE FORMS	
Section 2.1.Forms Generally	25
Section 2.2.Form of Face of Note	27
Section 2.3.Form of Reverse of Note	30
Section 2.4.Form of Trustee's Certificate of Authentication	36
Article III	
THE NOTES	
Section 3.1.Title and Terms	38
Section 3.2.Denominations	39
Section 3.3.Execution, Authentication, Delivery and Dating	39

Section 3.4.Global Notes; Registration, Registration of Transfer and Exchange	39
Section 3.5.Mutilated, Destroyed, Lost and Stolen Notes	45
Section 3.6.Payment of Interest; Interest Rights Preserved	45
Section 3.7.Persons Deemed Owners	46
Section 3.8.Cancellation	47
Section 3.9.Computation of Interest	47
Section 3.10.CUSIP Numbers	47
Section 3.11.Paying Agents; Discharge of Payment Obligations; Indemnity of Holders	47

Article IV REDEMPTION OF NOTES

Section 4.1.Redemption for Tax Reasons	49
Section 4.2.Optional Redemption	50
Section 4.3.Applicability of Article	52
Section 4.4.Election to Redeem; Notice to Trustee, Registrar and Paying Agent	52
Section 4.5.Notice of Redemption	52
Section 4.6.Deposit of Redemption Price	53
Section 4.7.Notes Payable on Redemption Date	53

Article V SATISFACTION AND DISCHARGE

Section 5.1.Satisfaction and Discharge of Indenture.	53
Section 5.2.Application of Trust Money	54

Article VI REMEDIES

Section 6.1.Events of Default	54
Section 6.2.Collection of Indebtedness and Suits for Enforcement by Trustee	56
Section 6.3.Trustee May File Proofs of Claim	57
Section 6.4.Trustee May Enforce Claims Without Possession of Notes	57
Section 6.5.Application of Money Collected	57
Section 6.6.Limitation on Suits	58
Section 6.7.Unconditional Right of Holders to Receive Principal, Premium and Interest	59
Section 6.8.Restoration of Rights and Remedies	59
Section 6.9.Rights and Remedies Cumulative	59
Section 6.10.Delay or Omission Not Waiver	59
Section 6.11.Control by Holders	59
Section 6.12.Waiver of Past Defaults	60
Section 6.13.Undertaking for Costs	60

Article VII
THE TRUSTEE

Section 7.1.Certain Duties and Responsibilities	60
Section 7.2.Notice of Defaults	63
Section 7.3.Certain Rights of Trustee and the Agents	63
Section 7.4.Not Responsible for Recitals or Issuance of Notes	64
Section 7.5.May Hold Notes	65
Section 7.6.Money Held in Trust	65
Section 7.7.Compensation and Reimbursement	65
Section 7.8.Corporate Trustee Required; Eligibility	66
Section 7.9.Resignation and Removal; Appointment of Successor	66
Section 7.10.Acceptance of Appointment by Successor	68
Section 7.11.Merger, Conversion, Consolidation or Succession to Business	68
Section 7.12.Appointment of Authenticating Agent	68

Article VIII
HOLDERS LISTS AND COMMUNICATIONS BY TRUSTEE AND ISSUER

Section 8.1.Issuer to Furnish Trustee; Names and Addresses of Holders	70
Section 8.2.Preservation of Information; Communications to Holders	70

Article IX
CONSOLIDATION, MERGER, CONVEYANCE, TRANSFER OR LEASE

Section 9.1.Mergers, Consolidations and Certain Sales of Assets	71

Article X
SUPPLEMENTAL INDENTURES

Section 10.1.Supplemental Indentures Without Consent of Holders	72
Section 10.2.Supplemental Indentures with Consent of Holders	73
Section 10.3.Execution of Supplemental Indentures	74
Section 10.4.Effect of Supplemental Indentures	74
Section 10.5.Reference in Notes to Supplemental Indentures	74
Section 10.6.Notice to Holders	74

Article XI
COVENANTS

Section 11.1.Payment Under the Notes	75
Section 11.2.Maintenance of Office or Agency	75
Section 11.3.Money for Note Payments to Be Held in Trust	75

Section 11.4.Maintenance of Corporate Existence	76
Section 11.5.Repurchases at the Option of the Holders upon Change of Control	77
Section 11.6.Payment of Taxes and Other Claims	78
Section 11.7.Provision of Financial Information	79
Section 11.8.Statement by Officers as to Default	79
Section 11.9.Payment of Additional Amounts	80
Section 11.10.Limitation on Liens	82
Section 11.11.[Intentionally Omitted]	84
Section 11.12.Performance Obligations Under Other Documents	84
Section 11.13.Compliance with Laws	84
Section 11.14.Maintenance of Government Approvals	84
Section 11.15.[Intentionally Omitted]	84
Section 11.16.Maintenance of Books and Records	84
Section 11.17.Ranking	84

Article XII LEGAL DEFEASANCE AND COVENANT DEFEASANCE

Section 12.1.Option to Effect Defeasance or Covenant Defeasance	85
Section 12.2.Defeasance and Discharge	85
Section 12.3.Covenant Defeasance	85
Section 12.4.Conditions to Defeasance or Covenant Defeasance	86
Section 12.5.Deposited Money and U.S. Government Obligations to Be Held in Trust; Other Miscellaneous Provisions	87
Section 12.6.Reinstatement	88
Section 12.7.Repayment to Issuer or the Guarantors	88

Article XIII SUBSTITUTION OF THE ISSUER

Section 13.1.Substitution of the Issuer	88

Article XIV GUARANTEES

Section 14.1.Guarantees	90
Section 14.2.Delivery of the Guarantee	93
Section 14.3.Release of Guarantor.	93

Article XV MEETINGS OF HOLDERS OF SECURITIES

Section 15.1.Purposes for Which Meetings May Be Called	93
Section 15.2.Call, Notice and Place of Meetings	93

Section 15.3. Persons Entitled to Vote at Meetings	94
Section 15.4. Quorum; Action	94
Section 15.5. Determination of Voting Rights; Conduct and Adjournment of Meetings	95
Section 15.6. Counting Votes and Recording Action of Meetings	95

EXHIBITS

Exhibit A — FORM OF CERTIFICATION FOR TRANSFER OR EXCHANGE OF RESTRICTED GLOBAL SECURITY TO REGULATION S GLOBAL SECURITY	
Exhibit B — FORM OF CERTIFICATION FOR TRANSFER OR EXCHANGE OF REGULATION S GLOBAL SECURITY TO RESTRICTED GLOBAL SECURITY	
Exhibit C-1 — FORM OF CERTIFICATION FOR TRANSFER OR EXCHANGE OF NON-GLOBAL RESTRICTED SECURITY TO RESTRICTED GLOBAL SECURITY	
Exhibit C-2 — FORM OF CERTIFICATION FOR TRANSFER OR EXCHANGE OF NON-GLOBAL RESTRICTED SECURITY TO REGULATION S GLOBAL SECURITY	
Exhibit D-1 — FORM OF CERTIFICATION FOR TRANSFER OR EXCHANGE OF NON-GLOBAL REGULATION S SECURITY TO RESTRICTED GLOBAL SECURITY	
Exhibit D-2 — FORM OF CERTIFICATION FOR TRANSFER OR EXCHANGE OF NON-GLOBAL REGULATION S SECURITY TO REGULATION S GLOBAL SECURITY	

Note: This Table of Contents shall not, for any purpose, be deemed to be part of this Indenture.

THIS INDENTURE, dated as of April 9, 2024, among Nexa Resources S.A., a public limited liability company validly organized under the laws of the Grand Duchy of Luxembourg having its registered office at 37A Avenue J.F. Kennedy, L-1855, Luxembourg, Grand Duchy of Luxembourg and registered with the *Registre de Commerce et des Sociétés* in Luxembourg under number B 185.489 (the “Issuer”), Nexa Resources Cajamarquilla S.A., a corporation (*sociedad anónima*) validly organized under the laws of the Republic of Peru (“Nexa CJM”), Nexa Recursos Minerais S.A., a corporation (*sociedade anônima*) validly organized under the laws of the Federative Republic of Brazil (“Nexa Brazil”, and, together with Nexa CJM, the “Guarantors”), and The Bank of New York Mellon, a New York banking corporation, as trustee (the “Trustee”), a paying agent (the “Principal Paying Agent” and any other paying agents to be appointed hereunder, the “Paying Agents”), transfer agent (the “Transfer Agent”), and registrar (the “Registrar”) and any other paying agents to be appointed hereunder, the “Paying Agents.”

RECITALS

WHEREAS, the Issuer has duly authorized the creation of an issue of U.S.\$600,000,000 of its 6.750% Senior Unsecured Notes due 2034 (the “Initial Notes” and, together with any Additional Notes (as defined herein) issued as provided for in Section 2.3 and Section 3.1 hereof, the “Notes”) of substantially the tenor and amount hereinafter set forth, and to provide therefor the Issuer has duly authorized the execution and delivery of this Indenture.

WHEREAS, Nexa CJM and Nexa Brazil have duly authorized the execution and delivery of this Indenture to provide for their Guarantees with respect to the Notes as set forth in this Indenture.

WHEREAS, all things necessary (i) to make the Initial Notes, when executed by the Issuer and authenticated and delivered hereunder and duly issued by the Issuer, the valid obligations of the Issuer, (ii) to make the Guarantees of Nexa CJM and Nexa Brazil, when executed by Nexa CJM and Nexa Brazil and endorsed on the Notes executed, authenticated and delivered hereunder, the valid obligations of Nexa CJM and Nexa Brazil and (iii) to make this Indenture a valid agreement of the Issuer, Nexa CJM and Nexa Brazil, all in accordance with their respective terms, have been done.

NOW, THEREFORE, THIS INDENTURE WITNESSETH:

For and in consideration of the premises and the purchase of the Notes by the Holders (as defined below) thereof, it is mutually covenanted and agreed, for the equal and proportionate benefit of all Holders of the Notes, as follows:

ARTICLE I

DEFINITIONS AND OTHER PROVISIONS OF GENERAL APPLICATION

Section 1.1. Definitions.

For all purposes of this Indenture, except as otherwise expressly provided or unless the context otherwise requires:

- (1) the terms defined in this Article have the meanings assigned to them in this Article and include the plural as well as the singular;
- (2) all accounting terms not otherwise defined herein have the meanings assigned to them in accordance with GAAP (whether or not such is indicated herein);
- (3) the words “herein,” “hereof” and “hereunder” and other words of similar import refer to this Indenture as a whole and not to any particular Article, Section or other subdivision;
- (4) whenever there is mentioned in this Indenture, in any context, the payment of, or in respect of, a Redemption Price, the principal of or any premium or interest on any Note or the net proceeds received on the sale or exchange of any Notes, such mention shall be deemed to include mention of the payment of Additional Amounts to the extent that, in such context, Additional Amounts are, were or would be payable in respect thereof pursuant to this Indenture;
- (5) All references in this Indenture to “\$,” “U.S.\$,” “dollars” or “United States dollars” shall refer to the lawful currency of the United States.

“Act” when used with respect to any Holder, has the meaning specified in Section 1.4.

“Additional Amounts” has the meaning specified in Section 11.9.

“Additional Notes” means additional 6.750% Senior Unsecured Notes due 2034 issued from time to time after the Issue Date under the terms of this Indenture.

“Affiliate” of any Person means any other Person controlling or controlled by or under direct or indirect common control with such Person. For the purposes of this definition, “control,” when used with respect to any Person, means the power to direct the management and policies of such Person, directly or indirectly, whether through the ownership of voting securities, by contract or otherwise; and the terms “controlling” and “controlled” have meanings correlative to the foregoing.

“Agent Member” means any member of, or participant in, the Depositary.

“Agents” means any Paying Agent, the Registrar, the Transfer Agent and any Principal Paying Agent appointed hereunder.

“Authorized Officers” has the meaning set forth in Section 1.5.

“Bankruptcy Law” means Title 11, United States Code, Brazilian Federal Law No. 11,101, dated February 9, 2005, as amended, or any similar federal or state law relating to bankruptcy, insolvency, receivership, winding-up, suspension of payments, liquidation, reorganization or relief of debtors or the law of any other jurisdiction relating to bankruptcy, insolvency, receivership, winding-up, suspension of payments, liquidation, dissolution, *“procedimiento concursal ordinario,” “procedimiento concursal preventivo,” “procedimiento acelerado de refinanciación concursal,” “recuperação judicial,” “recuperação extrajudicial,”* reorganization or relief of debtors, the judicial proceedings referred to in article 13, items 2 to 11 of the Luxembourg law dated 19 December 2002 relating to the register of commerce and companies as well as the accounting and the annual accounts of companies, as amended, including in particular, bankruptcy (*faillite*), judicial reorganization (*réorganisation judiciaire*), suspension of payments (*sursis de paiement*) and judicial liquidation (*liquidation judiciaire*) proceedings or any amendment to, succession to or change in any such law, procedure or process.

“Bankruptcy Order” means any court order made in a proceeding pursuant to or within the meaning of any Bankruptcy Law, containing an adjudication of bankruptcy or insolvency, or providing for liquidation, receivership, winding-up, dissolution, *“procedimiento concursal ordinario,” “procedimiento concursal preventivo,” “procedimiento acelerado de refinanciación concursal,” “recuperação judicial,” “recuperação extrajudicial,”* or reorganization, or appointing a custodian of a debtor or of all or any substantial part of a debtor’s property, or providing for the staying, arrangement, adjustment or composition of Indebtedness or other relief of a debtor or in any court order made in connection with the judicial proceedings referred to in article 13, items 2 to 11 of the Luxembourg law dated 19 December 2002 relating to the register of commerce and companies as well as the accounting and the annual accounts of companies, as amended, including in particular, bankruptcy (*faillite*), controlled management (*gestion contrôlée*), suspension of payments (*sursis de paiement*), arrangement with creditors (*concordat préventif de la faillite*) and judicial liquidation (*liquidation judiciaire*) proceedings.

“Base Currency” has the meaning set forth in Section 1.14.

“Board of Directors” means the board of directors of the Issuer.

“Board Resolution” means a duly adopted resolution of the Board of Directors in full force and effect at the time of determination.

“Brazil” means the Federative Republic of Brazil and any ministry, department, authority (including the Central Bank of Brazil) or statutory corporation or other entity (including a trust), owned or controlled directly or indirectly by the Federative Republic of Brazil or any of the foregoing.

“Business Day” means each day that is not a Saturday, Sunday or other day on which banking institutions in New York, United States, Luxembourg, Grand Duchy of Luxembourg, São Paulo, Brazil or Lima, Peru are authorized or required by law to close.

“Capital Lease Obligation” of any Person means the obligation to pay rent or other payment amounts under a lease of (or other Indebtedness arrangements conveying the right to use) real or personal property of such Person which is required to be classified and accounted for as a capital lease or a liability set forth on a balance sheet of such Person in accordance with applicable GAAP. The stated maturity of such obligation shall be the date of the last payment of rent or any other amount due under such lease prior to the first date upon which such lease may be terminated by the lessee without payment of a penalty. The principal amount of such obligation shall be the capitalized amount thereof that would appear on the face of a balance sheet of such Person in accordance with applicable GAAP.

“Capital Stock” of any Person means any and all shares, interests, participations or other equivalents (however designated and whether voting or non-voting) of corporate stock or other equity participations or ownership interests, including quotas in a Brazilian limited liability quota company (*limitada*) or partnership interests, whether general or limited, of such Person.

“Cash Equivalents” means:

- (1) United States dollars, Brazilian *reais*, Peruvian *Soles*, Euros, or money in other currencies received in the ordinary course of business of the Issuer and its Subsidiaries that are readily convertible into United States dollars or Euros,
- (2) any evidence of Debt with a maturity of 180 days or less issued or directly and fully guaranteed or insured by Brazil, Peru or the United States or any agency or instrumentality thereof, provided that the full faith and credit of Brazil, Peru or the United States is pledged in support thereof,
- (3) (i) demand deposits, (ii) time deposits and certificates of deposit with maturities of one year or less from the date of acquisition, (iii) bankers’ acceptances with maturities not exceeding one year from the date of acquisition, and (iv) overnight bank deposits, in each case with any bank or trust company organized or licensed under the laws of Luxembourg, Brazil, Peru or the United States or any political subdivision or state thereof having capital, surplus and undivided profits in excess of U.S.\$500.0 million whose short-term debt is rated “A-2” or higher by S&P, “F2” or higher by Fitch or “P-2” or higher by Moody’s,
- (4) repurchase obligations with a term of not more than seven days for underlying securities of the type described in clauses (2) and (3) above entered into with any financial institution meeting the qualifications specified in clause (3) above,
- (5) commercial paper rated at least “P-1” by Moody’s, “F1” by Fitch or “A-1” by S&P and maturing within six months after the date of acquisition, and
- (6) money market funds at least 95% of the assets of which consist of investments of the type described in clauses (1) through (5) above.

“Change of Control” means that the Permitted Holders shall cease to own, directly or indirectly, at least a majority of the outstanding voting power of the Voting Stock of the Issuer and shall cease to have the power to direct or cause the direction of the management and policies of the Issuer.

“Change of Control Offer” has the meaning specified in Section 11.5.

“Change of Control Payment” has the meaning specified in Section 11.5.

“Change of Control Payment Date” has the meaning specified in Section 11.5.

“Central Bank” means (i) the Central Bank of Luxembourg, (ii) the Central Bank of Brazil and (iii) the Central Reserve Bank of Peru or, in each case, any successor entity thereto.

“Change of Law” has the meaning specified in Section 4.1.

“Clearstream” means Clearstream Banking, *société anonyme*.

“Consolidated Total Assets” means, on a consolidated basis, the Issuer’s total amount of assets, calculated based on the most recent balance sheet delivered by the Issuer to the Trustee pursuant to this Indenture, after giving pro forma effect to any acquisition or disposition of companies, divisions, lines of businesses, operations or assets by the Issuer and its Subsidiaries subsequent to such date.

“Corporate Trust Office” means the principal office of the Trustee in The City of New York, New York, at which at any particular time its corporate trust business shall be administered, which at the date hereof is located at 240 Greenwich Street, New York, New York 10286, United States, Attention: Global Corporate Trust, e-mail: gcs.specialty.glam.conv@bnymellon.com, and such other offices as the Trustee may designate from time to time.

“corporation” means a corporation, association, company, limited liability company, joint stock company or business trust.

“covenant defeasance” has the meaning specified in Section 12.3.

“Default” means an event that with the passing of time or the giving of notice or both shall constitute an Event of Default.

“Defaulted Interest” has the meaning specified in Section 3.6.

“Depository” means, with respect to the Notes issuable or issued in whole or in part in the form of one or more Global Notes, DTC for so long as it shall be a clearing agency registered under the Exchange Act, or such successor as the Issuer shall designate from time to time in an Officer’s Certificate delivered to the Trustee.

“Designated Subsidiary” means (i) each Guarantor and (ii) any other Subsidiary of the Issuer which, as of the date of the Issuer’s most recent quarterly or annual, as applicable, consolidated balance sheet, constituted 15% or more of the Consolidated Total Assets of the Issuer, after giving pro forma effect to any acquisition or disposition of companies, divisions, lines of businesses, operations or assets by the Issuer and its Subsidiaries subsequent to such date.

“Director” means a member of the Board of Directors.

“Disqualified Stock” of any Person means any Capital Stock of such Person which, by its terms (or by the terms of any security into which it is convertible or for which it is exchangeable), or upon the happening of any event, matures or is mandatorily redeemable, pursuant to a sinking fund obligation or otherwise, or is redeemable at the option of the holder thereof, in whole or in part, on or prior to the Stated Maturity of the Notes.

“DTC” means The Depository Trust Company.

“Electronic Means” means the following communications methods: e-mail, secure electronic transmission containing applicable authorization codes, passwords and/or authentication keys issued by the Trustee, or another method or system specified by the Trustee as available for use in connection with its services hereunder.

“Euroclear” means Euroclear Bank S.A./N.V., as operator of the Euroclear system or its successors.

“Event of Default” has the meaning specified in Section 6.1.

“Exchange Act” means the United States Securities Exchange Act of 1934, as amended (or any successor act), and the rules and regulations thereunder.

“Expiration Date” has the meaning set forth in Section 1.4.

“FATCA” means Sections 1471 to 1474 of the U.S. Internal Revenue Code of 1986, as amended.

“Fitch” means Fitch Rating Service, Inc. and its successors.

“GAAP” means, as elected from time to time by the Issuer, (i) generally accepted accounting principles prescribed by the laws, rules and regulations applicable in the jurisdiction of incorporation of the Issuer, (ii) International Financial Reporting Standards, or (iii) accounting practices generally accepted in the United States, in each case, as in effect from time to time.

“Global Note” means, as the context may require, any or all of the Regulation S Global Note(s) and the Restricted Global Note(s), evidencing all or part of a series of Notes which is issued to the Depositary or its nominee and is registered in the name of the Depositary or its nominee.

“guarantee” by any Person means any obligation, contingent or otherwise, of such Person guaranteeing, or having the economic effect of guaranteeing, any Indebtedness of any other Person (the **“primary obligor”**) in any manner, whether directly or indirectly, and including, without limitation, any obligation of such Person, (i) to purchase or pay (or advance or supply funds for the purchase or payment of) such Indebtedness or to purchase (or to advance or supply

funds for the purchase of) any security for the payment of such Indebtedness, (ii) to purchase property, securities or services for the purpose of assuring the holder of such Indebtedness of the payment of such Indebtedness, or (iii) to maintain working capital, equity capital or other financial statement condition or liquidity of the primary obligor so as to enable the primary obligor to pay such Indebtedness (and “guaranteed,” “guaranteeing” and “guarantor” shall have meanings correlative to the foregoing); provided that, the guarantee by any Person shall not include endorsements by such Person for collection or deposit, in either case, in the ordinary course of business; provided further that, the Incurrence by the Issuer or a Designated Subsidiary of a Lien permitted under clause (2) of Section 11.10 shall not be deemed to constitute a guarantee by the Issuer or a Designated Subsidiary of any purchase money debt of such Person secured thereby.

“Guarantee” means the guarantee by the Guarantors of the due and punctual payment of the principal (and premium, if any) and interest (including any Additional Amounts) on, the Notes and other amounts due under this Indenture.

“Guarantors” mean Nexa CJM and Nexa Brazil.

“Holder” means a Person in whose name a Note is registered on the Registrar’s books.

“Incur” means, with respect to any Indebtedness or other obligation of any Person, to create, issue, incur (by conversion, exchange or otherwise), assume, guarantee or otherwise become liable in respect of such Indebtedness or other obligation including by acquisition of Subsidiaries or the recording, as required pursuant to applicable GAAP or otherwise, of any such Indebtedness or other obligation on the balance sheet of such Person (and “Incurrence,” “Incurred,” “Incurable” and “Incurring” shall have meanings correlative to the foregoing); provided that a change in applicable GAAP that results in an obligation of such Person that exists at such time becoming Indebtedness shall not be deemed an Incurrence of such Indebtedness and that neither the accrual of interest nor the accretion of original issue discount shall be deemed an Incurrence of Indebtedness; provided further that, the Issuer may elect to treat all or any portion of revolving credit debt commitments, whether or not then outstanding, of the Issuer or a Subsidiary as being incurred from and after any date beginning the date the relevant revolving credit commitment is extended to the Issuer or a Subsidiary, as the case may be, by furnishing written notice thereof to the Trustee, and any borrowings or reborrowings by the Issuer or a Subsidiary under such commitment up to the amount of such commitment designated by the Issuer or such Subsidiary as Incurred shall not be deemed to be new Incurrences of Indebtedness by the Issuer or such Subsidiary, as the case may be.

“Indebtedness” means (without duplication), with respect to any Person, whether recourse is to all or a portion of the assets of such Person and whether or not contingent, (i) every obligation of such Person for money borrowed, (ii) every obligation of such Person evidenced by bonds, debentures, notes or other similar instruments, including any such obligations Incurred in connection with the acquisition of property, assets or businesses, (iii) every reimbursement obligation of such Person with respect to letters of credit, bankers’ acceptances or similar facilities issued for the account of such Person, (iv) every obligation of such Person issued or assumed as the deferred purchase price of property or services (including securities repurchase agreements but excluding trade accounts payable or accrued liabilities arising in the ordinary course of business which are payable on customary trade terms or which are being contested in good faith), (v) all obligations to redeem Disqualified Stock issued by such Person, (vi) every Net Obligation under Interest Rate or Currency Protection Agreements of such Person, (vii) every Capital Lease Obligation of such Person, and (viii) every obligation of the type referred to in clauses (i) through (vii) of another Person and all dividends of another Person the payment of which, in either case, such Person has guaranteed, other than with respect to clauses (iii) and (vi) above, in each case, if and to the extent any of the preceding items would appear as a liability upon the financial statements of the specified Person in accordance with applicable GAAP.

"Indenture" means this instrument as originally executed or as it may from time to time be supplemented or amended by one or more supplemental indentures hereto entered into pursuant to the applicable provisions hereof.

"Initial Notes" means the U.S.\$600,000,000 of Notes designated in the first paragraph of the Recitals.

"Instructions" has the meaning set forth in Section 1.5.

"Interest Payment Date" means each April 9 and October 9, commencing on October 9, 2024.

"Interest Rate or Currency Protection Agreement" of any Person means any forward contract, futures contract, swap, option, hedge or other financial agreement or arrangement (including, without limitation, caps, floors, collars and similar agreements) relating to, or the value of which is dependent upon, interest rates or currency exchange rates or indices.

"Investment Grade Rating" means a rating equal to or higher than (i) BBB- (or the equivalent) by S&P, (ii) Baa3 (or the equivalent) by Moody's or (iii) BBB- (or the equivalent) by Fitch.

"Issue Date" means April 9, 2024.

"Issuer" means the Person named as the "Issuer" in the first paragraph of this instrument until a successor Person shall have become such pursuant to the applicable provisions of this Indenture and thereafter "Issuer" shall mean such successor Person.

"Issuer Request" or "Issuer Order" means a written request or order signed in the name of the Issuer by an authorized signatory of the Issuer and delivered to the Trustee.

"Lien" means any mortgage, pledge, security interest, encumbrance or charge of any kind (including, without limitation, any conditional sale or other title retention agreement or lease in the nature thereof or any agreement to give any security interest).

"Luxembourg" means the Grand Duchy of Luxembourg and any ministry, department, authority (including the Central Bank of Luxembourg) or statutory corporation or other entity (including a trust), owned or controlled directly or indirectly by the Grand Duchy of Luxembourg or any of the foregoing.

"Maturity" when used with respect to any Note, means the date on which the principal of such Note becomes due and payable as therein or herein provided, whether at the Stated Maturity or by declaration of acceleration, call for redemption or otherwise.

"Maturity Date" means April 9, 2034.

"Moody's" means Moody's Investors Service, Inc. and its successors.

"Net Obligation" at any date of determination means the net amount, exclusive of any commissions or administrative fees that a Person would be obligated to pay upon the termination of an Interest Rate or Currency Protection Agreement as of such date.

"Nexa Brazil" means the Person named as "Nexa Brazil" in the first paragraph of this instrument until a successor Person shall have become such pursuant to the applicable provisions of this Indenture and thereafter "Nexa Brazil" shall mean such successor Person.

"Nexa CJM" means the Person named as "Nexa CJM" in the first paragraph of this instrument until a successor Person shall have become such pursuant to the applicable provisions of this Indenture and thereafter "Nexa CJM" shall mean such successor Person.

"Note Register" has the meaning specified in Section 3.4(b).

"Notes" has the meaning specified in the first paragraph of the Recitals.

"Notice of Default" has the meaning set forth in Section 7.2.

"OECD" means the Organization for Economic Co-operation and Development.

"Officer's Certificate" means a certificate signed by any of the following: the Chief Executive Officer, President, Chief Financial Officer or a Vice President; and delivered to the Trustee and containing the statements provided for in Section 1.2 hereof (if applicable).

"Opinion of Counsel" means a written opinion of legal counsel, who may be counsel for the Issuer or a Guarantor, containing the statements provided for in Section 1.2 in form and substance reasonably acceptable to the Trustee.

"Outstanding" when used with respect to the Notes, means, as of the date of determination, all the Notes theretofore authenticated and delivered under this Indenture (including, as of such date, all the Notes represented by Global Notes authenticated and delivered under this Indenture), except the reduced portion or portions of any Global Note, as such reduction or reductions shall have been endorsed on such Global Note by the Trustee as provided herein and, except:

- (i) the Notes theretofore cancelled by the Trustee or delivered to the Trustee for cancellation;
- (ii) the Notes for whose payment or redemption money in the necessary amount has been theretofore deposited with the Trustee or any Paying Agent (other than the Issuer) in trust or set aside and segregated in trust by the Issuer (if the Issuer shall act as its own Paying Agent) for the Holders of such Notes; provided that if such Notes are to be repurchased, notice of such repurchase has been duly given pursuant to this Indenture; and

(iii) Notes which have been issued pursuant to Section 3.5 or in exchange for or in lieu of which other Notes have been authenticated and delivered pursuant to this Indenture, other than any such Notes in respect of which there shall have been presented to the Trustee proof satisfactory to it that such Notes are held by a bona fide purchaser in whose hands such Notes are valid obligations of the Issuer;

provided, however, that in determining whether the Holders of the requisite principal amount of the Outstanding Notes have given any request, demand, authorization, direction, notice, consent or waiver hereunder, Notes owned by the Issuer or any other obligor upon the Notes or any Affiliate of the Issuer or of such other obligor shall be disregarded and deemed not to be Outstanding, except that, in determining whether the Trustee shall be protected in relying upon any such request, demand, authorization, direction, notice, consent or waiver, only Notes which a Responsible Officer of the Trustee actually knows to be so owned shall be so disregarded. Notes so owned which have been pledged in good faith may be regarded as Outstanding if the pledgee establishes to the satisfaction of the Trustee the pledgee's right so to act with respect to such Notes and that the pledgee is not the Issuer or any other obligor upon the Notes or any Affiliate of the Issuer or of such other obligor.

"Paying Agent" means any Person authorized by the Issuer to pay the principal of (and premium, if any) or interest on any Notes on behalf of the Issuer. The Issuer has initially appointed the Principal Paying Agent to act as Paying Agent.

"Payment Date" has the meaning set forth in Section 3.11(b).

"Permitted Holders" mean (i) the estate of Mr. Antonio Ermírio de Moraes and any of Mr. Ermírio Pereira de Moraes, Mrs. Maria Helena de Moraes Scripilliti and Mr. José Ermírio de Moraes Filho and any of their descendants, (ii) any Affiliate of any of the foregoing and (iii) any corporation, partnership, joint venture, association, trust, fund, unincorporated organization, or any other entity or group formed pursuant to a shareholders, control or voting agreement or similar agreement, of which any one or more of the Permitted Holders referred to in clauses (i) or (ii) hereof is a shareholder, partner, beneficiary, member or party.

"Permitted Holding Company" means any entity which owns at least 95% of the outstanding Capital Stock or other ownership interests (other than directors' qualifying shares) of the Issuer.

"Person" means any individual, corporation, partnership, joint venture, association, trust, unincorporated organization, government or agency or political subdivision thereof or any other entity.

"Peru" means the Republic of Peru and any ministry, department, authority (including the Central Reserve Bank of Peru) or statutory corporation or other entity (including a trust), owned or controlled directly or indirectly by the Republic of Peru or any of the foregoing.

"Predecessor Note" of any particular Note means every previous Note evidencing all or a portion of the same debt as that evidenced by such particular Note; and, for the purposes of this definition, any Note authenticated and delivered under Section 3.5 in exchange for or in lieu of a mutilated, destroyed, lost or stolen Note shall be deemed to evidence the same debt as the mutilated, destroyed, lost or stolen Note.

"Principal Paying Agent" means The Bank of New York Mellon, a New York banking corporation, or any successor in its capacity as Principal Paying Agent.

"Rating Agency" means each of S&P, Moody's and Fitch; provided that if two of S&P, Moody's or Fitch ceases to rate the Notes or fails to make a rating on the Notes publicly available, the Issuer will appoint at least one replacement for such Rating Agency that is a "nationally recognized statistical rating organization" within the meaning of Rule 15c3-1(c)(2)(vi)(F) under the Exchange Act.

"Rating Date" means the date which is 90 days prior to the earlier of (i) a Change of Control and (ii) public notice of the occurrence of a Change of Control or of the intention of the Permitted Holders or the Issuer to effect a Change of Control.

"Rating Decline" means the occurrence of the following on, or within 90 days after, the date of public notice of the occurrence of a Change of Control or of the intention by a Permitted Holder or the Issuer to effect a Change of Control (which period shall be extended so long as the rating of the Notes is under publicly announced consideration for possible downgrade by any of the Rating Agencies): (i) in the event the Notes are assigned an Investment Grade Rating by at least two of the Rating Agencies on the Rating Date, the rating of the Notes by at least two of the Rating Agencies shall be below an Investment Grade Rating; or (ii) in the event the Notes are rated below an Investment Grade Rating by at least two of the Rating Agencies on the Rating Date, the rating of the Notes by at least two of the Rating Agencies shall be decreased by one or more gradations (including gradations (but not outlooks) within rating categories as well as between rating categories); provided that any such Rating Decline is expressly stated by the applicable Rating Agencies to have been the result of the Change of Control. The Issuer will provide the Trustee with prompt written notice of any Rating Decline, and the Trustee shall not be deemed to have knowledge of any Rating Decline until it receives such notice.

"rate(s) of exchange" has the meaning set forth in Section 1.14.

"Receivables" means receivables, chattel paper, instruments, documents or intangibles evidencing or relating to the right to payment of money in respect of the sale of goods or services.

"Record Date" means the second Business Day immediately preceding an Interest Payment Date.

"Redemption Date" when used with respect to any Note to be redeemed, means the date fixed for such redemption by or pursuant to this Indenture.

"Redemption Price" when used with respect to any Note to be redeemed, means the price at which it is to be redeemed pursuant to this Indenture.

“Registrar” has the meaning specified in Section 3.4(b).

“Relevant Date” has the meaning specified in Section 11.9.

“Responsible Officer” means any officer within the corporate trust department of the Trustee, including any director, managing director, vice president, assistant vice president, trust officer, assistant trust officer or any other officer or assistant officer of the Trustee customarily performing functions similar to those performed by the persons who at that time shall be such officers having direct responsibility for the administration of this Indenture, and also means, with respect to a particular corporate trust matter, any other officer to whom such trust matter is referred because of his or her knowledge of and familiarity with the particular subject.

“Regulation S” means Regulation S (including any successor regulation thereto) under the Securities Act, as it may be amended from time to time.

“Regulation S Global Note” has the meaning set forth in Section 2.1

“Remaining Life” has the meaning set forth in Section 4.2.

“Restricted Global Note” has the meaning set forth in Section 2.1.

“Restricted Notes” means the Restricted Global Note and any Successor Note, other than (i) any Note issued upon a transfer or exchange for which a certificate substantially in the form set forth in (a) Exhibit A is required to be provided and is provided pursuant to Section 3.4(c)(2) or (b) Exhibit C-2 is required to be provided and is provided pursuant to Section 3.4(c)(5), (ii) any Note issued in exchange for or in lieu of any Note specified in clause (i) of this definition or any Note issued in exchange therefor or in lieu thereof, or (iii) any Note as to which the Issuer has removed and has not replaced the legend described in Section 3.4(b).

“Restricted Property” means any mineral property (including any mineral concessions, authorizations or rights in respect of minerals granted by any governmental authority), concentrate plant, manufacturing or processing plant used in connection with the processing, refining or manufacturing of metals or minerals, power plant or transmission lines of the Issuer or any Designated Subsidiary and any capital stock of any Subsidiary directly owning any such mineral property, concentrate, manufacturing or processing plant, power plant or transmission lines.

“Reuters” means Reuters Group plc, a U.K. corporation, and its successors and assigns.

“Rule 144A” means Rule 144A (including any successor regulation thereto) under the Securities Act, as it may be amended from time to time.

“S&P” means S&P Global Ratings, a business unit of Standard & Poor’s Financial Services LLC and its successors.

“SEC” means the United States Securities and Exchange Commission.

"Securities Act" means the United States Securities Act of 1933, as amended, and the rules and regulations of the SEC promulgated thereunder.

"Securitization Transaction" means a transaction in which the Issuer or a Subsidiary thereof sells or transfers an interest in Receivables (and/or any rights arising under the documentation governing or relating to such Receivables covered by such transaction, any proceeds of Receivables and any lockboxes or accounts in which such proceeds are deposited and any related assets) to a special purpose entity that issues securities payable from collections of such Receivables or other assets.

"Special Record Date" for the payment of any Defaulted Interest means a date fixed by the Trustee pursuant to Section 3.6.

"Stated Maturity" when used with respect to any Note or any installment of interest thereon, means the date specified in such Note as the date on which the principal of such Note or such installment of interest, as the case may be, is due and payable.

"Subsidiary" of any Person means (i) a corporation more than 50% of the combined voting power of the outstanding Voting Stock of which is owned, directly or indirectly, by such Person or by one or more other Subsidiaries of such Person or by such Person and one or more Subsidiaries thereof or (ii) any other Person (other than a corporation) in which such Person, or one or more other Subsidiaries of such Person or such Person and one or more other Subsidiaries thereof, directly or indirectly, has at least a majority ownership and power to direct the policies, management and affairs thereof.

"Successor Note" of any particular Note means every Note issued after, and evidencing all or a portion of the same debt as that evidenced by, such particular Note; and, for the purposes of this definition, any Note authenticated and delivered under Section 3.5 in exchange for or in lieu of a mutilated, destroyed, lost or stolen Note shall be deemed to evidence the same debt as the mutilated, destroyed, lost or stolen Note.

"Taxes" has the meaning set forth in Section 11.9.

"Transaction Documents" has the meaning set forth in Section 11.1.

"Transfer Agent" means the agent designated by the Issuer (not including the Registrar) for the registration of transfer of securities as provided in Section 11.2.

"Treasury Rate" has the meaning set forth in Section 4.2.

"Trustee" means the Person named as the "Trustee" in the first paragraph of this instrument until a successor Trustee shall have been appointed pursuant to the applicable provisions of this Indenture, and thereafter "Trustee" shall mean such successor Trustee.

"United States" means the United States of America.

"U.S. Dollar Equivalent" means, with respect to any monetary amount in a currency other than the U.S. Dollar, at any time for the determination thereof, the amount of U.S. Dollars obtained by converting such foreign currency involved in such computation into U.S. Dollars at the spot rate for the purchase of U.S. Dollars with the applicable foreign currency as quoted by Reuters at approximately 11:00 a.m. (New York time) on the date not more than two Business Days prior to such determination.

"U.S. Global Notes" has the meaning specified in Section 2.1.

"Vice President" when used with respect to the Issuer or any Guarantor, means any vice president, whether or not designated by a number or a word or words added before or after the title "vice president."

"Voting Stock" of a Person means all classes of Capital Stock of such Person then outstanding that are entitled (without regard to the occurrence of any contingency) to vote in the election of the directors of such Person, but excluding such classes of Capital Stock or other interests that are entitled, as a group in a separate cast, to appoint one director of such Person as representative of the minority shareholders.

"Wholly Owned Subsidiary" of any Person means any entity owned by such Person of which at least 95% of the outstanding Capital Stock or other ownership interests (other than directors' qualifying shares) of such entity shall at the time be owned by such Person or by one or more Wholly Owned Subsidiaries of such Person.

Section 1.2. Compliance Certificates and Opinions.

Upon any application or request by the Issuer or a Guarantor to the Trustee to take any action under any provision of this Indenture, the Issuer or such Guarantor shall furnish to the Trustee such certificates and opinions as may be required under this Indenture; provided, however, that such certificate and opinion shall not be required in the case of the initial issuance of Notes hereunder. Each such certificate or opinion, and any certificate evidencing a determination required to be made by the Issuer or a Guarantor under this Indenture, shall be given in the form of an Officer's Certificate, if to be given by an officer of the Issuer or such Guarantor, or an Opinion of Counsel, if to be given by counsel, and shall comply with the requirements set forth in this Indenture.

Every certificate or opinion with respect to compliance by or on behalf of the Issuer or a Guarantor with a condition or covenant provided for in this Indenture shall include:

- (1) a statement that each individual signing such certificate or opinion has read such covenant or condition and the definitions herein relating thereto;
- (2) a brief statement as to the nature and scope of the examination or investigation upon which the statements or opinions contained in such certificate or opinion are based;
- (3) a statement that, in the opinion of each such individual, he has made such examination or investigation as is necessary to enable him or her to express an informed opinion as to whether or not such covenant or condition has been complied with; and

(4) a statement as to whether, in the opinion of each such individual, such condition or covenant has been complied with.

Section 1.3. Form of Documents Delivered to Trustee.

In any case where several matters are required to be certified by, or covered by an opinion of, any specified Person, it is not necessary that all such matters be certified by, or covered by the opinion of, only one such Person, or that they be so certified or covered by only one document, but one such Person may certify or give an opinion with respect to some matters and one or more other such Persons as to other matters, and any such Person may certify or give an opinion as to such matters in one or several documents.

Any certificate of an officer of the Issuer or a Guarantor may be based, insofar as it relates to legal matters, upon an Opinion of Counsel submitted therewith, unless such officer knows, or in the exercise of reasonable care should know, that the opinion with respect to the matters upon which his certificate is based is erroneous. Any Opinion of Counsel may be based, insofar as it relates to factual matters, upon a certificate of an officer or officers of the Issuer or a Guarantor submitted therewith stating the information on which counsel is relying, unless such counsel knows, or in the exercise of reasonable care should know, that the certificate with respect to such matters is erroneous.

Where any Person is required to make, give or execute two or more applications, requests, consents, certificates, statements, opinions or other instruments under this Indenture, they may, but need not, be consolidated and form one instrument.

Section 1.4. Acts of Holders; Record Date.

Any request, demand, authorization, direction, notice, consent, waiver or other action provided by this Indenture to be given or taken by Holders may be embodied in and evidenced by one or more instruments of substantially similar tenor signed by such Holders in person or by an agent duly appointed in writing; and, except as herein otherwise expressly provided, such action shall become effective when such instrument or instruments are delivered to the Trustee and, where it is hereby expressly required, to the Issuer. Such instrument or instruments (and the action embodied therein and evidenced thereby) are herein sometimes referred to as the “Act” of the Holders signing such instrument or instruments. Proof of execution of any such instrument or of a writing appointing any such agent shall be sufficient for any purpose of this Indenture and (subject to Section 6.1) conclusive in favor of the Trustee and the Issuer, if made in the manner provided in this Section.

The fact and date of the execution by any Person of any such instrument or writing pursuant to this Section 1.4 may be proved by the affidavit of a witness of such execution or by a certificate of a notary public or other officer authorized by law to take acknowledgments of deeds, certifying that the individual signing such instrument or writing acknowledged to him or her the execution thereof. Where such execution is by a signer acting in a capacity other than his individual capacity, such certificate or affidavit shall also constitute sufficient proof of his authority. The fact and date of the execution of any such instrument or writing, or the authority of the Person executing the same, may also be proved in any other manner which the Trustee deems sufficient.

The ownership of Notes shall be proved by the Note Register.

Any request, demand, authorization, direction, notice, consent, waiver or other Act of the Holder of any Note shall bind every future Holder of the same Note and the Holder of every Note issued upon the registration of transfer thereof or in exchange therefor or in lieu thereof in respect of anything done, omitted or suffered to be done by the Trustee or the Issuer in reliance thereon, whether or not notation of such action is made upon such Note.

The Issuer may set any day as a Record Date for the purpose of determining the Holders of Outstanding Notes entitled to give, make or take any request, demand, authorization, direction, notice, consent, waiver or other action provided or permitted by this Indenture to be given, made or taken by Holders of Notes, provided that the Issuer may not set a Record Date for, and the provisions of this paragraph shall not apply with respect to, the giving or making of any notice, declaration, request or direction referred to in the next paragraph. If not set by the Issuer prior to the first solicitation of a Holder made by any Person in respect of any such matter referred to in the foregoing sentence, the Record Date for any such matter shall be the 30th day (or, if later, the date of the most recent list of Holders required to be provided pursuant to Section 7.1) prior to such first solicitation. If any Record Date is set pursuant to this paragraph, the Holders of Outstanding Notes on such Record Date, and no other Holders, shall be entitled to take the relevant action, whether or not such Holders remain Holders after such Record Date; provided that no such action shall be effective hereunder unless taken on or prior to the applicable Expiration Date by Holders of the requisite principal amount of Outstanding Notes on such Record Date.

The Trustee may set any day as a Record Date for the purpose of determining the Holders of Outstanding Notes entitled to join in the giving or making of (i) any Notice of Default, (ii) any declaration of acceleration referred to in Section 5.1, (iii) any request to institute proceedings referred to in Section 5.6(2) or (iv) any direction referred to in Section 5.11. If any Record Date is set pursuant to this paragraph, the Holders of Outstanding Notes on such Record Date, and no other Holders, shall be entitled to join in such notice, declaration, request or direction, whether or not such Holders remain Holders after such Record Date; provided that no such action shall be effective hereunder unless taken on or prior to the applicable Expiration Date by Holders of the requisite principal amount of Outstanding Notes on such Record Date. Nothing in this paragraph shall be construed to prevent the Trustee from (i) giving or making any notice required to be made pursuant to the Trustee's duties and obligations under this Indenture and (ii) setting a new Record Date for any action for which a Record Date has previously been set pursuant to this paragraph (whereupon the Record Date previously set shall automatically and with no action by any Person be cancelled and of no effect), and nothing in this paragraph shall be construed to render ineffective any action taken by Holders of the requisite principal amount of Outstanding Notes on the date such action is taken. Promptly after any Record Date is set pursuant to this paragraph, the Trustee, at the Issuer's expense, shall cause notice of such Record Date, the proposed action by Holders and the applicable Expiration Date to be given to the Issuer in writing and to each Holder of Notes in the manner set forth in Section 1.6.

Nothing in this paragraph shall be construed to prevent the Issuer from setting a new Record Date for any action for which a Record Date has previously been set pursuant to this paragraph (whereupon the Record Date previously set shall automatically and with no action by any Person be cancelled and of no effect), and nothing in this paragraph shall be construed to render ineffective any action taken by Holders of the requisite principal amount of Outstanding Notes on the date such action is taken. Promptly after any Record Date is set pursuant to this paragraph, the Issuer, at its own expense, shall cause notice of such Record Date, the proposed action by Holders and the applicable Expiration Date to be given to the Trustee in writing and to each Holder of Notes in the manner set forth in Section 1.6.

With respect to any Record Date set pursuant to this Section, the party hereto which sets such Record Dates may designate any day as the “Expiration Date,” and from time to time may change the Expiration Date to any earlier or later day; provided that no such change shall be effective unless notice of the proposed new Expiration Date is given to the other party hereto in writing, and to each Holder of Notes in the manner set forth in Section 1.6, on or prior to the existing Expiration Date. If an Expiration Date is not designated with respect to any Record Date set pursuant to this Section, the party hereto which set such Record Date shall be deemed to have initially designated the 180th day after such Record Date as the Expiration Date with respect thereto, subject to its right to change the Expiration Date as provided in this paragraph. Notwithstanding the foregoing, no Expiration Date shall be later than the 180th day after the applicable Record Date.

Without limiting the foregoing, a Holder entitled hereunder to take any action hereunder with regard to any particular Note may do so with regard to all or any part of the principal amount of such Note or by one or more duly appointed agents each of which may do so pursuant to such appointment with regard to all or any part of such principal amount.

Section 1.5. Notices, Etc., to Trustee, the Paying Agents and the Issuer.

Any request, demand, authorization, direction, notice, consent, waiver or Act of Holders or other document provided or permitted by this Indenture to be made upon, given or furnished to, or filed with:

(1) the Trustee or any Agent by any Holder or by the Issuer or the Guarantor shall be sufficient for every purpose hereunder if made, given, furnished or filed, in writing in English or accompanied by a certified translation to English, to or with the Trustee at The Bank of New York Mellon, 240 Greenwich Street, New York, New York 10286, United States, Attention: Global Corporate Trust, Fax: (212) 815-5630, and such other offices as the Trustee may designate from time to time or at any other address previously furnished in writing to the Holders, the Issuer by the Trustee;

(2) the Principal Paying Agent by the Trustee, the Issuer or any Holder shall be sufficient for every purpose hereunder (except as otherwise expressly provided herein) if in writing and mailed, first class postage prepaid, to the Principal Paying Agent addressed to it at 240 Greenwich Street, New York, New York 10286, United States, Attention: Global Corporate Trust, or at any other address previously furnished in writing to the Trustee by the Principal Paying Agent;

(3) the Issuer by the Trustee or by any Holder shall be sufficient for every purpose hereunder (except as otherwise expressly provided herein) if in writing and mailed, first-class postage prepaid, to the Issuer addressed to it at 37A, Avenue J.F. Kennedy, L-1855, Luxembourg, Grand Duchy of Luxembourg, Attention: José Carlos del Valle (Group Chief Financial Officer), or at any other address previously furnished in writing to the Trustee by the Issuer;

(4) Nexa CJM by the Trustee or by any Holder shall be sufficient for every purpose hereunder (except as otherwise expressly provided herein) if in writing and mailed, first-class postage prepaid, to Nexa CJM addressed to it at Carretera Central Km 9.5, desvío a Huachipa, Lurigancho-Chosica, Provincia y Departamento de Lima, Peru, Attention: José Carlos del Valle (Group Chief Financial Officer), or at any other address previously furnished in writing to the Trustee by Nexa CJM; and

(5) Nexa Brazil by the Trustee or by any Holder shall be sufficient for every purpose hereunder (except as otherwise expressly provided herein) if in writing and mailed, first-class postage prepaid, to Nexa Brazil addressed to it at Av. Engenheiro Luis Carlos Berrini, 105, São Paulo, SP 04571-010, Brazil, Attention: Rodrigo Cammarosano (Treasurer), or at any other address previously furnished in writing to the Trustee by Nexa Brazil.

The Trustee shall have the right to accept and act upon instructions, including funds transfer instructions (“Instructions”) given pursuant to this Indenture and delivered using Electronic Means; *provided, however*, that the Issuer and/or each Guarantor, as applicable, shall provide to the Trustee an incumbency certificate listing officers with the authority to provide such Instructions (“Authorized Officers”) and containing specimen signatures of such Authorized Officers, which incumbency certificate shall be amended by the Issuer and/or each Guarantor, as applicable, whenever a person is to be added or deleted from the listing. If the Issuer and/or a Guarantor, as applicable, elects to give the Trustee Instructions using Electronic Means and the Trustee in its discretion elects to act upon such Instructions, the Trustee’s understanding of such Instructions shall be deemed controlling. The Issuer and the Guarantors understand and agree that the Trustee cannot determine the identity of the actual sender of such Instructions and that the Trustee shall conclusively presume that directions that purport to have been sent by an Authorized Officer listed on the incumbency certificate provided to the Trustee have been sent by such Authorized Officer. The Issuer and the Guarantors shall be responsible for ensuring that only Authorized Officers transmit such Instructions to the Trustee and that the Issuer, the Guarantors and all Authorized Officers are solely responsible to safeguard the use and confidentiality of applicable user and authorization codes, passwords and/or authentication keys upon receipt by the Issuer and/or the Guarantors, as applicable. The Trustee shall not be liable for any losses, costs or expenses arising directly or indirectly from the Trustee’s reliance upon and compliance with such Instructions notwithstanding such directions conflict or are inconsistent with a subsequent written instruction. Each of the Issuer and each Guarantor agree: (i) to assume all risks arising out of the use of Electronic Means to submit Instructions to the Trustee, including without limitation the risk of the Trustee acting on unauthorized Instructions, and the risk of interception and misuse by third parties; (ii) that it is fully informed of the protections and risks associated with the various methods of transmitting Instructions to the Trustee and that there may be more secure methods of transmitting Instructions than the method(s) selected by the Issuer and/or the Guarantor, as applicable; (iii) that the security procedures (if any) to be followed in connection with its transmission of Instructions provide to it a commercially reasonable degree of protection in light of its particular needs and circumstances; and (iv) to notify the Trustee immediately upon learning of any compromise or unauthorized use of the security procedures.

Section 1.6. Notice to Holders; Waiver.

Where this Indenture provides for notice to Holders of any event, such notice shall be sufficiently given (unless otherwise herein expressly provided) if (i) in the case of a Global Note, in writing by electronic mail and/or by first-class mail to the Depositary, and (ii) in the case of securities other than Global Notes, in writing and mailed, first-class postage prepaid, to each Holder affected by such event, at his address as it appears in the Note Register on the Business Day immediately preceding the date of mailing, which shall be not later than the latest date (if any), and not earlier than the earliest date (if any), prescribed for the giving of such notice. In any case where notice to Holders is given by mail, neither the failure to mail such notice, nor any defect in any notice so mailed, to any particular Holder shall affect the sufficiency of such notice with respect to other Holders. Where this Indenture provides for notice in any manner, such notice may be waived in writing by the Person entitled to receive such notice, either before or after the event, and such waiver shall be the equivalent of such notice. Waivers of notice by Holders shall be filed with the Trustee, but such filing shall not be a condition precedent to the validity of any action taken in reliance upon such waiver.

In case by reason of the suspension of regular mail service or by reason of any other cause it shall be impracticable to give such notice by mail, then such notification as shall be made with the approval of the Trustee shall constitute a sufficient notification for every purpose hereunder.

Any obligation the Issuer (and the Paying Agents on its behalf) may have to publish a notice to Holders shall have been met upon delivery of the notice to the Depositary.

Section 1.7. Effect of Headings and Table of Contents.

The Article and Section headings herein and the Table of Contents are for convenience only and shall not affect the construction hereof.

Section 1.8. Successors and Assigns.

All covenants and agreements in this Indenture by each of the Issuer and the Guarantors shall bind its successors and assigns, whether so expressed or not.

Section 1.9. Separability Clause.

In case any provision in this Indenture or in the Notes or in the Guarantees shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions of each of this Indenture, the Notes or the Guarantees shall not in any way be affected or impaired thereby.

Section 1.10. Benefits of Indenture.

Nothing in this Indenture or in the Notes, express or implied, shall give to any Person, other than the parties hereto and their successors hereunder and the Holders of Notes, any benefit or any legal or equitable right, remedy or claim under this Indenture, the Notes or the Guarantees.

Section 1.11. Governing Law.

THIS INDENTURE, THE NOTES AND THE GUARANTEES SHALL BE GOVERNED BY, AND CONSTRUED IN ACCORDANCE WITH, THE LAWS OF THE STATE OF NEW YORK, without regard to conflicts of laws principles thereof. For the purposes of paragraph 2 of article 9 of the Brazilian Decree-Law No. 4,567, dated September 4, 1942, as amended, the Trustee shall be deemed the “proponent” of the transactions contemplated by this Indenture. Articles 470-1 through 470-19 of the Luxembourg law dated August 10, 1915 on commercial companies, as amended, which set the provisions related to the representation of the Holders of the Notes, are not applicable to the Notes or the Guarantees.

EACH OF THE PARTIES HERETO, AND EACH HOLDER BY ITS ACCEPTANCE OF A NOTE, HEREBY IRREVOCABLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, ANY AND ALL RIGHT TO TRIAL BY JURY IN ANY LEGAL PROCEEDING ARISING OUT OF OR RELATING TO THIS INDENTURE, THE NOTES OR THE TRANSACTION CONTEMPLATED HEREBY.

Section 1.12. Legal Holidays.

In any case where any Interest Payment Date, Redemption Date or Stated Maturity of any Note shall not be a Business Day, then (notwithstanding any other provision of this Indenture, the Notes or the Guarantees) payment of interest or principal (and premium, if any) need not be made on such date, but may be made on the next succeeding Business Day with the same force and effect as if made on the Interest Payment Date or Redemption Date, or at the Stated Maturity, provided that no interest shall accrue on account of such delay for the period from and after such Interest Payment Date or Redemption Date or Stated Maturity, as the case may be.

Section 1.13. Consent to Jurisdiction and Service of Process.

(a) Each of the Issuer and the Guarantors agrees that any suit, action or proceeding against it brought by any Holder or the Trustee arising out of or based upon this Indenture, the Notes or the Guarantees may be instituted in any state or Federal court in the Borough of Manhattan in The City of New York, New York, and waives any objection which it may now or hereafter have to the laying of venue of any such proceeding, and irrevocably submits to the non-exclusive jurisdiction of such courts in any suit, action or proceeding.

(b) By the execution and delivery of this Indenture or any amendment or supplement hereto, each of the Issuer and the Guarantors (i) acknowledges that it has, by separate written instrument, designated and appointed Cogency Global Inc. currently located at 122 East 42nd Street, 18th Floor, New York, NY 10168, as its authorized agent upon which process may be served in any suit, action or proceeding with respect to, arising out of, or relating to, the Notes,

this Indenture or the Guarantees, that may be instituted in any Federal or state court in the State of New York, The City of New York, the Borough of Manhattan, or brought under Federal or state securities laws or brought by the Trustee or the Paying Agent (whether in its individual capacity or in its capacity as Trustee or the Paying Agent, as the case may be, hereunder), and acknowledges that Cogency Global Inc. has accepted such designation, (ii) submits to the jurisdiction of any such court in any such suit, action or proceeding, and (iii) agrees that service of process upon Cogency Global Inc. shall be deemed in every respect effective service of process upon the Issuer and the Guarantors, as the case may be, in any such suit, action or proceeding. Each of the Issuer and the Guarantors further agrees to take any and all action, including the execution and filing of any and all such documents and instruments as may be necessary to continue such designation and appointment of Cogency Global Inc. in full force and effect so long as this Indenture shall be in full force and effect; provided that the Issuer and the Guarantors may and shall (to the extent Cogency Global Inc. ceases to be able to be served on the basis contemplated herein), by written notice to the Trustee, designate such additional or alternative agents for service of process under this Section 1.13 that (i) maintains an office located in the Borough of Manhattan, The City of New York in the State of New York, (ii) are either (x) counsel for the Issuer and the Guarantors or (y) a corporate service company which acts as agent for service of process for other persons in the ordinary course of its business and (iii) agrees to act as agent for service of process in accordance with this Section 1.13. Such notice shall identify the name of such agent for process and the address of such agent for process in the Borough of Manhattan, The City of New York, State of New York. Upon the request of any Holder, the Trustee shall deliver such information to such Holder. Notwithstanding the foregoing, there shall, at all times, be at least one agent for service of process for the Issuer and the Guarantors appointed and acting in accordance with this Section 1.13.

(c) To the extent that the Issuer or the Guarantors has or hereafter may acquire any immunity from jurisdiction of any court or from any legal process (whether through service of notice, attachment prior to judgment, attachment in aid of execution, execution or otherwise) with respect to itself or its property, each of the Issuer and the Guarantors hereby irrevocably waives such immunity in respect of its obligations under this Indenture, the Notes and the Guarantees, to the fullest extent permitted by law.

Section 1.14. Currency of Account; Conversion of Currency; Foreign Exchange Restrictions.

(a) U.S. Dollars are the sole currency of account and payment for all sums payable by the Issuer and the Guarantors under or in connection with the Notes, the Guarantees or this Indenture, including damages. Any amount received or recovered in a currency other than U.S. dollars (whether as a result of, or of the enforcement of, a judgment or order of a court of any jurisdiction, in the winding-up or dissolution of the Issuer or the Guarantors or otherwise) by any Holder of the Notes in respect of any sum expressed to be due to it from the Issuer or the Guarantors shall only constitute a discharge to the Issuer or the Guarantors, as the case may be, to the extent of the U.S. dollar amount which the recipient is able to purchase with the amount so received or recovered in that other currency on the date of that receipt or recovery (or, if it is not practicable to make that purchase on that date, on the first date on which it is practicable to do so). If that U.S. dollar amount is less than the U.S. dollar amount expressed to be due to the recipient under the Notes, the Issuer and the Guarantors shall, jointly and severally, indemnify it

against any loss sustained by it as a result as set forth in Section 1.14(b). In any event, the Issuer and the Guarantors shall, jointly and severally, indemnify the recipient against the cost of making any such purchase. For the purposes of this Section 1.14, it will be sufficient for the Holder of a Note to certify in a satisfactory manner (indicating sources of information used) that it would have suffered a loss had an actual purchase of U.S. dollars been made with the amount so received in that other currency on the date of receipt or recovery (or, if a purchase of U.S. dollars on such date had not been practicable, on the first date on which it would have been practicable, it being required that the need for a change of date be certified in the manner mentioned above). The indemnities set forth in this Section 1.14 constitute separate and independent obligations from other obligations of the Issuer and the Guarantors, shall give rise to a separate and independent cause of action, shall apply irrespective of any indulgence granted by any Holder of the Notes and shall continue in full force and effect despite any other judgment, order, claim or proof for a liquidated amount in respect of any sum due under the Notes.

(b) The Issuer and the Guarantors covenant and agree that the following provisions shall apply to conversion of currency in the case of the Notes, the Guarantees and this Indenture:

(i) (A) if for the purpose of obtaining judgment in, or enforcing the judgment of, any court in any country, it becomes necessary to convert into a currency (the "judgment currency") an amount due in any other currency (the "Base Currency"), then the conversion shall be made at the rate of exchange prevailing on the Business Day before the day on which the judgment is given or the order of enforcement is made, as the case may be (unless a court shall otherwise determine), and

(B) if there is change in the rate of exchange prevailing between the Business Day before the day on which the judgment is given or an order of enforcement is made, as the case may be (or such other date as a court shall determine), and the date of receipt of the amount due, the Issuer or the Guarantors, as the case may be, will pay such additional (or, as the case may be, such lesser) amount, if any, as may be necessary so that the amount paid in the judgment currency when converted at the rate of exchange prevailing on the date of receipt will produce the amount in the Base Currency originally due;

(ii) in the event of the winding-up of the Issuer or the Guarantors at any time while any amount or damages owing under the Notes, the Guarantees and this Indenture, or any judgment or order rendered in respect thereof, shall remain outstanding, the Issuer and the Guarantors shall, jointly and severally, indemnify and hold the Holders and the Trustee harmless against any deficiency arising or resulting from any variation in rates of exchange between (1) the date as of which the U.S. Dollar Equivalent of the amount due or contingently due under the Notes, the Guarantees and this Indenture (other than under this Subsection (b)(ii)) is calculated for the purposes of such winding-up and (2) the final date for the filing of proofs of claim in such winding-up. For the purpose of this subsection (b)(ii), the final date for the filing of proofs of claim in the winding-up of the Issuer or the Guarantors, as the case may be, shall be the date fixed by the liquidator or otherwise in accordance with the relevant provisions of applicable law as being the latest practicable date as at which liabilities of the Issuer or the Guarantors, as the case may be, may be ascertained for such winding-up prior to payment by the liquidator or otherwise in respect thereto;

(iii) the obligations contained in Subsections (a), (b)(i)(B) and (b)(ii) of this Section 1.14 shall constitute separate and independent obligations from the other obligations of the Issuer and the Guarantors under the terms of this Indenture, shall give rise to separate and independent causes of action against the Issuer and the Guarantors, shall apply irrespective of any waiver or extension granted by any Holder or the Trustee or either of them from time to time and shall continue in full force and effect notwithstanding any judgment or order or the filing of any proof of claim in the winding-up of the Issuer or the Guarantors for a liquidated sum in respect of amounts due hereunder (other than under Subsection (b)(ii) above) or under any such judgment or order. Any such deficiency as aforesaid shall be deemed to constitute a loss suffered by the Holders or the Trustee, as the case may be, and no proof or evidence of any actual loss shall be required by the Issuer or the Guarantors or the liquidator or otherwise or any of them. In the case of subsection (b)(ii) above, the amount of such deficiency shall not be deemed to be reduced by any variation in rates of exchange occurring between the said final date and the date of any liquidating distribution; and

(iv) the term “rate(s) of exchange” shall mean the rate of exchange quoted by Reuters at 10:00 a.m. (New York time) for spot purchases of the Base Currency with the judgment currency other than the Base Currency referred to in Subsections (b)(i) and (b)(ii) above and includes any premiums and costs of exchange payable.

(c) In the event that on any Interest Payment Date, the Maturity Date or Redemption Date, as the case may be, in respect of the Guarantee provided by a Guarantor, any restrictions or prohibition of access to the foreign exchange market of the jurisdiction of incorporation of a Guarantor exists, such Guarantor agrees to pay all amounts payable under the Notes and such Guarantee in the currency of the Notes by means of any legal procedure existing in such jurisdiction of incorporation (except commencing legal proceedings against the relevant Central Bank), on any due date for payment under the Notes, for the purchase of the currency of such Notes. All costs and taxes payable in connection with the procedures referred to in this Section 1.14 shall be borne by the relevant Guarantor.

(d) Notwithstanding anything to the contrary contained herein, neither the Trustee nor the Principal Paying Agent shall have any liability for converting into U.S. Dollars any amount received by any Holder in a currency other than U.S. Dollars.

Section 1.15. Counterparts.

This Indenture may be executed in two or more counterparts, each of which shall be deemed to be an original, but all of which together shall constitute one and the same instrument. The words “execution,” “signed,” “signature,” and words of like import in this Indenture or in any other certificate, agreement or document related to this Indenture shall include images of manually executed signatures transmitted by facsimile or other electronic format (including, without limitation, “pdf”, “tif” or “jpg”) and other electronic signatures (including, without

limitation, DocuSign and AdobeSign). The use of electronic signatures and electronic records (including, without limitation, any contract or other record created, generated, sent, communicated, received, or stored by electronic methods) shall be of the same legal effect, validity and enforceability as a manually executed signature or use of a paper-based recordkeeping system to the fullest extent permitted by applicable law, including, without limitation, the Federal Electronic Signatures in Global and National Commerce Act, the New York State Electronic Signatures and Records Act and any other applicable law, including, without limitation, any state law based on the Uniform Electronic Transactions Act or the Uniform Commercial Code.

Section 1.16. Force Majeure.

In no event shall the Trustee or any Agent be responsible or liable for any failure or delay in the performance of its obligations hereunder arising out of or caused by, directly or indirectly, forces beyond its control, including, without limitation, strikes, work stoppages, accidents, pandemics, epidemics, acts of war or terrorism, civil or military disturbances, nuclear or natural catastrophes or acts of God, and interruptions, loss or malfunctions of utilities, communications or computer (software and hardware) services; it being understood that the Trustee or such Agent shall use reasonable efforts which are consistent with accepted practices in the banking industry to resume performance as soon as practicable under the circumstances.

Section 1.17. U.S.A. PATRIOT Act.

In order to comply with the laws, rules, regulations and executive orders in effect from time to time applicable to banking institutions, including, without limitation, those relating to the funding of terrorist activities and money laundering, including Section 326 of the USA PATRIOT Act of the United States ("Applicable Law"), the Trustee and Agents are required to obtain, verify, record and update certain information relating to individuals and entities which maintain a business relationship with the Trustee and Agents. Accordingly, each of the parties agrees to provide to the Trustee and Agents, upon their request from time to time such identifying information and documentation as may be available for such party in order to enable the Trustee and Agents to comply with Applicable Law.

Section 1.18. Anti-Money Laundering, Terrorism and Economic Sanctions.

(a) The Trustee or any Agent may take and instruct any delegate to take any action which it in its sole discretion considers appropriate so as to comply with any applicable law, regulation, request of a public or regulatory authority or any internal group policy (including any "Know Your Client" and/or other compliance policy) which relates to the prevention of fraud, money laundering, terrorism or other criminal activities or the provision of financial and other services to sanctioned persons or entities. Such action may include but is not limited to the interception and investigation of transactions on the Issuer's or any Guarantor's accounts (particularly those involving the international transfer of funds) including the source of the intended recipient of funds paid into or out of the Issuer's or any Guarantor's accounts. None of the Trustee, any Agent or any delegate will be liable for any loss (whether direct or consequential and including, without limitation, loss of profit or interest) caused in whole or in part by any actions which are taken by the Trustee, any Agent or any delegate pursuant to this Section 1.18.

(b) The Issuer and each Guarantor covenants and represents, jointly and severally, that neither it nor any of their respective subsidiaries or their respective directors or officers, and, to the knowledge of the Issuer or any Guarantor, any of their affiliates are the target or subject of any sanctions enforced by the US Government, (including, without limitation, the Office of Foreign Assets Control of the US Department of the Treasury or the US Department of State), the United Nations Security Council, the European Union, His Majesty's Treasury, or other relevant sanctions authority (collectively "Sanctions");

(c) The Issuer and each Guarantor covenants and represents, jointly and severally, that neither it nor any of their respective subsidiaries or their respective directors or officers will directly or indirectly use any repayments/reimbursements made pursuant to this Indenture, (i) to fund or facilitate any activities of or business with any person who, at the time of such funding or facilitation, is the subject or target of Sanctions, (ii) to fund or facilitate any activities of or business with any country or territory that is the target or subject of Sanctions, or (iii) in any other manner that will result in a violation of Sanctions by any Person.

Section 1.19. FATCA Reporting.

The Issuer and each Guarantor agrees that (a) if reasonably requested by the Trustee or any of the Agents and required by FATCA, in relation to a payment made under this Indenture and the Notes issued hereunder, the Issuer or the Guarantors will provide such information if and to the extent that (i) such information is reasonably necessary for each of the Trustee and the Agents to determine that it is in compliance with FATCA as relates to the payments made under this Indenture and the Notes issued hereunder and (ii) such information is reasonably available to the Issuer or the Guarantors, as applicable with regard to the Issuer or Guarantors in relation to the requirements of FATCA that are actually imposed upon such requesting Trustee or Agent, as applicable; provided, however, that neither the Issuer nor any Guarantor shall be required to provide information that it is prohibited legally from disclosing and (b) the Trustee and each applicable Agent shall be entitled to make any withholding or deduction from payments to the extent necessary to comply with FATCA, for which the Trustee and the Agents shall have no liability. The terms of this Section 1.19 shall survive the termination of this Indenture.

Section 1.20. Effective Date.

This Indenture shall become effective on the date hereof and shall be binding upon the Issuer, the Guarantors, the Trustee, the Registrar, the Paying Agent and the Principal Paying Agent.

ARTICLE II

NOTE FORMS

Section 2.1. Forms Generally.

The Notes, the Trustee's certificates of authentication thereof and the Guarantees endorsed thereon shall be substantially in the forms set forth in this Article, with such appropriate legends, insertions, omissions, substitutions and other variations as are required or permitted by this Indenture, and may have such letters, numbers or other marks of identification and such legends or endorsements placed thereon as may be required to comply with the rules of any securities exchange or as may, consistently herewith, be determined by the officers executing such Notes or Guarantees, as the case may be, as evidenced by their execution of the Notes.

The definitive Notes and the Guarantees to be endorsed thereon shall be printed, lithographed or engraved or produced by any combination of these methods on steel engraved borders or may be produced in any other manner all as determined by the officers executing such Notes, as evidenced by their execution of such Notes or Guarantees, as the case may be.

In certain cases described elsewhere herein, the legends set forth in the first three paragraphs of Section 2.2 may be omitted from Notes issued hereunder.

Notes offered and sold in their initial distribution in reliance on Regulation S will be initially issued in the form of one or more Global Notes in fully registered form without interest coupons, substantially in the form of Note set forth in Section 2.2 and 2.3 (the "Regulation S Global Note"), which shall be registered in the name of the Depositary or its nominee and deposited with the Trustee, at its Corporate Trust Office, as custodian for the Depositary, duly executed by the Issuer and the Guarantors and authenticated by the Trustee as hereinafter provided, for credit by the Depositary to the respective accounts of the beneficial owners of the Notes represented thereby (or such other accounts as they may direct).

Notes offered and sold in their initial distribution in reliance on Rule 144A shall be issued in the form of one or more Global Notes (collectively, and, together with their Successor Notes, the "Restricted Global Note") in fully registered form without interest coupons, substantially in the form of Note set forth in Section 2.2 and 2.3, with such applicable legends as are provided for in Section 2.2, except as otherwise permitted herein. Such Restricted Global Note shall be registered in the name of the Depositary or its nominee and deposited with the Trustee, at its Corporate Trust Office, as custodian for the Depositary, duly executed by the Issuer and the Guarantors and authenticated by the Trustee as hereinafter provided, for credit by the Depositary to the respective accounts of beneficial owners of the Notes represented thereby (or such other accounts as they may direct). The aggregate principal amount of the Restricted Global Note may be increased or decreased from time to time by adjustments made on the records of the Trustee, as custodian for the Depositary, in connection with a corresponding decrease or increase in the aggregate principal amount of the Regulation S Global Note, as hereinafter provided.

Section 2.2. Form of Face of Note

[Include if Note is a Restricted Global Note — THIS NOTE (OR ITS PREDECESSOR) WAS ORIGINALLY ISSUED IN A TRANSACTION EXEMPT FROM REGISTRATION UNDER THE UNITED STATES SECURITIES ACT OF 1933, AS AMENDED, OR THE SECURITIES ACT, AND THIS NOTE MAY NOT BE REOFFERED, SOLD OR

OTHERWISE TRANSFERRED IN THE ABSENCE OF SUCH REGISTRATION OR AN APPLICABLE EXEMPTION THEREFROM. EACH PURCHASER OF THIS NOTE IS HEREBY NOTIFIED THAT THE SELLER OF THIS NOTE MAY BE RELYING ON THE EXEMPTION FROM THE PROVISIONS OF SECTION 5 OF THE SECURITIES ACT PROVIDED BY RULE 144A THEREUNDER. THE HOLDER OF THIS NOTE AGREES FOR THE BENEFIT OF THE ISSUER OR ANY SUBSIDIARY THAT (A) THIS NOTE MAY BE REOFFERED, RESOLD, PLEDGED OR OTHERWISE TRANSFERRED, ONLY (I) TO A PERSON WHOM THE SELLER REASONABLY BELIEVES IS A QUALIFIED INSTITUTIONAL BUYER (AS DEFINED IN RULE 144A UNDER THE SECURITIES ACT) IN A TRANSACTION MEETING THE REQUIREMENTS OF RULE 144A, (II) OUTSIDE THE UNITED STATES TO A PERSON THAT IS NOT A U.S. PERSON IN AN OFFSHORE TRANSACTION IN ACCORDANCE WITH RULE 904 UNDER THE SECURITIES ACT, (III) PURSUANT TO ANOTHER AVAILABLE EXEMPTION UNDER THE SECURITIES ACT, (IV) TO THE ISSUER OR ANY SUBSIDIARY OF THE ISSUER OR (V) PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT, IN EACH OF CASES (I) THROUGH (V) IN ACCORDANCE WITH ANY APPLICABLE SECURITIES LAWS OF ANY STATE OF THE UNITED STATES; AND (B) THE HOLDER WILL, AND EACH SUBSEQUENT HOLDER IS REQUIRED TO, NOTIFY ANY PURCHASER OF THIS NOTE FROM IT OF THE RESALE RESTRICTIONS REFERRED TO IN (A) ABOVE. THIS LEGEND MAY ONLY BE REMOVED AT THE OPTION OF THE ISSUER.]

[Include if Note is a Regulation S Global Note — THIS NOTE (OR ITS PREDECESSOR) WAS ORIGINALLY ISSUED IN A TRANSACTION EXEMPT FROM REGISTRATION UNDER THE UNITED STATES SECURITIES ACT OF 1933, AS AMENDED, OR THE SECURITIES ACT, AND MAY NOT BE TRANSFERRED IN THE UNITED STATES OR TO, OR FOR THE ACCOUNT OR BENEFIT OF, ANY U.S. PERSON EXCEPT PURSUANT TO AN AVAILABLE EXEMPTION FROM THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT AND ALL APPLICABLE STATE SECURITIES LAWS. TERMS USED ABOVE HAVE THE MEANINGS GIVEN TO THEM IN REGULATION S UNDER THE SECURITIES ACT.]

NEXA RESOURCES S.A.
(organized under the laws of the Grand Duchy of Luxembourg)

[REGULATIONS GLOBAL NOTE/RESTRICTED GLOBAL NOTE] [Delete as appropriate for either Regulation S Global
Security or Restricted Global Security]
representing
U.S.\$[]

6.750% SENIOR UNSECURED NOTES DUE 2034
guaranteed by
NEXA RESOURCES CAJAMARQUILLA S.A.
and
NEXA RECURSOS MINERAIS S.A.

ISIN Number: [144A: US65290DAB91]	[REG S: USL67359AB21]
CUSIP Number: [144A: 65290DAB9]	[REG S: L67359AB2]
Common Code: [144A: 279741005]	[REG S: 279741226]
[Delete as appropriate for either Regulation S Global Security or Restricted Global Security]	

Nexa Resources S.A., a validly organized public limited liability company validly organized under the laws of the Grand Duchy of Luxembourg having its registered office at 37A Avenue J.F. Kennedy, L-1855, Luxembourg, Grand Duchy of Luxembourg and registered with the *Registre de Commerce et des Sociétés* in Luxembourg under number B 185.489 (herein called the “Issuer,” which term includes any successor Person under the Indenture hereinafter referred to), for value received, hereby promises to pay to Cede & Co. or its registered assigns, the principal sum of Dollars [include if Note is a Global Note — (or such other Principal Sum as is noted in the records of the Custodian for the Depositary as being the Principal Amount of this Regulation S Global Note/Restricted Global Note for the time being)] on April 9, 2034, and to pay interest thereon from April 9, 2024, or from the most recent Interest Payment Date to which interest has been paid or duly provided for, semi-annually on April 9 and October 9 in each year, commencing on October 9, 2024, at the rate of 6.750% per annum, until the principal hereof is paid or made available for payment. The interest so payable, and punctually paid or duly provided for, on any Interest Payment Date will, as provided in such Indenture, be paid to the Person in whose name this Note (or one or more Predecessor Notes) is registered at the close of business on the Record Date for such interest, which shall be two calendar days prior to payment (whether or not a Business Day), as the case may be, next preceding such Interest Payment Date. Any such interest not so punctually paid or duly provided for will forthwith cease to be payable to the Holder on such Record Date and may either be paid to the Person in whose name this Note (or one or more Predecessor Notes) is registered at the close of business on a Special Record Date for the payment of such Defaulted Interest to be fixed by the Trustee, notice whereof shall be given to Holders of Notes not less than 10 days prior to such Special Record Date, or be paid at any time in any other lawful manner not inconsistent with the requirements of any securities exchange on which the Notes may be listed, and upon such notice as may be required by such exchange, all as more fully provided in said Indenture. In addition, the Issuer will pay to the Holder of this Note such Additional Amounts as may become payable under Section 11.9 of the Indenture.

In the case of a default in payment of principal and premium, if any, upon acceleration or repayment, interest shall be payable pursuant to the preceding paragraph on such overdue principal (and premium, if any), such interest shall be payable on demand and, if not so paid on demand, such interest shall itself bear interest at the rate per annum stated above plus 1% (to the extent that the payment of such interest shall be legally enforceable), and shall accrue from the date such principal and/or premium, as the case may be, was due and payable to the date payment of such interest has been made or duly provided for, and such interest on unpaid interest shall also be payable on demand.

Payment of the principal of (and premium, if any) and interest on this Note will be made at the Corporate Trust Office of the Trustee, at the offices of a Paying Agent, at the office or agency of the Issuer maintained for that purpose in The City of New York, New York, and at any other office or agency maintained by the Issuer for such purpose, in such coin or currency of the United States as at the time of payment is legal tender for payment of public and private debts; provided, however, that at the option of the Issuer payment of interest may be made by check mailed to the address of the Person entitled thereto as such address shall appear in the Note Register.

Reference is hereby made to the further provisions of this Note set forth on the reverse hereof, which further provisions shall for all purposes have the same effect as if set forth at this place.

Unless the certificate of authentication hereon has been executed by the Trustee referred to on the reverse hereof by manual or electronic signature, this Note shall not be entitled to any benefit under the Indenture or be valid or obligatory for any purpose.

IN WITNESS WHEREOF, the Issuer has caused this instrument to be duly executed.

NEXA RESOURCES S.A.

By: _____
Name:
Title:

By: _____
Name:
Title:

Section 2.3. Form of Reverse of Note.

This Note is one of a duly authorized issue of Notes of the Issuer designated as its 6.750% Senior Unsecured Notes due 2034 (the “Notes”) issued under an Indenture, dated as of April 9, 2024 (herein called the “Indenture”), among the Issuer, the Guarantors named therein, and The Bank of New York Mellon, a New York banking corporation, as trustee (the “Trustee”), as principal paying agent (the “Principal Paying Agent”) and any other paying agents to be appointed hereunder, the “Paying Agents”), as transfer agent (the “Transfer Agent”) and registrar (the “Registrar”). Reference is hereby made to the Indenture and all indentures supplemental thereto for a statement of the respective rights, limitations of rights, duties and immunities thereunder of the Issuer, the Guarantors, the Trustee, the Transfer Agent and the Notes are, and are to be, authenticated and delivered. Terms used but not defined in this Note are defined in the Indenture.

As provided in the Indenture and subject to certain limitations therein set forth, the obligations of the Issuer under the Indenture and this Note are guaranteed pursuant to the Guarantees set forth in the Indenture. Each Holder, by holding this Note, agrees to all of the terms and provisions of said Guarantees. Reference is hereby made to the Indenture for a statement of the respective rights, limitations of rights, duties and obligations thereunder of the Guarantors, the Trustee and the Holders.

The Issuer may from time to time, without the consent of the Holders of the Notes, create and issue Additional Notes having the same terms and conditions as the Initial Notes in all respects, except that the issue date, the issue price and the first payment of interest thereon may differ; provided, however, that unless the Additional Notes are treated as part of the same “issue” of debt instruments as the Initial Notes or are issued pursuant to a “qualified reopening” of the Initial Notes, or are issued with less than a *de minimis* amount of original issue discount, in each case for U.S. federal income tax purposes, the Additional Notes will have a separate CUSIP or ISIN number (as applicable). Additional Notes shall be consolidated with and shall form a single series and vote together with the previously issued Notes for all purposes under the Indenture.

If as a result of any Change of Law (as defined in the Indenture): (i) the Issuer or a Guarantor is or would be required on the next succeeding Interest Payment Date to pay any Additional Amounts referred to in Section 11.9 of the Indenture in excess of the Additional Amounts that the Issuer or such Guarantor, as the case may be, would pay if payments in respect of the Notes were subject to deduction or withholding for Taxes imposed by the applicable taxing jurisdiction at the rate applicable on the Issue Date; or (ii) the issuers/borrowers of certain intercompany debt are or would be required on the next succeeding interest payment date to pay Brazilian withholding taxes in excess of a general rate of 15%, or 25% in case of amounts paid to residents of countries or locations which do not impose any income tax or which impose it at a maximum rate lower than 17% or where the laws of that country or location impose restrictions on the disclosure (x) of shareholding composition; (y) of the ownership of the investment; or (z) to the identification of the beneficial owner of income attributed to non-resident persons, pursuant to article 8 of Law No. 9,779, of January 19, 1999, and articles 24 and 24-A of Law No. 9,430, of December 27, 1996; provided that, such requirement to pay such taxes in excess of such rate was not caused by, or otherwise the result of, whether directly or indirectly, wholly or in part, any amendment to the intercompany debt, and in either case, the payment of such excess

amounts cannot be avoided by the use of any reasonable measures available to the Issuer or a Guarantor, the Notes may be redeemed, by the Issuer at the option of the Issuer or a Guarantor, in whole but not in part, upon not less than 30 nor more than 90 days' notice to the Holders, which notice will be published, at any time following such Change of Law at a Redemption Price equal to the principal amount thereof, plus accrued and unpaid interest, if any, to the date fixed for redemption. The Issuer, any Guarantor or any of their respective Affiliates will also pay to Holders of the Notes on the Redemption Date any Additional Amounts which are payable.

Following such redemption, the Notes will be cancelled, or remain Outstanding, at the Issuer's or a Guarantor's election. Prior to the delivery of any notice of redemption in accordance with the foregoing, the Issuer or a Guarantor shall deliver to the Trustee and the Agents an Officer's Certificate stating that the Issuer or a Guarantor, as the case may be, is entitled to effect such redemption based on an Opinion of Counsel or written advice of a qualified tax expert, that the Issuer or a Guarantor has or will become obligated to pay such excess amounts with respect to Taxes as a result of such Change of Law. Such notice, once delivered by the Issuer or a Guarantor to the Trustee, will be irrevocable.

At any time before January 9, 2034 (which is the date that is three months prior to maturity of the notes (the "Par Call Date")), the Issuer or a Guarantor has the right to redeem the Notes, in whole or in part and from time to time, at a Redemption Price equal to the greater of (1) 100% of the principal amount of the Notes being redeemed and (2) the sum of the present values of the remaining scheduled payments of principal and interest on the Notes being redeemed that would be due if the Notes matured on the Par Call Date (inclusive of interest accrued to the redemption date), discounted to the Redemption Date on a semi-annual basis (assuming a 360-day year consisting of twelve 30-day months) at the Treasury Rate plus 40 basis points, less interest accrued to, but excluding, the Redemption Date; plus, in either case, accrued and unpaid interest on the principal amount of the Notes being redeemed and Additional Amounts, if any, to, but excluding, the Redemption Date (subject to the right of Holders of record on the relevant Record Date to receive interest due on the relevant Interest Payment Date).

At any time on or after the Par Call Date, the Issuer or a Guarantor has the right to redeem the Notes, in whole or in part and from time to time, at a Redemption Price equal to 100% of the principal amount of the Notes being redeemed plus accrued and unpaid interest on the principal amount of the Notes being redeemed to, but excluding, such Redemption Date (subject to the right of Holders of record on the relevant Record Date to receive interest due on the relevant Interest Payment Date).

The "Treasury Rate" shall be determined by the Issuer or a Guarantor after 4:15 p.m., New York City time (or after such time as yields on U.S. government securities are posted daily by the Board of Governors of the Federal Reserve System), on the third Business Day preceding the Redemption Date based upon the yield or yields for the most recent day that appear after such time on such day in the most recent statistical release published by the Board of Governors of the Federal Reserve System designated as "Selected Interest Rates (Daily) - H.15" (or any successor designation or publication) ("H.15") under the caption "U.S. government securities-Treasury constant maturities-Nominal" (or any successor caption or heading). In determining the Treasury Rate, the Issuer or a Guarantor shall select, as applicable: (i) the yield for the Treasury constant maturity on H.15 exactly equal to the period from the redemption date to the Par Call

Date (the “Remaining Life”); or (ii) if there is no such Treasury constant maturity on H.15 exactly equal to the Remaining Life, the two yields – one yield corresponding to the Treasury constant maturity on H.15 immediately shorter than and one yield corresponding to the Treasury constant maturity on H.15 immediately longer than the Remaining Life – and shall interpolate to the Par Call Date on a straight-line basis (using the actual number of days) using such yields and rounding the result to three decimal places; or (iii) if there is no such Treasury constant maturity on H.15 shorter than or longer than the Remaining Life, the yield for the single Treasury constant maturity on H.15 closest to the Remaining Life. For purposes of this paragraph, the applicable Treasury constant maturity or maturities on H.15 shall be deemed to have a maturity date equal to the relevant number of months or years, as applicable, of such Treasury constant maturity from the Redemption Date.

If on the third Business Day preceding the Redemption Date H.15 or any successor designation or publication is no longer published, the Issuer or a Guarantor shall calculate the Treasury Rate based on the rate per annum equal to the semi-annual equivalent yield to maturity at 11:00 a.m., New York City time, on the second Business Day preceding such redemption date of the United States Treasury security maturing on, or with a maturity that is closest to, the Par Call Date, as applicable. If there is no United States Treasury security maturing on the Par Call Date but there are two or more United States Treasury securities with a maturity date equally distant from the Par Call Date, one with a maturity date preceding the Par Call Date and one with a maturity date following the Par Call Date, the Issuer or a Guarantor shall select the United States Treasury security with a maturity date preceding the Par Call Date. If there are two or more United States Treasury securities maturing on the Par Call Date or two or more United States Treasury securities meeting the criteria of the preceding sentence, the Issuer or the Guarantor shall select from among these two or more United States Treasury securities the United States Treasury security that is trading closest to par based upon the average of the bid and asked prices for such United States Treasury securities at 11:00 a.m., New York City time. In determining the Treasury Rate in accordance with the terms of this paragraph, the semi-annual yield to maturity of the applicable United States Treasury security shall be based upon the average of the bid and asked prices (expressed as a percentage of principal amount) at 11:00 a.m., New York City time, of such United States Treasury security, and rounded to three decimal places.

The Issuer or a Guarantor’s actions and determinations in determining the Redemption Price shall be conclusive and binding for all purposes, absent manifest error.

The Issuer, any Guarantor or any of their respective Affiliates may at any time repurchase the Notes at any price in the open market or otherwise. The Issuer, any Guarantor or any of their respective Affiliates may hold or resell the Notes it purchases or may surrender them to the Trustee or an Agent for cancellation.

Optional Clean-up Redemption. Notwithstanding the foregoing, in connection with any tender offer for the notes (including an Offer to Purchase in connection with a Change of Control that results in a Rating Decline made in accordance with the terms of the Indenture), in the event that the Holders of not less than 85% of the aggregate principal amount of the outstanding Notes validly tender and do not validly withdraw Notes in such tender offer and the Issuer, or any other Person making such offer in lieu of the Issuer, purchases all of the Notes validly tendered and not

validly withdrawn by such Holders, then the Issuer or the Guarantor will have the right, on not less than 10 nor more than 60 days' prior notice to the Holders (with a copy to the Trustee), to redeem all of the Notes that remain outstanding at a Redemption Price equal to the purchase price paid to each other Holder in such tender offer plus, to the extent not included in the purchase price, accrued and unpaid interest and Additional Amounts, if any, on the Notes that remain outstanding, to, but excluding, the Redemption Date.

[Include if Note is a Regulation S Global Note — If the holder of a beneficial interest in this Regulation S Global Note at any time wishes to transfer such interest to a Person who wishes to take delivery thereof in the form of a beneficial interest in the Restricted Global Note, such transfer may be effected, subject to the rules and procedures of the Depositary, Euroclear and Clearstream, in each case to the extent applicable and as in effect from time to time, only in accordance with the terms of this paragraph. Upon receipt by the Trustee, as Registrar, of (A) written instructions given by or on behalf of the Depositary in accordance with the rules and procedures of the Depositary, Euroclear and Clearstream, in each case to the extent applicable and as in effect from time to time directing the Trustee to credit or cause to be credited to a specified Agent Member's account a beneficial interest in the Restricted Global Note in a specified principal amount and to cause to be debited from another specified Agent Member's account a beneficial interest in this Regulation S Global Note in an equal principal amount; and (B) a certificate in substantially the form set forth in Exhibit B to the Indenture signed by or on behalf of the Agent Member holding such beneficial interest in this Regulation S Global Note, the Trustee, as Registrar, shall reduce the principal amount of this Regulation S Global Note and increase the principal amount of the Restricted Global Note by such specified principal amount.]

[Include if Note is a Restricted Global Note — If the holder of a beneficial interest in this Restricted Global Note wishes at any time to transfer such interest to a Person who wishes to take delivery thereof in the form of a beneficial interest in the Regulation S Global Note, such transfer may be effected, subject to the rules and procedures of the Depositary, Euroclear and Clearstream, in each case to the extent applicable and as in effect from time to time, only in accordance with the terms of this paragraph. Upon receipt by the Trustee, as Registrar of:

(A) written instructions given by or on behalf of the Depositary in accordance with the rules and procedures of the Depositary, Euroclear and Clearstream, in each case to the extent applicable and as in effect from time to time directing the Trustee to credit or cause to be credited to a specified Agent Member's account a beneficial interest in the Regulation S Global Note in a specified principal amount and to cause to be debited from another specified Agent Member's account a beneficial interest in the Restricted Global Note in an equal principal amount; and

(B) a certificate in substantially the form set forth in Exhibit A of the Indenture signed by or on behalf of the Agent Member holding such beneficial interest in this Restricted Global Note,

the Trustee, as Registrar, shall reduce the principal amount of this Restricted Global Note, and increase the principal amount of the Regulation S Global Note by such specified principal amount.]

The Notes do not have the benefit of any sinking fund obligations.

In the event of redemption or purchase of this Note in part only, a new Note or Notes of like tenor for the unredeemed or unpurchased portion hereof will be issued in the name of the Holder hereof upon the cancellation hereof.

If an Event of Default shall occur and be continuing, the principal of all the Notes may be declared due and payable in the manner and with the effect provided in the Indenture.

The Indenture contains provisions for defeasance at any time of (i) the entire indebtedness of this Note, or (ii) certain restrictive covenants and Events of Default with respect to this Note, in each case upon compliance with certain conditions set forth therein.

Unless the context otherwise requires, the Notes shall constitute one series for all purposes under the Indenture, including without limitation, amendments, waivers or redemption.

The Indenture permits, with certain exceptions as therein provided, the amendment thereof and the modification of the rights and obligations of the Issuer and the Guarantors and the rights of the Holders of the Notes under the Indenture at any time by the Issuer and the Trustee with the consent of the Holders of a majority in aggregate principal amount of the Notes at the time Outstanding. The Indenture also contains provisions permitting the Holders of specified percentages in aggregate principal amount of the Notes at the time Outstanding, on behalf of the Holders of all the Notes, to waive compliance by the Issuer or the Guarantors with certain provisions of the Indenture and certain past defaults under the Indenture and their consequences.

Any such consent or waiver by the Holder of this Note shall be conclusive and binding upon such Holder and upon all future Holders of this Note and of any Note issued upon the registration of transfer hereof or in exchange herefor or in lieu hereof, whether or not notation of such consent or waiver is made upon this Note.

No reference herein to the Indenture and no provision of this Note or of the Indenture shall alter or impair the obligation of the Issuer, which is absolute and unconditional, to pay the principal of (and premium, if any) and interest on this Note at the times, place and rate, and in the coin or currency, herein prescribed.

As provided in the Indenture and subject to certain limitations therein set forth, the transfer of this Note is registrable in the Note Register, upon surrender of this Note for registration of transfer at the office or agency of the Issuer in the Borough of Manhattan, The City of New York, New York, or of any of the Transfer Agents duly endorsed by, or accompanied by a written instrument of transfer in form satisfactory to the Issuer duly executed by, the Holder hereof or his attorney duly authorized in writing, and thereupon one or more new Notes, of authorized denominations and like tenor and for the same aggregate principal amount, will be issued to the designated transferee or transferees.

The Notes are issuable only in registered form without coupons in minimum denominations of U.S.\$200,000 and integral multiples of U.S.\$1,000 in excess thereof. As provided in the Indenture and subject to certain limitations therein set forth, Notes are exchangeable for a like tenor and aggregate principal amount of Notes of a different authorized denomination, as requested by the Holder surrendering the same.

No service charge shall be made for any such registration of transfer or exchange, but the Issuer or the Trustee may require payment of a sum sufficient to cover any tax or other governmental charge payable in connection therewith, other than for any transfer or exchange pursuant to Section 3.4, 10.5 or 11.5 of the Indenture.

Prior to due presentment of this Note for registration of transfer, the Issuer, the Trustee, the Transfer Agents and any agent of the Issuer or the Trustee may treat the Person in whose name this Note is registered as the owner hereof for all purposes, whether or not this Note be overdue, and none of the Issuer, the Trustee or any such agent shall be affected by notice to the contrary.

Interest on this Note shall be computed on the basis of a 360-day year of twelve 30-day months each and, in the case of an incomplete month, on the number of days elapsed based on a 30-day month.

All terms used in this Note which are defined in the Indenture shall have the meanings assigned to them in the Indenture.

THE INDENTURE, THIS NOTE AND THE GUARANTEES SHALL BE GOVERNED BY, AND CONSTRUED IN ACCORDANCE WITH, THE LAWS OF THE STATE OF NEW YORK, without regard to conflicts of laws principles thereof. For the purposes of paragraph 2 of article 9 of the Brazilian Decree-Law No. 4,567, dated September 4, 1942, as amended, the Trustee shall be deemed the “proponent” of the transactions contemplated by the Indenture. Articles 84 through 94-8 of the Luxembourg law dated August 10, 1915 on commercial companies, as amended, which set the provisions related to the representation of the Holders of the Notes, are not applicable to the Notes or the Guarantees.

The Issuer and the Guarantors agree that any suit, action or proceeding against any of them brought by any Holder or the Trustee arising out of or based upon this Indenture, the Notes or the Guarantees may be instituted in any state or Federal court in The City of New York, New York, and waive any objection which any of them may now or hereafter have to the laying of venue of any such proceeding, and irrevocably submits to the non-exclusive jurisdiction of such courts in any suit, action or proceeding.

The Issuer may change any Paying Agent, the Registrar or Transfer Agent; provided that the Issuer will maintain an office or agency where the Notes may be presented or surrendered for payment and for registration of transfer in the Borough of Manhattan, The City of New York. Upon any such change, the Issuer shall give written notice thereof to the Trustee, the Principal Paying Agent and the Holders.

U.S. dollars are the sole currency of account and payment for all sums payable by the Issuer and the Guarantors under or in connection with the Notes, the Guarantees or the Indenture, including damages. The Issuer and the Guarantors have agreed that the provisions of Section 1.14 of the Indenture shall apply to conversion of currency in the case of the Notes, the Guarantees and the Indenture. Among other things, Section 1.14 specifies that if there is a

change in the rate of exchange prevailing between the Business Day before the day on which a judgment is given or an order of enforcement is made, as the case may be (or such other date as a court shall determine), and the date of receipt of the amount due, the Issuer or the relevant Guarantor, as the case may be, will pay such additional (or, as the case may be, such lesser) amount, if any, as may be necessary so that the amount paid in the judgment currency when converted at the rate of exchange prevailing on the date of receipt will produce the amount in the Base Currency originally due.

Each of the Issuer and the Guarantors has appointed Cogency Global Inc., currently located at 122 East 42nd Street, 18th Floor, New York, NY 10168, as its authorized agent upon which process may be served in any suit, or proceeding with respect to, arising out of, or relating to, this Note, the Indenture or the Guarantees, that may be instituted in any Federal or state court in the State of New York, The City of New York, the Borough of Manhattan, or brought under Federal or state securities laws and has agreed that there shall, at all times, be at least one agent for service of process for the Issuer and the Guarantors appointed and acting in accordance with the provisions of Section 1.13 of the Indenture relating to agent for service of process. To the extent that the Issuer or the Guarantors has or hereafter may acquire any immunity from jurisdiction of any court or from any legal process (whether through service of notice, attachment prior to judgment, attachment in aid of execution, execution or otherwise) with respect to itself or its property, each of the Issuer and the Guarantors has irrevocably waived such immunity in respect of its obligations under the Indenture, this Note and the Guarantees, to the fullest extent permitted by law.

Section 2.4. Form of Trustee's Certificate of Authentication.

This is one of the Notes with the Guarantees referred to in the within-mentioned Indenture.

THE BANK OF NEW YORK MELLON
as Trustee

By: _____
Authorized Signatory

Dated: _____

Each of the Guarantors, jointly and severally, guarantees the due and punctual payment of all sums from time to time payable in respect of the Notes as set forth in the Indenture.

**NEXA RESOURCES CAJAMARQUILLA
S.A.**

By: _____
Name:
Title:

By: _____
Name:
Title:

NEXA RECURSOS MINERAIS S.A.

By: _____
Name:
Title:

By: _____
Name:
Title:

ARTICLE III

THE NOTES

Section 3.1. Title and Terms.

On the Issue Date, the Trustee shall authenticate and deliver U.S.\$600,000,000 aggregate principal amount of 6.750% Senior Unsecured Notes due 2034. The Issuer may from time to time, without the consent of the Holders of the Notes, create and issue Additional Notes having the same terms and conditions as the Initial Notes in all respects, except that the issue date, the issue price and the first payment of interest thereon may differ; provided, however, that unless the Additional Notes are treated as part of the same “issue” of debt instruments as the Initial Notes or are issued pursuant to a “qualified reopening” of the Initial Notes, or are issued with less than a *de minimis* amount of original issue discount, in each case for U.S. federal income tax purposes, the Additional Notes will have a separate CUSIP or ISIN number (as applicable). Any Additional Notes shall be consolidated with and shall form a single series and vote together with the previously issued Notes for all purposes under this Indenture.

The Notes shall be known and designated as the “6.750% Senior Unsecured Notes due 2034” of the Issuer. The Stated Maturity of the Notes shall be April 9, 2034. The Notes shall bear interest at the rate of 6.750% per annum, from April 9, 2024 or from the most recent Interest Payment Date thereafter to which interest has been paid or duly provided for, as the case may be, payable semiannually in arrears on April 9 and October 9, commencing on October 9, 2024, until the principal thereof is paid or made available for payment.

In the case of a default in payment of principal and premium, if any, upon acceleration or redemption, interest (and Additional Amounts, if any) shall be payable pursuant to the second paragraph of this Section 3.1 on such overdue principal (and premium, if any), such interest shall be payable on demand and, if not so paid on demand, such interest shall itself bear interest at the rate per annum stated in the form of security contained herein plus 1% per annum (to the extent that the payment of such interest shall be legally enforceable), and shall accrue from the date such principal and/or premium, as the case may be, was due and payable to the date payment of such interest (and Additional Amounts, if any) has been made or duly provided for, and such interest on unpaid interest shall also be payable on demand.

The principal of and premium, if any, and interest on the Notes shall be payable at the Corporate Trust Office, the office of the Paying Agents and at any other office or agency maintained by the Issuer for such purpose; provided, however, that at the option of the Issuer upon five (5) Business Days’ notice to the applicable Paying Agent, payment of interest may be made by check mailed to the address of the Person entitled thereto as such address shall appear in the Note Register.

The Notes shall be redeemable or repurchasable as provided in Article XI. The Notes shall not have the benefit of any sinking fund obligations.

The Notes shall be subject to defeasance at the option of the Issuer as provided in Article XII.

Unless the context otherwise requires, the Notes shall constitute one series for all purposes under this Indenture, including, without limitation, amendments, waivers or redemptions

Section 3.2. Denominations.

The Notes are issuable only in fully registered form, without coupons, in a minimum denomination of U.S.\$200,000 and integral multiples of U.S.\$1,000 in excess thereof.

Section 3.3. Execution, Authentication, Delivery and Dating.

The Notes shall be executed on behalf of the Issuer by an authorized signatory or authorized signatories of the Issuer. The signature of any signatory on the Notes may be manual, electronic or facsimile.

Notes bearing the manual, electronic or facsimile signatures of individuals who were at any time the proper officers of the Issuer shall bind the Issuer, notwithstanding that such individuals or any of them have ceased to hold such offices prior to the authentication and delivery of such Notes or did not hold such offices at the date of such Notes.

At any time and from time to time after the execution and delivery of this Indenture, the Issuer may deliver Notes executed by the Issuer and having endorsed (by attachment or imprint) thereon the Guarantees executed as provided in Section 14.2 by the Guarantors, to the Trustee for authentication, together with an Issuer Order for the authentication and delivery of such Notes; and the Trustee in accordance with such Issuer Order shall authenticate and deliver such Notes as in this Indenture provided and not otherwise.

Each Note shall be dated the date of its authentication.

No Note or Guarantee shall be entitled to any benefit under this Indenture or be valid or obligatory for any purpose unless there appears on such Note a certificate of authentication substantially in the form provided for herein executed by the Trustee by manual or electronic signature, and such certificate upon any Note shall be conclusive evidence, and the only evidence, that such Note has been duly authenticated and delivered hereunder and that the Guarantees referred to therein have been duly executed and delivered hereunder.

Section 3.4. Global Notes; Registration, Registration of Transfer and Exchange.

(a) *Global Notes.* The provisions of clauses (1) through (7) below shall apply only to Global Notes:

(1) each Global Note authenticated under this Indenture shall be registered in the name of the Depositary or a nominee thereof and delivered to the Depositary or a nominee thereof or custodian therefor, and each such Global Note shall constitute a single Note for all purposes of this Indenture;

(2) notwithstanding any other provision in this Indenture, no Global Note may be exchanged in whole or in part for Notes registered, and no transfer of a Global Note in

whole or in part may be registered, in the name of any Person other than the Depositary or a nominee thereof unless (A) the Depositary (i) has notified the Issuer that it is unwilling or unable to continue as Depositary for such Global Note and the Issuer thereupon fails to appoint a successor Depositary or (ii) has ceased to be a clearing agency registered under the Exchange Act, (B) the Issuer, at its option, notifies the Trustee in writing that it elects to cause the issuance of the Notes in definitive registered certificated form, or (C) an Event of Default has occurred and is continuing and the Registrar has received a written request from a beneficial owner of the Notes through an Agent Member to issue its proportionate interest in the Global Note in certificated form;

(3) if any Global Note is to be exchanged for other Notes or cancelled in whole, it shall be surrendered by or on behalf of the Depositary or its nominee to the Trustee, as Registrar, for exchange or cancellation as provided in this Article III. If any Global Note is to be exchanged for other Notes or cancelled in part, or if another Note is to be exchanged in whole or in part for a beneficial interest in any Global Note, such Global Note shall be so surrendered for exchange or cancellation as provided in this Article III or, if the Trustee is acting as custodian for the Depositary or its nominee (or is party to a similar arrangement) with respect to such Global Note, the principal amount thereof shall be reduced or increased by an amount equal to the portion thereof to be so exchanged or cancelled, or the principal amount of such other Note to be so exchanged for a beneficial interest therein, as the case may be, in each case by means of an appropriate adjustment made on the records of the Trustee, whereupon the Trustee, in accordance with the Applicable Procedures, shall instruct the Depositary or its authorized representatives to make a corresponding adjustment to its records (including by crediting or debiting any Agent Member's account as necessary to reflect any transfer or exchange of a beneficial interest pursuant to Section 3.4(c)). Upon any such surrender or adjustment of a Global Note, the Trustee shall, subject to Section 3.4(a)(2) and as otherwise provided in this Article III, authenticate and deliver any Notes issuable in exchange for such Global Note (or any portion thereof) to or upon the order of, and registered in such names as may be directed by, the Depositary or its authorized representative. Upon the request of the Trustee in connection with the occurrence of any of the events specified in the preceding paragraph, the Issuer shall promptly make available to the Trustee a reasonable supply of Notes that are not in the form of Global Notes. The Trustee shall be entitled to conclusively rely upon any order, direction or request of the Depositary or its authorized representative which is given or made pursuant to this Article III if such order, direction or request is given or made in accordance with the Applicable Procedures;

(4) every Note authenticated and delivered upon registration of transfer of, or in exchange for or in lieu of, a Global Note or any portion thereof, whether pursuant to this Article III or Section 10.5 or otherwise, shall be authenticated and delivered in the form of, and shall be, a Global Note, unless such Note is registered in the name of a Person other than the Depositary or a nominee thereof;

(5) none of the Issuer, the Guarantors, the Trustee, any agent of the Trustee, any Paying Agent or the Registrar will have any responsibility or liability for any aspect of the Depositary's records (or the records of the participant of such Depositary) relating to or payments made on account of beneficial ownership interests of a Global Note or for maintaining, supervising or reviewing any records of the Depositary relating to such beneficial ownership interests;

(6) subject to the provisions in the legends required by Section 2.2 above, the registered Holder may grant proxies and otherwise authorize any Person, including Agent Members and Persons who may hold interests in Agent Members, to take any action that such Holder is entitled to take under this Indenture;

(7) except as provided in Section 3.4(a)(2) herein, neither Agent Members nor any other Person on whose behalf Agent Members may act shall have any rights under this Indenture with respect to any Global Note held on their behalf by the Depositary or under the Global Note, and the Depositary may be treated by the Issuer, the Trustee and any agent of the Issuer or the Trustee as the absolute owner of such Global Note for all purposes whatsoever. Notwithstanding the foregoing, nothing herein shall prevent the Issuer, the Guarantors, the Trustee or any agent of the Issuer or the Trustee from giving effect to any written certification, proxy or other authorization furnished by the Depositary or impair, as between the Depositary and its Agent Members, the operation of customary practices governing the exercise of the rights of a Holder of any Note.

(b) *Registration, Registration of Transfer and Exchange and Legends.* The Issuer shall cause to be kept at the Corporate Trust Office of the Trustee a register (the register maintained in such office and in any other office or agency designated pursuant to Section 11.2 being herein sometimes collectively referred to as the “Note Register”) in which, subject to such reasonable regulations as they may prescribe, the Issuer shall provide for the registration of Notes and of transfers and exchanges of Notes. The Trustee is hereby appointed “Registrar” for the purpose of registering Notes and transfers and exchanges of Notes as herein provided.

Upon surrender for registration of transfer of any Note at an office or agency of the Issuer designated pursuant to Section 11.2 for such purpose in accordance with the terms hereof, the Issuer shall, subject to the other provisions of this Section 3.4, execute, and the Trustee shall, upon receipt of an Issuer Order, authenticate and deliver, in the name of the designated transferee or transferees, one or more new Notes of any authorized denominations and of a like tenor and aggregate principal amount and bearing the applicable legends set forth in Section 2.2.

Subject to Section 3.4(c), at the option of the Holder, Notes may be exchanged for other Notes of any authorized denominations and of a like tenor and aggregate principal amount and bearing the applicable legend set forth in Section 2.2, if any, each such new Note having the benefit of the Guarantees executed by the Guarantors, upon surrender of the Note to be exchanged at such office or agency. Whenever any Note is so surrendered for exchange, the Issuer shall execute, and the Trustee shall, upon receipt of an Issuer Order, authenticate and deliver, the Note which the Holder making the exchange is entitled to receive.

The Trustee shall have no obligation or duty to monitor, determine or inquire as to compliance with U.S. securities laws, including but not limited to any restrictions on transfer imposed under this Indenture or under applicable law with respect to any transfer of any interest in any Note (including any transfers between or among Agent Members or beneficial owners of

interests in any Global Note) other than to require delivery of such certificates and other documentation or evidence as are expressly required by, and to do so if and when expressly required by the terms of, this Indenture, and to examine the same to determine substantial compliance solely as to form with the express requirements hereof. Neither the Trustee nor any Agent shall have any responsibility or liability for any actions taken or not taken by the Depositary.

All Notes and the Guarantees issued upon any registration of transfer or exchange of Notes shall be the valid obligations of the Issuer and the Guarantors, evidencing the same debt, and entitled to the same benefits under this Indenture, as the Notes and the Guarantees endorsed thereon, respectively, surrendered upon such registration of transfer or exchange.

Every Note presented or surrendered for registration of transfer or for exchange shall (if so required by the Issuer or the Trustee) be duly endorsed, or be accompanied by a written instrument of transfer in form satisfactory to the Issuer and the Registrar duly executed, by the Holder thereof or his attorney duly authorized in writing.

No service charge shall be made to the Holder for any registration of transfer or exchange of Notes, but the Issuer or the Trustee may require payment of a sum sufficient to cover any tax or other governmental charge that may be imposed in connection with any registration of transfer or exchange of Notes, other than any transfer or exchange pursuant to Section 3.4, Section 10.5 or Section 11.5.

The Issuer and the Registrar shall not be required (i) to issue, register the transfer of or exchange any Note during a period beginning at the opening of business 15 days before the due date for any payment of principal in respect of the Notes selected for redemption under Section 4.6 and ending at the close of business on the day of such mailing, or (ii) to register the transfer of or exchange any Note so selected for redemption in whole or in part, except the unredeemed portion of any Note being redeemed in part.

All Notes, initially issued hereunder shall, upon issuance, bear the relevant legends specified in Section 2.2, if any, to be applied to such a Note and, in the case of the legend specifically required for the Restricted Global Note, such required legend shall not be removed unless the Issuer shall have delivered to the Trustee (and the Notes Registrar, if other than the Trustee) an Issuer Order which states that such Note may be issued without such legend thereon. If such legend has been removed from a Note as provided above, no other Note issued in exchange for all or any part of such Note shall bear such legend, unless the Issuer has reasonable cause to believe that such other Note is a “restricted security” within the meaning of Rule 144 of the Notes Act and instructs the Trustee to cause a legend to appear thereon:

(c) *Certain Transfers and Exchanges.* Upon presentation for transfer or exchange of any Note at the office of the Trustee, as Registrar, located in The City of New York, accompanied by a written instrument of transfer or exchange in the form approved by the Issuer (it being understood that, until notice to the contrary is given to Holders of Notes, the Issuer shall be deemed to have approved the form of instrument of transfer or exchange, if any, printed on any Note), executed by the registered Holder, in person or by such Holder’s attorney thereunto duly authorized in writing, and upon compliance with this Section 3.4, such Note shall be

transferred upon the Note Register, and a new Note shall be authenticated and issued in the name of the transferee. Notwithstanding any provision to the contrary herein or in the Notes, transfers of a Global Note, in whole or in part, and transfers of interests therein of the kind described in this Section 3.4 (c), shall only be made in accordance with this Section 3.4(c). Transfers and exchanges subject to this Section 3.4(c) shall also be subject to the other provisions of this Indenture that are not inconsistent with this Section 3.4(c).

(1) *General.* A Global Note may not be transferred, in whole or in part, to any Person other than the Depositary or a nominee thereof, and no such transfer to any such other Person may be registered; provided, however, that this clause (1) shall not prohibit any transfer of a Note that is issued in exchange for a Global Note but is not itself a Global Note. No transfer of a Note to any Person shall be effective under this Indenture or the Notes unless and until such Note has been registered in the name of such Person. Nothing in this clause (1) shall prohibit or render ineffective any transfer of a beneficial interest in a Global Note effected in accordance with the other provisions of this Section 3.4(c).

(2) *Restricted Global Note to Regulation S Global Note.* If the holder of a beneficial interest in the Restricted Global Note wishes at any time to transfer such interest to a Person who wishes to take delivery thereof in the form of a beneficial interest in the Regulation S Global Note, such transfer may be effected, subject to the rules and procedures of the Depositary, Euroclear and Clearstream, in each case to the extent applicable and as in effect from time to time (the "Applicable Procedures"), only in accordance with this clause (2). Upon receipt by the Trustee, as Registrar, of (A) written instructions given by or on behalf of the Depositary in accordance with the Applicable Procedures directing the Trustee to credit or cause to be credited to a specified Agent Member's account a beneficial interest in the Regulation S Global Note in a specified principal amount and to cause to be debited from another specified Agent Member's account a beneficial interest in the Restricted Global Note in an equal principal amount and (B) a certificate in substantially the form set forth in Exhibit A signed by or on behalf of the Agent Member holding such beneficial interest in the Restricted Global Note, the Trustee, as Registrar, shall reduce the principal amount of a Restricted Global Note, and increase the principal amount of the Regulation S Global Note by such specified principal amount as provided in Section 3.4(a)(3).

(3) *Regulation S Global Note to Restricted Global Note.* If the holder of a beneficial interest in the Regulation S Global Note at any time wishes to transfer such interest to a Person who wishes to take delivery thereof in the form of a beneficial interest in the Restricted Global Note, such transfer may be effected, subject to the Applicable Procedures, only in accordance with this clause (3). Upon receipt by the Trustee, as Registrar, of (A) written instructions given by or on behalf of the Depositary in accordance with the Applicable Procedures directing the Trustee to credit or cause to be credited to a specified Agent Member's account a beneficial interest in the Restricted Global Note in a specified principal amount and to cause to be debited from another specified Agent Member's account a beneficial interest in the Regulation S Global Note and (B) a certificate in substantially the form set forth in Exhibit B signed by or on behalf of the Agent Member holding such beneficial interest in the Regulation S Global Note, the Trustee, as Registrar, shall reduce the principal amount of such Regulation S Global Note and increase the principal amount of the Restricted Global Note by such specified principal amount as provided in Section 3.4(a)(3).

(4) *Non-Global Restricted Note to Global Note.* If the holder of a Restricted Note (other than a Global Note) wishes at any time to transfer all or any portion of such Note to a Person who wishes to take delivery thereof in the form of a beneficial interest in the Restricted Global Note or the Regulation S Global Note, such transfer may be effected, subject to the Applicable Procedures, only in accordance with this clause (4). Upon receipt by the Trustee, as Registrar, of (A) such Note and written instructions given by or on behalf of such Holder as provided in Section 3.4(b) directing the Trustee to credit or cause to be credited to a specified Agent Member's account a beneficial interest in the Restricted Global Note or the Regulation S Global Note, as the case may be, in a specified principal amount equal to the principal amount of the Restricted Note (or portion thereof) to be so transferred, and (B) an appropriately completed certificate substantially in the form set forth in Exhibit C-1 hereto, if the specified account is to be credited with a beneficial interest in the Restricted Global Note, or Exhibit C-2 hereto, if the specified account is to be credited with a beneficial interest in the Regulation S Global Note, signed by or on behalf of such Holder, then the Trustee, as Registrar, shall cancel such Restricted Note (and issue a new Note in respect of any untransferred portion thereof) as provided in Section 3.4(b) and increase the principal amount of the Restricted Global Note or Regulation S Global Note, as the case may be, by the specified principal amount as provided in Section 3.4(a)(3).

(5) *Non-Global Regulation S Note to Restricted Global Note or Regulation S Global Note.* If the Holder of a Regulation S Note (other than a Global Note) wishes at any time to transfer all or any portion of such Note to a Person who wishes to take delivery thereof in the form of a beneficial interest in the Restricted Global Note or the Regulation S Global Note, as the case may be, such transfer may be effected only in accordance with this clause (5) and subject to the Applicable Procedures. Upon receipt by the Trustee, as Registrar, of (A) such Note and written instructions given by or on behalf of such Holder as provided in Section 3.4(b) directing the Trustee to credit or cause to be credited to a specified Agent Member's account a beneficial interest in the Restricted Global Note or the Regulation S Global Note, as the case may be, in a principal amount equal to the principal amount of the Note (or portion thereof) to be so transferred, and (B)(i) with respect to a transfer which is to be delivered in the form of a beneficial interest in the Restricted Global Note, a certificate in substantially the form set forth in Exhibit D-1, signed by or on behalf of such Holder, and (ii) with respect to a transfer which is to be delivered in the form of a beneficial interest in the Regulation S Global Note, a certificate in substantially the form set forth in Exhibit D-2, signed by or on behalf of such Holder, then the Trustee, as Registrar, shall cancel such Note (and issue a new Note in respect of any untransferred portion thereof) as provided in Section 3.4(b) and increase the principal amount of the Restricted Global Note or the Regulation S Global Note, as the case may be, by the specified principal as provided in Section 3.4(a)(3).

Section 3.5. Mutilated, Destroyed, Lost and Stolen Notes.

If any mutilated or defaced Note is surrendered to the Trustee, the Issuer shall execute and the Trustee shall, upon receipt of an Issuer Order, authenticate or cause to be authenticated and deliver in exchange therefor a new Note of like tenor and principal amount, having endorsed thereon the Guarantees executed by the Guarantors and bearing a number not contemporaneously outstanding.

If there shall be delivered to the Issuer and the Trustee (i) evidence to their satisfaction of the destruction, loss or theft of any Note and (ii) such security or indemnity as may be required by them to save each of them, the Guarantors and any agent of either of them harmless, then, in the absence of notice to the Issuer or the Trustee that such Note has been acquired by a bona fide purchaser, the Issuer shall execute and the Trustee shall, upon receipt of an Issuer Order, authenticate and deliver, in lieu of any such destroyed, lost or stolen Note, a new Note of like tenor and principal amount, having endorsed thereon the Guarantees executed by the Guarantors and bearing a number not contemporaneously outstanding.

In case any such mutilated, defaced, destroyed, lost or stolen Note has become or is about to become due and payable, the Issuer may in its discretion, instead of issuing a new Note, pay such Note.

Upon the issuance of any new Note under this Section, the Issuer may require the payment of a sum sufficient to cover any tax or other governmental charge that may be imposed in relation thereto and any other expenses (including the fees and expenses of the Trustee, its counsel, the Registrar and the Paying Agents) connected therewith.

Every new Note issued pursuant to this Section in lieu of any destroyed, defaced, lost or stolen Note, and the Guarantees endorsed thereon, shall constitute an original additional contractual obligation of the Issuer and the Guarantors, respectively, whether or not the destroyed, lost or stolen Note shall be at any time enforceable by anyone, and shall be entitled to all the benefits of this Indenture equally and proportionately with any and all other Notes and Guarantees, respectively duly issued hereunder.

The provisions of this Section are exclusive and shall preclude (to the extent lawful) all other rights and remedies with respect to the replacement or payment of mutilated, destroyed, lost or stolen Notes.

Section 3.6. Payment of Interest; Interest Rights Preserved.

Interest on any Note which is payable, and is punctually paid or duly provided for, on any Interest Payment Date shall be paid to the Person in whose name that Note (or one or more Predecessor Notes) is registered at the close of business on the Record Date for such interest.

Any interest on any Note which is payable, but is not punctually paid or duly provided for, on any Interest Payment Date (herein called "Defaulted Interest") shall (a) bear interest at the rate per annum stated in the form of Note included herein, (to the extent that the payment of such interest shall be legally enforceable), and (b) forthwith cease to be payable to the Holder on the relevant Record Date by virtue of having been such Holder, and such Defaulted Interest may be paid by the Issuer, at its election in each case, as provided in clause (1) or (2) below:

(1) the Issuer may elect to make payment of any Defaulted Interest to the Persons in whose names the Notes (or their respective Predecessor Notes) are registered at the close of business on a Special Record Date for the payment of such Defaulted Interest, which shall be fixed in the following manner. The Issuer shall notify the Trustee in writing of the amount of Defaulted Interest proposed to be paid on each Note and the date of the proposed payment, and at the same time the Issuer shall deposit with the Trustee an amount of money equal to the aggregate amount proposed to be paid in respect of such Defaulted Interest or shall make arrangements satisfactory to the Trustee for such deposit prior to the date of the proposed payment, such money when deposited to be held in trust for the benefit of the Persons entitled to such Defaulted Interest as in this clause provided.

Thereupon the Trustee shall fix a Special Record Date for the payment of such Defaulted Interest which shall be not more than 15 days and not less than 10 days prior to the date of the proposed payment and not less than 10 days after the receipt by the Trustee of the notice of the proposed payment. The Trustee shall promptly notify the Issuer of such Special Record Date and, in the name and at the expense of the Issuer, shall cause notice of the proposed payment of such Defaulted Interest and the Special Record Date therefor to be mailed, first-class postage prepaid, to each Holder at his address as it appears in the Note Register, not less than 10 days prior to such Special Record Date. Notice of the proposed payment of such Defaulted Interest and the Special Record Date therefor having been so mailed, such Defaulted Interest shall be paid to the Persons in whose names the Notes (or their respective Predecessor Notes) are registered at the close of business on such Special Record Date and shall no longer be payable pursuant to the following clause (2); and

(b) the Issuer may make payment of any Defaulted Interest in any other lawful manner not inconsistent with the requirements of any securities exchange on which the Notes may be listed, and upon such notice as may be required by such exchange, if, after notice given by the Issuer to the Trustee of the proposed payment pursuant to this clause, such manner of payment shall be deemed practicable by the Trustee.

Subject to the foregoing provisions of this Section, each Note delivered under this Indenture upon registration of transfer of or in exchange for or in lieu of any other Note shall carry the rights to interest accrued and unpaid, and to accrue, which were carried by such other Note.

Section 3.7. Persons Deemed Owners.

Prior to due presentment of a Note for registration of transfer and the effective registration of such transfer by the Registrar, the Issuer, the Guarantors, the Trustee and any agent of the Issuer, the Guarantors or the Trustee may treat the Person in whose name such Note is registered as the owner of such Note for the purpose of receiving payment of principal of and premium, if any, and (subject to Section 3.6) interest on such Note and for all other purposes whatsoever, whether or not such Note be overdue, and none of the Issuer, the Guarantors, the Trustee or any agent of the Issuer, the Guarantors or the Trustee shall be liable for so treating such Holder.

Section 3.8. Cancellation.

Except as provided for in Section 4.2 and 4.3, Notes surrendered for payment, redemption, registration of transfer or exchange shall, if surrendered to any Person other than the Trustee, be delivered to the Trustee and shall be promptly cancelled by it. The Issuer may at any time deliver to the Trustee for cancellation, accompanied by an Issuer Order, any Notes previously authenticated and delivered hereunder which the Issuer may have acquired in any manner whatsoever, and all Notes so delivered shall be promptly cancelled by the Trustee. No Notes shall be authenticated in lieu of or in exchange for any Notes cancelled as provided in this Section, except as expressly permitted by this Indenture. All cancelled Notes held by the Trustee shall be disposed of in accordance with its standard procedures or as directed by an Issuer Order; provided, however, that the Trustee shall not be required to destroy such Notes.

Section 3.9. Computation of Interest.

The amount of interest payable on the Notes for any interest period will be calculated by applying the rate of interest to the principal amount of such Note, on the basis of a year of 360 days consisting of 12 months of 30 days each and, in the case of an incomplete month, on the number of days elapsed based on a 30 day month provided, however, that Defaulted Interest shall be computed on the basis of a 365 or 366-day year, as the case may be, and the number of days actually elapsed.

Section 3.10. CUSIP Numbers.

The Issuer shall in issuing the Notes use CUSIP numbers, and the Trustee shall use the applicable CUSIP number in notices of redemption or exchange as a convenience to the Holders; provided, that any such notice may state that no representation is made as to the accuracy or correctness of the CUSIP number or numbers printed in the notice or on the certificates representing the Notes and that reliance may be placed only on the other identification numbers printed on the certificates representing the Notes. The Issuer shall promptly notify the Trustee in writing of any change in CUSIP numbers.

Section 3.11. Paying Agents; Discharge of Payment Obligations; Indemnity of Holders.

(a) The Issuer may from time to time appoint one or more paying agents under this Indenture and the Notes. By its execution and delivery of this Indenture, the Issuer hereby initially designates and appoints The Bank of New York Mellon, as Principal Paying Agent. Subject to Section 11.3, the Issuer or a Guarantor may act as paying agent.

(b) Unless the Issuer or a Guarantor shall be acting as paying agent as provided in Section 11.3, the Issuer shall, by 11:00 a.m. New York City time, no later than one Business Day prior to each Interest Payment Date, Redemption Date or Maturity Date on any Notes (whether on maturity, redemption or otherwise) (each, a "Payment Date"), deposit with the Principal Paying Agent in immediately available funds a sum sufficient to pay such principal, any

premium, and interest when so becoming due (including any Additional Amounts). The Issuer shall request that the bank through which such payment is to be made agree to supply to the Principal Paying Agent in New York City by 11:00 a.m. (New York City time) two Business Days prior to the due date for any such payment an irrevocable confirmation (by authenticated SWIFT MT 100 Message) of its intention to make such payment. The Principal Paying Agent shall arrange with all other Paying Agents for the payment, from funds furnished by the Issuer or the Guarantors to the Principal Paying Agent pursuant to this Indenture, of the principal, and premium, if any, and interest (including Additional Amounts, if any) on the Notes and of the compensation of such Paying Agents for their services as such.

All Paying Agents will hold in trust, for the benefit of Holders or the Trustee, all money held by such Paying Agent for the payment of principal, or premium if any, of or interest on the Notes and shall notify the Trustee in writing of any default by the Issuer in making any such payment. The Issuer at any time may require a Paying Agent to pay all money held by it to the Trustee and to account for any funds disbursed by it. Upon complying with this Section 3.11 and the applicable provisions of Section 11.3, the Paying Agents shall have no further liability for the money delivered to the Trustee.

(c) Any payment to be made in respect of the Notes or the Guarantees by the Issuer or the Guarantors, as the case may be, to or to the order of any Paying Agent shall be in satisfaction *pro tanto* of the obligations of the Issuer under the Notes.

(d) Each payment in full of principal, redemption amount, Additional Amounts and/or interest payable under this Indenture in respect of any Note made by or on behalf of the Issuer to or to the order of any Paying Agent in the manner specified in this Indenture on the date due shall be valid and effective to satisfy and discharge the obligation of the Issuer to make payment of principal, redemption amount, Additional Amounts and/or interest payable under this Indenture on such date, provided, however, that the liability of any Paying Agent hereunder shall not exceed any amounts paid to it by the Issuer, or held by it, on behalf of the Holders under this Indenture; and provided further that, in the event that there is a default by the Paying Agent or the Principal Paying Agent in any payment of principal, redemption amount, Additional Amounts and/or interest in respect of any Note in accordance with this Indenture, the Issuer and the Guarantors shall pay on demand such further amounts as will result in receipt by the Holder of such amounts as would have been received by it had no such default. This obligation constitutes a separate and independent obligation from the other obligations of the Issuer under the Notes and the Guarantors under the Guarantees, shall give rise to a separate and independent cause of action, will apply irrespective of any waiver granted by the Trustee and/or any Holder of Notes and shall continue in full force and effect despite any judgment, order, claim, or proof for a liquidated amount in respect of any sum due under this Indenture, the Notes or any judgment or order.

ARTICLE IV

REDEMPTION OF NOTES

Section 4.1. Redemption for Tax Reasons.

If as a result of any Change of Law (as defined below):

(1) the Issuer or a Guarantor is or would be required on the next succeeding Interest Payment Date to pay any Additional Amounts in excess of the Additional Amounts that the Issuer or such Guarantor, as the case may be, would pay if payments in respect of the Notes were subject to deduction or withholding for Taxes imposed by the applicable taxing jurisdiction at the rate applicable on the Issue Date; or

(2) the issuers/borrowers of certain intercompany debt are or would be required on the next succeeding interest payment date to pay Brazilian withholding taxes in excess of a general rate of 15%, or 25% in case of amounts paid to residents of countries or locations which do not impose any income tax or which impose it at a maximum rate lower than 17% or where the laws of that country or location impose restrictions on the disclosure (x) of shareholding composition; (y) of the ownership of the investment; or (z) to the identification of the beneficial owner of income attributed to non-resident persons, pursuant to article 8 of Law No. 9,779, of January 19, 1999, and articles 24 and 24-A of Law No. 9,430, of December 27, 1996; provided that, such requirement to pay such taxes in excess of such rate was not caused by, or otherwise the result of, whether directly or indirectly, wholly or in part, any amendment to the intercompany debt,

and in either case, the payment of such excess amounts cannot be avoided by the use of any reasonable measures available to the Issuer or a Guarantor, the Notes may be redeemed, by the Issuer at the option of the Issuer or a Guarantor, in whole but not in part, upon not less than 30 nor more than 90 days' notice to the Holders, which notice will be published, at any time following such Change of Law at a Redemption Price equal to the principal amount thereof, plus accrued and unpaid interest, if any, to the date fixed for redemption. The Issuer, any Guarantor or any of their respective Affiliates will also pay to the Holders of the Notes on the Redemption Date any Additional Amounts which are payable. Following such redemption, the Notes will be cancelled, or remain Outstanding, at the Issuer's or a Guarantor's election.

"Change of Law" means any change in or amendment to the laws or regulations of Luxembourg, Brazil or Peru (or of any political subdivision thereof or therein) or the adoption, amendment or modification of any resolution of the Central Bank of Luxembourg, the Central Bank of Brazil or the Central Reserve Bank of Peru (or any successor authority thereto) which becomes effective on or after the date of this Indenture (or with respect to a successor, on or after the date such successor assumes the obligations under the Notes), resulting in the Issuer or a Guarantor on a consolidated basis being required to pay amounts with respect to Taxes as described above in a total aggregate amount in excess of that payable immediately prior to such change or amendment.

Prior to the delivery of any notice of redemption in accordance with the foregoing, the Issuer or a Guarantor shall deliver to the Trustee and the Agents an Officer's Certificate stating that the Issuer or a Guarantor, as the case may be, is entitled to effect such redemption based on an Opinion of Counsel or written advice of a qualified tax expert, that the Issuer or a Guarantor has or will become obligated to pay such excess amounts with respect to Taxes as a result of such Change of Law. Such notice, once delivered by the Issuer or a Guarantor to the Trustee, will be irrevocable.

If the Issuer or a Guarantor becomes subject at any time to any taxing jurisdiction other than Luxembourg, Brazil or Peru, references herein to Luxembourg, Brazil or Peru, as applicable, shall be construed to include such other jurisdiction.

Section 4.2. Optional Redemption.

At any time before January 9, 2034 (which is the date that is three months prior to maturity of the notes (the "Par Call Date")), the Issuer or a Guarantor has the right to redeem the Notes, in whole or in part and from time to time, at a Redemption Price equal to the greater of (1) 100% of the principal amount of the Notes being redeemed and (2) the sum of the present values of the remaining scheduled payments of principal and interest on the Notes being redeemed that would be due if the Notes matured on the Par Call Date (inclusive of interest accrued to the redemption date), discounted to the Redemption Date on a semi-annual basis (assuming a 360-day year consisting of twelve 30-day months) at the Treasury Rate plus 40 basis points, less interest accrued to, but excluding, the Redemption Date; plus, in either case, accrued and unpaid interest on the principal amount of the Notes being redeemed and Additional Amounts, if any, to, but excluding, the Redemption Date (subject to the right of Holders of record on the relevant Record Date to receive interest due on the relevant Interest Payment Date).

At any time on or after the Par Call Date, the Issuer or a Guarantor has the right to redeem the Notes, in whole or in part and from time to time, at a Redemption Price equal to 100% of the principal amount of the Notes being redeemed plus accrued and unpaid interest on the principal amount of the Notes being redeemed to, but excluding, such Redemption Date (subject to the right of Holders of record on the relevant Record Date to receive interest due on the relevant Interest Payment Date).

The "Treasury Rate" shall be determined by the Issuer or a Guarantor after 4:15 p.m., New York City time (or after such time as yields on U.S. government securities are posted daily by the Board of Governors of the Federal Reserve System), on the third Business Day preceding the Redemption Date based upon the yield or yields for the most recent day that appear after such time on such day in the most recent statistical release published by the Board of Governors of the Federal Reserve System designated as "Selected Interest Rates (Daily) - H.15" (or any successor designation or publication) ("H.15") under the caption "U.S. government securities-Treasury constant maturities-Nominal" (or any successor caption or heading). In determining the Treasury Rate, the Issuer or a Guarantor shall select, as applicable: (i) the yield for the Treasury constant maturity on H.15 exactly equal to the period from the redemption date to the Par Call Date (the "Remaining Life"); or (ii) if there is no such Treasury constant maturity on H.15 exactly equal to the Remaining Life, the two yields - one yield corresponding to the Treasury constant maturity on H.15 immediately shorter than and one yield corresponding to the Treasury

constant maturity on H.15 immediately longer than the Remaining Life - and shall interpolate to the Par Call Date on a straight-line basis (using the actual number of days) using such yields and rounding the result to three decimal places; or (iii) if there is no such Treasury constant maturity on H.15 shorter than or longer than the Remaining Life, the yield for the single Treasury constant maturity on H.15 closest to the Remaining Life. For purposes of this paragraph, the applicable Treasury constant maturity or maturities on H.15 shall be deemed to have a maturity date equal to the relevant number of months or years, as applicable, of such Treasury constant maturity from the Redemption Date.

If on the third Business Day preceding the Redemption Date H.15 or any successor designation or publication is no longer published, the Issuer or a Guarantor shall calculate the Treasury Rate based on the rate per annum equal to the semi-annual equivalent yield to maturity at 11:00 a.m., New York City time, on the second Business Day preceding such redemption date of the United States Treasury security maturing on, or with a maturity that is closest to, the Par Call Date, as applicable. If there is no United States Treasury security maturing on the Par Call Date but there are two or more United States Treasury securities with a maturity date equally distant from the Par Call Date, one with a maturity date preceding the Par Call Date and one with a maturity date following the Par Call Date, the Issuer or a Guarantor shall select the United States Treasury security with a maturity date preceding the Par Call Date. If there are two or more United States Treasury securities maturing on the Par Call Date or two or more United States Treasury securities meeting the criteria of the preceding sentence, the Issuer or the Guarantor shall select from among these two or more United States Treasury securities the United States Treasury security that is trading closest to par based upon the average of the bid and asked prices for such United States Treasury securities at 11:00 a.m., New York City time. In determining the Treasury Rate in accordance with the terms of this paragraph, the semi-annual yield to maturity of the applicable United States Treasury security shall be based upon the average of the bid and asked prices (expressed as a percentage of principal amount) at 11:00 a.m., New York City time, of such United States Treasury security, and rounded to three decimal places.

The Issuer or a Guarantor's actions and determinations in determining the Redemption Price shall be conclusive and binding for all purposes, absent manifest error.

The Issuer, any Guarantor or any of their respective Affiliates may at any time repurchase the Notes at any price in the open market or otherwise. The Issuer, any Guarantor or any of their respective Affiliates may hold or resell the Notes it purchases or may surrender them to the Trustee or an Agent for cancellation.

Optional Clean-up Redemption. Notwithstanding the foregoing, in connection with any tender offer for the notes (including an Offer to Purchase in connection with a Change of Control that results in a Rating Decline made in accordance with the terms of the Indenture), in the event that the Holders of not less than 85% of the aggregate principal amount of the outstanding Notes validly tender and do not validly withdraw Notes in such tender offer and the Issuer, or any other Person making such offer in lieu of the Issuer, purchases all of the Notes validly tendered and not validly withdrawn by such Holders, then the Issuer or the Guarantor will have the right, on not less than 10 nor more than 60 days' prior notice to the Holders (with a copy to the Trustee), to redeem all of the Notes that remain outstanding at a Redemption Price equal to the purchase price paid to each other Holder in such tender offer plus, to the extent not included in the purchase price, accrued and unpaid interest and Additional Amounts, if any, on the Notes that remain outstanding, to, but excluding, the Redemption Date.

Section 4.3. Applicability of Article.

Redemption of Notes at the election of the Issuer, as permitted or required by any provision of this Indenture, shall be made in accordance with such provision and this Article.

Section 4.4. Election to Redeem; Notice to Trustee, Registrar and Paying Agent.

In the case of any redemption of Notes prior to the expiration of any restriction on such redemption provided in the terms of such Notes or elsewhere in this Indenture, the Issuer shall furnish the Trustee with an Officer's Certificate evidencing compliance with such restriction.

The Issuer shall provide notice of redemption to the Trustee, Registrar and Paying Agents at least 15 days (or such shorter period as agreed to by the Trustee) prior to when such notice of redemption shall be provided to the Holders.

Section 4.5. Notice of Redemption.

Notice of redemption pursuant to Section 4.1 and 4.2 hereof shall be given in the manner provided for in Section 1.6 hereof. The Trustee, Registrar and Paying Agent will notify the Holders at such Holder's address appearing in the Note register at least 10 but not more than 60 days prior to the Redemption Date. A notice of any redemption may, at the Issuer's or a Guarantor's discretion, be subject to one or more conditions precedent.

All notices of redemption shall state:

- (1) the Redemption Date;
- (2) the Redemption Price;
- (3) that on the Redemption Date, the Redemption Price will become due and payable upon each such Note to be redeemed and that interest thereon will cease to accrue on and after said date;
- (4) the place or places where such Notes are to be surrendered for payment of the Redemption Price;
- (5) the aggregate principal amount of Notes being redeemed;
- (6) the CUSIP number or numbers of the Notes being redeemed;
- (7) if fewer than all the outstanding Notes are to be redeemed, or if a Note is to be redeemed in part only, the identification and principal amounts at maturity of the particular Notes (or portion thereof) to be redeemed; and

(8) that no representation is made as to the correctness or accuracy of the CUSIP numbers, if any, listed in such notice or printed on the Notes.

Section 4.6. Deposit of Redemption Price.

By 11:00 a.m. (New York City time) on the Business Day prior to any Redemption Date, the Issuer or a Guarantor shall deposit with the Principal Paying Agent (or, if the Issuer is acting as its own Paying Agent, segregate and hold in trust as provided in Section 11.3) an amount of money sufficient to pay the Redemption Price on all of the Notes which are to be repurchased on that date. In the case of a partial redemption of Notes that are represented by a Global Note, the relevant Notes will be redeemed in accordance with the rules of DTC.

Section 4.7. Notes Payable on Redemption Date.

Notice of redemption having been given as aforesaid, the Notes so to be redeemed shall, on the Redemption Date, become due and payable at the Redemption Price therein specified, and from and after such date (unless the Issuer shall default in the payment of the Redemption Price and accrued and unpaid interest) such Notes shall cease to bear interest. Upon surrender of any such Note for redemption in accordance with said notice, such Note shall be paid by the Issuer at the Redemption Price, together with accrued and unpaid interest to the Redemption Date; provided, however, that installments of interest whose Maturity Date is on or prior to the Redemption Date shall be payable to the Holders of such Notes, or one or more Predecessor Notes, registered as such at the close of business on the relevant Record Dates according to their terms and the provisions of Section 3.7.

If any Note called for redemption shall not be so paid upon surrender thereof for redemption, the principal (and premium, if any) shall, until paid, bear interest from the Redemption Date at the rate provided by the Note.

ARTICLE V

SATISFACTION AND DISCHARGE

Section 5.1. Satisfaction and Discharge of Indenture.

This Indenture shall cease to be of further effect as to all Outstanding Notes, and the Trustee, on demand of and at the expense of the Issuer, shall execute proper instruments acknowledging satisfaction and discharge of this Indenture, when

(1) (A) all Outstanding Notes (except lost, stolen or destroyed Notes which have been replaced or paid) have been delivered to the Trustee for cancellation; or

(B) all Outstanding Notes that have not been delivered to the Trustee for cancellation (i) have become due and payable, (ii) will become due and payable at their Stated Maturity within one year, or (iii) are to be called for redemption within one year under arrangements satisfactory to the Trustee for the giving of notice of a redemption by the Issuer or a Guarantor; and, in each case, the Issuer or a Guarantor irrevocably deposits or causes to be deposited with the Trustee or its designee as funds in

trust solely for the benefit of the Holders, cash, Cash Equivalents or U.S. Government Obligations in an amount as will be sufficient without consideration of any reinvestment of interest, to pay and discharge all principal, premium and Additional Amounts, if any, and accrued and unpaid interest to the date of maturity or redemption on the Notes not delivered to the Trustee for cancellation and delivers irrevocable Instructions to the Trustee to apply the deposited money toward the payment of the Notes at maturity or the redemption date, as the case may be;

(2) the Issuer or a Guarantor has paid or caused to be paid all other sums payable hereunder;

(3) the Issuer or a Guarantor has delivered to the Trustee an Officer's Certificate and an Opinion of Counsel, each stating that all conditions precedent herein provided for relating to the satisfaction and discharge of this Indenture have been complied with; and

(4) the Trustee shall have received such other documents and assurances as the Trustee shall have reasonably requested.

Notwithstanding the satisfaction and discharge of this Indenture, (i) the obligations of the Issuer to the Trustee under Section 7.7 hereof, (ii) substitution of apparently mutilated, defaced, destroyed, lost or stolen Notes, (iii) rights of Holders of Notes to receive payment of principal of and premium, if any, and interest (including Additional Amounts, if any) on the Notes, (iv) rights, obligations and immunities of the Trustee under this Indenture (including, if money shall have been deposited with the Trustee pursuant to subclause (B) of clause (1) of this Section, the obligations of the Trustee under Section 5.2 hereof and the last paragraph of Section 11.3 hereof), and (v) rights of Holders of the Notes as beneficiaries of this Indenture with respect to any property deposited with the Trustee payable to all or any of them, shall survive.

Section 5.2. Application of Trust Money.

Subject to the provisions of the last paragraph of Section 11.3, all money deposited with the Trustee pursuant to Section 5.1 hereof shall be held in trust and applied by it, in accordance with the provisions of the Notes and this Indenture, to the payment, either directly or through any Paying Agent (including the Issuer or a Guarantor acting as its own Paying Agent) as the Trustee may determine, to the Persons entitled thereto, of the principal (and premium, if any) and interest for whose payment such money has been deposited with the Trustee.

ARTICLE VI

REMEDIES

Section 6.1. Events of Default.

"Event of Default," wherever used herein, means any one of the following events (whatever the reason for such Event of Default and whether it shall be voluntary or involuntary or be effected by operation of law or pursuant to any judgment, decree or order of any court or any order, rule or regulation of any administrative or governmental body):

- (1) failure to pay any amount of principal of (or premium, if any) any Note when due and such failure shall continue for a period of three days;
- (2) failure to pay any interest, including Additional Amounts, if any, on any Note when due and such failure shall continue for a period of 30 days;
- (3) failure to perform any covenant or agreement of the Issuer or any Guarantor under this Indenture or the Notes and such failure remains unremedied for 60 days after the Trustee has given written notice thereof to the Issuer or any Guarantor;
- (4) failure to pay when due or, as the case may be, within any originally applicable grace period, any amount of principal and premium, if any, or interest (including Additional Amounts, if any), due under the terms of any instrument evidencing Indebtedness of the Issuer or any of its Designated Subsidiaries, or any such Indebtedness of the Issuer or any of its Designated Subsidiaries that becomes due and payable prior to its stated maturity otherwise than at the option of the issuer thereof by reason of the occurrence of an event of default howsoever described; provided that the aggregate amount of any such Indebtedness equals with respect to such Person, on a consolidated basis U.S.\$125.0 million or more (or its equivalent in other currency or currencies);
- (5) the rendering of a final judgment (not subject to appeal) for the payment of money against the Issuer or any of its Designated Subsidiaries which remains undischarged, unbonded or unstayed (and otherwise not covered by enforceable insurance policies issued by reputable and creditworthy insurance companies) for a period of 60 consecutive days after the date on which the right to appeal all such judgments has expired or, if later, the date therein specified for payment; provided that the aggregate amount of any such final judgment equals or exceeds with respect to such Person, on a consolidated basis U.S.\$125.0 million (or its equivalent in other currency or currencies);
- (6) all or substantially all of the assets of the Issuer (on a consolidated basis) shall be condemned, seized or otherwise appropriated, or custody of such property shall be assumed by any governmental authority or court or other person purporting to act under the authority of the federal government of any jurisdiction, or the Issuer shall be prevented from exercising normal control over all or substantially all of its property or revenues (on a consolidated basis), if the whole or part of such property or revenues is material to the Issuer (on a consolidated basis);
- (7) (a) a secured party takes possession of all or substantially all the assets or revenues of the Issuer (on a consolidated basis) or (b) a receiver or similar officer is appointed, of all or substantially all the assets or revenues of the Issuer (on a consolidated basis);
- (8) the Issuer or any Guarantor pursuant to or under or within the meaning of any Bankruptcy Law (a) commences a voluntary case or proceeding; (b) consents to the making of a Bankruptcy Order in an involuntary case or proceeding or the

commencement of any case against it; (c) consents to the appointment of a custodian of it or for substantially all its property; (d) makes a general assignment for the benefit of its creditors; (e) files an answer or consent seeking reorganization or relief; (f) shall admit in writing its inability to pay its debts generally; or (g) consents to the filing of a petition in bankruptcy;

(9) a court of competent jurisdiction in any involuntary case or proceeding enters a Bankruptcy Order against the Issuer or any Guarantor, and such Bankruptcy Order remains unstayed and in effect for 60 consecutive days; and

(10) any of the Guarantees is not (or is claimed by any Guarantor not to be) in full force and effect.

If any Event of Default shall occur and be continuing, either (i) the Trustee or (ii) the Holders, with written notice to the Trustee, of at least 25% in aggregate principal amount of the Outstanding Notes may accelerate the maturity of all Notes; provided that, after such acceleration, but before a judgment or decree based on acceleration, the Holders of a majority in aggregate principal amount of Outstanding Notes may, as provided in Section 6.12, rescind and annul such acceleration if all Events of Default, other than the nonpayment of accelerated principal, have been cured or waived as provided in this Indenture. The Trustee shall not be deemed to have notice of any Default or Event of Default (other than a payment default) unless a Responsible Officer of the Trustee has actual knowledge thereof or unless written notice of any event which is in fact such a default is received by a Responsible Officer of the Trustee at the Corporate Trust Office of the Trustee, and such notice references the Notes and this Indenture. If an Event of Default specified in clause (8) above occurs with respect to the Issuer, the Outstanding Notes will ipso facto become immediately due and payable without any declaration or other act on the part of the Trustee or any Holder.

Section 6.2. Collection of Indebtedness and Suits for Enforcement by Trustee. The Issuer and the Guarantors covenant that if

(1) default is made in the payment of any interest on any Note, (including Additional Amounts, if any), when such amounts become due and payable and such default continues for a period of 30 days; or

(2) default is made in the payment of the principal of (or premium, if any, on) any Note at the Maturity thereof or, with respect to any Note to be redeemed, at the Redemption Date thereof,

the Issuer and the Guarantors (subject to the limitations provided in this Indenture) will, jointly and severally, upon demand of the Trustee, pay to it, for the benefit of the Holders of such Notes, the whole amount then due and payable on such Notes for principal (and premium, if any) and interest (including Additional Amounts, if any), and, to the extent that payment of interest on overdue amounts shall be legally enforceable, interest on any overdue principal (and premium, if any) and on any overdue interest, at the rate provided by the Notes, and, in addition thereto, such further amount as shall be sufficient to cover the costs and expenses incurred by the Trustee

under this Indenture, including the reasonable compensation, expenses, disbursements and advances of the Trustee, its agents and counsel.

If the Issuer and the Guarantors fail to pay such amounts forthwith upon such demand, the Trustee, in its own name and as trustee of an express trust, may institute a judicial proceeding for the collection of the sums so due and unpaid, may prosecute such proceeding to judgment or final decree, and may enforce the same against the Issuer, the Guarantors or any other obligor upon the Notes and collect the moneys adjudged or decreed to be payable in the manner provided by law out of the property of the Issuer, the Guarantors or any other obligor upon the Notes, wherever situated.

If an Event of Default occurs and is continuing, the Trustee may in its discretion proceed to protect and enforce its rights and the rights under this Indenture of the Holders by such appropriate judicial proceedings as the Trustee shall deem most effective to protect and enforce any such rights, whether for the specific enforcement of any covenant or agreement in this Indenture or in aid of the exercise of any power granted herein including, without limitation, seeking recourse against the Issuer or the Guarantors or proceeding to enforce any other proper remedy.

Section 6.3. Trustee May File Proofs of Claim.

The Trustee may file such proofs of claim and other papers or documents as may be necessary or advisable in order to have the claims of the Trustee and the Holders allowed in any judicial proceedings relative to the Issuer, the Guarantors, their respective creditors or its property and, unless prohibited by law or applicable regulations, may vote on behalf of the Holders at their direction in any election of a trustee in bankruptcy or other Person performing similar functions, and any custodian in any such judicial proceeding is hereby authorized by each Holder to make payments to the Trustee and, in the event that the Trustee shall consent to the making of such payments directly to the Holders, to pay to the Trustee any amount due it for the reasonable compensation, expenses, disbursements and advances of the Trustee, its agents and its counsel, and any other amounts due the Trustee under Section 7.7.

Section 6.4. Trustee May Enforce Claims Without Possession of Notes.

All rights of action and claims under this Indenture or the Notes may be prosecuted and enforced by the Trustee without the possession of any of the Notes or the production thereof in any proceeding relating thereto, and any such proceeding instituted by the Trustee shall be brought in its own name as trustee of an express trust, and any recovery of judgment shall, after provision for the payment of the reasonable compensation, expenses, disbursements and advances of the Trustee, its agents and counsel, be for the ratable benefit of the Holders of the Notes in respect of which such judgment has been recovered.

Section 6.5. Application of Money Collected.

Any money collected by the Trustee pursuant to this Article shall be applied in the following order, at the date or dates fixed by the Trustee and, in case of the distribution of such money on account of principal (or premium, if any) or interest, upon presentation of the Notes

and the notation thereon of the payment if only partially paid and upon surrender thereof if fully paid;

FIRST: To the payment of all amounts due to the Trustee and the Agents under this Indenture; and

SECOND: To the payment of the amounts then due and unpaid for principal of (and premium, if any) and interest on the Notes in respect of which or for the benefit of which such money has been collected, ratably, without preference or priority of any kind, according to the amounts due and payable on such Notes for principal (and premium, if any) and interest, respectively.

The Trustee, upon prior written notice to the Issuer, may fix a Record Date and payment date for any payment to the Holders pursuant to this Section 6.5.

Section 6.6. Limitation on Suits.

No Holder of any Note shall have any right to institute any proceeding, judicial or otherwise, with respect to this Indenture, or for the appointment of a receiver or trustee, or for any other remedy hereunder, unless:

(1) such Holder shall have previously given written notice to the Trustee of a continuing Event of Default;

(2) the Holders of at least 25% in aggregate principal amount of the Outstanding Notes shall have made written request to the Trustee to institute proceedings in respect of such Event of Default in its own name as Trustee hereunder and shall have offered to the Trustee indemnity and/or security reasonably satisfactory to the Trustee against the costs, expenses and liabilities to be incurred in compliance with such request;

(3) the Trustee for 60 days after its receipt of such notice, request and offer shall have failed to institute any such proceeding; and

(4) no direction inconsistent with such written request shall have been given to the Trustee during such 60-day period by the Holders of a majority in principal amount of the Outstanding Notes;

it being understood and intended that no one or more Holders shall have any right in any manner whatever by virtue of, or by availing of, any provision of this Indenture or any Note or the Guarantees to affect, disturb or prejudice the rights of any other Holders, or to obtain or to seek to obtain priority or preference over any other Holders or to enforce any right under this Indenture (it being understood that the Trustee does not have an affirmative duty to ascertain whether or not such actions or forbearances are unduly prejudicial to such Holders), any Note or the Guarantees, except in the manner herein provided and for the equal and ratable benefit of all the Holders.

Section 6.7. Unconditional Right of Holders to Receive Principal, Premium and Interest.

Notwithstanding any other provision in this Indenture, the Notes or the Guarantees, the Holder of any Note shall have the right, which is absolute and unconditional, to receive payment of the principal of (and premium, if any) and (subject to Section 3.6) interest on such Note on the respective Stated Maturities expressed in such Note (or earlier Redemption Date) and to institute suit for the enforcement of any such payment, and such rights shall not be impaired without the consent of such Holder.

Section 6.8. Restoration of Rights and Remedies.

If the Trustee or any Holder has instituted any proceeding to enforce any right or remedy under this Indenture, any Note or the Guarantees, and such proceeding has been discontinued or abandoned for any reason, or has been determined adversely to the Trustee or to such Holder, then and in every such case, subject to any determination in such proceeding, the Issuer, the Guarantor, the Trustee and the Holders shall be restored severally and respectively to their former positions hereunder and thereafter all rights and remedies of the Trustee and the Holders shall continue as though no such proceeding had been instituted.

Section 6.9. Rights and Remedies Cumulative.

Except as otherwise provided with respect to the replacement or payment of mutilated, destroyed, lost or stolen Notes in the last paragraph of Section 3.5 hereof, no right or remedy herein conferred upon or reserved to the Trustee or to the Holders is intended to be exclusive of any other right or remedy, and every right and remedy shall, to the extent permitted by law, be cumulative and in addition to every other right and remedy given hereunder or now or hereafter existing at law or in equity or otherwise. The assertion or employment of any right or remedy hereunder, or otherwise, shall not prevent the concurrent assertion or employment of any other appropriate right or remedy.

Section 6.10. Delay or Omission Not Waiver.

No delay or omission of the Trustee or of any Holder of any Note to exercise any right or remedy accruing upon any Event of Default shall impair any such right or remedy or constitute a waiver of any such Event of Default or an acquiescence therein. Every right and remedy given by this Article or by law to the Trustee or to the Holders may be exercised from time to time, and as often as may be deemed expedient, by the Trustee or by the Holders, as the case may be.

Section 6.11. Control by Holders.

The Holders of a majority of the aggregate principal amount of the Outstanding Notes shall have the right to direct the time, method and place of conducting any proceeding for any remedy available to the Trustee or exercising any trust or power conferred on the Trustee, provided that:

(1) such direction shall not be in conflict with any rule of law or with this Indenture or expose the Trustee to personal liability (as determined in the sole discretion of the Trustee); and

(2) the Trustee may take any other action deemed proper by the Trustee which is not inconsistent with such direction.

The Trustee may refuse, however, to follow any direction that the Trustee, in its sole discretion, determines may be unduly prejudicial to the rights of the Holders or that may subject the Trustee to any liability, loss or expense if the Trustee determines, in its sole discretion, that it lacks satisfactory indemnification and/or security against such liability, loss or expense.

Section 6.12. Waiver of Past Defaults.

The Holders of not less than a majority in aggregate principal amount of the Outstanding Notes may by written notice to the Issuer and the Trustee waive any past default hereunder and rescind and annul any declaration of acceleration and its consequences, except a default:

(1) in the payment of the principal of (or premium, if any) or interest on any Note; or

(2) in respect of a covenant or provision hereof which under Article X cannot be modified or amended without the consent of the Holder of each Outstanding Note affected.

Upon any such waiver, such default shall cease to exist, and any Event of Default arising therefrom shall be deemed to have been cured, for every purpose of this Indenture; but no such waiver shall extend to any subsequent or other default or impair any right consequent thereon.

Section 6.13. Undertaking for Costs.

In any suit for the enforcement of any right or remedy under this Indenture or in any suit against the Trustee for any action taken or omitted by it as a Trustee, a court in its discretion may require the filing by any party litigant in the suit of an undertaking to pay the costs of the suit, and the court in its discretion may assess reasonable costs, including reasonable attorney's fees and expenses, against any party litigant in the suit, having due regard to the merits and good faith of the claims or defenses made by the party litigant. This Section 6.13 does not apply to a suit by the Trustee, a suit by a Holder pursuant to Section 6.7 hereof, or a suit by Holders of more than 10% in principal amount of the then Outstanding Notes.

ARTICLE VII

THE TRUSTEE

Section 7.1. Certain Duties and Responsibilities.

(a) Except during the continuance of an Event of Default,

(1) the Trustee undertakes to perform solely such duties and only such duties as are specifically set forth in this Indenture, and Trustee shall not be liable except for the performance of such duties; and no implied covenants or obligations shall be read into this Indenture against the Trustee; and

(2) in the absence of gross negligence on its part, the Trustee may conclusively rely, as to the truth of the statements and the correctness of the opinions expressed therein, upon certificates or opinions furnished to the Trustee and conforming to the requirements of this Indenture; but in the case of any such certificates or opinions which by any provision hereof are specifically required to be furnished to the Trustee, the Trustee shall be under a duty to examine the same to determine whether or not they conform to the form requirements of this Indenture (but need not confirm or investigate the accuracy of mathematical calculations or other facts stated therein).

(b) In case an Event of Default has occurred and is continuing, the Trustee shall exercise such of the rights and powers vested in it by this Indenture, and use the same degree of care and skill in their exercise, as a prudent person would exercise or use under the circumstances in the conduct of such person's own affairs.

(c) No provision of this Indenture shall be construed to relieve the Trustee from liability for its own grossly negligent action or its own willful misconduct, *except* that:

(1) this Subsection shall not be construed to limit the effect of Subsection (a) of this Section;

(2) the Trustee shall not be liable for any error of judgment made in good faith by a Responsible Officer or Officers of the Trustee, unless it shall be proved that the Trustee was grossly negligent in ascertaining the pertinent facts;

(3) the Trustee shall not be liable with respect to any action taken or omitted to be taken by it in good faith in accordance with the direction of the Holders of a majority in principal amount of the Outstanding Note of any series, determined as provided in Section 6.2, relating to the time, method and place of conducting any proceeding for any remedy available to the Trustee, or exercising any trust or power conferred upon the Trustee, under this Indenture with respect to the Note;

(4) no provision of this Indenture shall require the Trustee to expend or risk its own funds or otherwise incur any financial liability in the performance of any of its duties hereunder, or in the exercise of any of its rights or powers, if it shall have reasonable grounds for believing that repayment of such funds or adequate indemnity and/or security against such risk or liability is not reasonably assured to it;

(5) the Trustee shall not be liable in respect of any payment (as to the correctness of amount, entitlement to receive or any other matters relating to payment) or notice effected by the Issuer or any Paying Agent or any records maintained by any co-Note Registrar with respect to the Notes;

(6) if any party fails to deliver a notice relating to an event the fact of which, pursuant to this Indenture, requires notice to be sent to the Trustee, the Trustee may conclusively rely on its failure to receive such notice as reason to act as if no such event occurred, unless a Responsible Officer of the Trustee had actual knowledge of such event;

(7) the delivery of any information to the Trustee under this Indenture, including but not limited to any Rule 144A information, or reports to the Trustee is for informational purposes only and the receipt of such information or reports by the Trustee shall not constitute constructive notice of any information contained therein;

(8) in the absence of written investment direction from the Issuer, all cash received by the Trustee shall be placed in a non-interest bearing trust account, and in no event shall the Trustee be liable for the selection of investments or for investment losses incurred thereon or for losses incurred as a result of the liquidation of any such investment prior to its maturity date or the failure of the party directing such investments prior to its maturity date or the failure of the party directing such investment to provide timely written investment direction, and the Trustee shall have no obligation to invest or reinvest any amounts held hereunder in the absence of such written investment direction from the Issuer;

(9) in the event that the Trustee is also acting as custodian, Registrar, Paying Agent, exchange agent, bid solicitation agent or transfer agent hereunder, the rights and protections afforded to the Trustee pursuant to this Article VII shall also be afforded to such custodian, Registrar, Paying Agent, exchange agent, bid solicitation agent or transfer agent;

(10) any application by the Trustee for written instructions from the Issuer (other than with regard to any action proposed to be taken or omitted to be taken by the Trustee that affects the rights of the Holders of the Notes under this Indenture) may, at the option of the Trustee, set forth in writing any action proposed to be taken or omitted by the Trustee under this Indenture and the date on and/or after which such action shall be taken or such omission shall be effective. The Trustee shall not be liable to the Issuer for any action taken by, or omission of, the Trustee in accordance with a proposal included in such application on or after the date specified in such application (which date shall not be less than three Business Days after the date any officer that the Issuer has indicated to the Trustee should receive such application actually receives such application, unless any such officer shall have consented in writing to any earlier date), unless, prior to taking any such action (or the effective date in the case of any omission), the Trustee shall have received written instructions in accordance with this Indenture in response to such application specifying the action to be taken or omitted.

(d) Whether or not therein expressly so provided, every provision of this Indenture relating to the conduct or affecting the liability of or affording protection to the Trustee shall be subject to the provisions of this Section.

Section 7.2. Notice of Defaults.

The Trustee shall give the Holders notice of any Default ("Notice of Default") that has occurred and is continuing and of which a Responsible Officer of the Trustee has actual knowledge, within 90 days after the occurrence of such Default (but not less than 15 days after knowledge thereof). The Trustee may withhold from Holders notice of any continuing Default or Event of Default (except a Default or Event of Default relating to the payment of principal, premium, if any, or interest on, the Notes) if it determines that withholding such notice is in their interest; provided that, in the case of a default of a character specified in Section 6.1(4), no such notice to Holders shall be given until at least 30 days after the occurrence thereof.

Section 7.3. Certain Rights of Trustee and the Agents.

Subject to the provisions of Section 7.1:

(a) the Trustee and the Agents may rely conclusively and shall be protected in acting or refraining from acting upon any resolution, certificate, statement, instrument, opinion, report, notice, request, direction, consent, order, bond, debenture, note, other evidence of indebtedness or other paper or document believed by it to be genuine and to have been signed or presented by the proper party or parties;

(b) any request or direction of the Issuer mentioned herein shall be sufficiently evidenced by an Issuer Request or an Issuer Order and any resolution of the Board of Directors of the Issuer may be sufficiently evidenced by a Board Resolution;

(c) whenever in the administration of this Indenture the Trustee or an Agent shall deem it desirable that a matter be proved or established prior to taking, suffering or omitting any action hereunder, the Trustee or such Agent, as the case may be, (unless other evidence be herein specifically prescribed) may, in the absence of gross negligence on its part, rely upon an Officer's Certificate or an Opinion of Counsel;

(d) the Trustee or the Agents may consult with counsel of its selection, at the expense of the Issuer, and the advice of such counsel or any Opinion of Counsel shall be full and complete authorization and protection in respect of any action taken, suffered or omitted by it hereunder in good faith and in reliance thereon;

(e) the Trustee and each Agent shall be under no obligation to exercise any of the rights or powers vested in it by this Indenture at the request or direction of any of the Holders pursuant to this Indenture, unless such Holders shall have offered to the Trustee or such Agent, as applicable, security and/or indemnity satisfactory to it against the costs, expenses and liabilities which might be incurred by it in compliance with such request or direction satisfactory to the Trustee or such Agent, as applicable;

(f) neither the Trustee nor any Agent shall be bound to make any investigation into the facts or matters stated in any resolution, certificate, statement, instrument, report, opinion, notice, request, direction, consent, order, bond, debenture, note, other evidence of indebtedness or other paper or document, but the Trustee and each Agent, in its discretion, may make such further inquiry or investigation into such facts or matters as it may see fit, and, if the Trustee or

an Agent shall determine to make such further inquiry or investigation, it shall be entitled to examine the books, records and premises of the Issuer and the Guarantor, personally or by agent or attorney at the sole cost of the Issuer and shall incur no liability or additional liability of any kind by reason of such inquiry or investigation;

(g) the Trustee and each Agent may execute any of the trusts or powers hereunder or perform any duties hereunder either directly or by or through agents or attorneys and the Trustee and each Agent shall not be responsible for any misconduct or negligence on the part, or for the supervision of, any agent or attorney appointed with due care by it hereunder;

(h) neither the Trustee nor any Agent shall be liable for any action taken, suffered or omitted by it in good faith which the Trustee or such Agent, as applicable, believed to have been authorized or within its rights or powers;

(i) neither the Trustee nor any Agent shall be charged with knowledge of any default or Event of Default with respect to the Notes, unless either (1) a Responsible Officer shall have actual knowledge of such default or Event of Default, or (2) written notice of such default or Event of Default shall have been received by a Responsible Officer of the Trustee by the Issuer, the Guarantor or by any Holder of the Notes;

(j) in no event shall the Trustee or any Agent be responsible or liable for special, indirect, punitive or consequential loss or damage of any kind whatsoever (including, but not limited to, loss of profit) irrespective of whether the Trustee or such Agent has been advised of the likelihood of such loss or damage and regardless of the form of action;

(k) the rights, privileges, protections, immunities and benefits given to the Trustee and the Agents, including, without limitation, its right to be indemnified, are extended to, and shall be enforceable by, the Trustee and the Agents in each of their capacities hereunder, and each agent, custodian and other Person employed to act hereunder;

(l) neither the Trustee nor the Agents shall be required to give any bond or surety in respect of the performance of its powers and duties hereunder;

(m) the Trustee and the Agents may request that the Issuer deliver a certificate setting forth the names of individuals and/or titles of officers authorized at such time to take specified actions pursuant to this Indenture; and

(n) the permissive rights of the Trustee enumerated herein shall not be construed as duties.

Section 7.4. Not Responsible for Recitals or Issuance of Notes.

The recitals contained herein, in the Notes and in the Guarantees endorsed thereon, except the Trustee's certificates of authentication, shall be taken as the statements of the Issuer or the Guarantors, as the case may be, and the Trustee assumes no responsibility for their correctness. The Trustee makes no representations as to the validity or sufficiency of this Indenture or the Notes. The Trustee shall not be accountable for the use or application by the Issuer of Notes or the proceeds thereof.

Section 7.5. May Hold Notes.

The Trustee, any Paying Agent or Transfer Agent, any Registrar (if other than the Trustee) or any other agent of the Issuer or the Guarantors, in its individual or any other capacity, may become the owner or pledgee of Notes and, subject to Section 7.8 and 7.12, may otherwise deal with the Issuer and the Guarantors with the same rights it would have if it were not Trustee, Paying Agent, Transfer Agent, Registrar or such other agent.

Section 7.6. Money Held in Trust.

All moneys received by the Trustee or any Paying Agent shall, until used or applied as herein provided, be held in trust for the purposes for which they were received, and need not be segregated from other funds of the Trustee or Paying Agent, except as otherwise required by law. Neither the Trustee nor any Paying Agent shall be under any liability for interest on any moneys received by it hereunder except such as it may agree in writing with the Issuer to pay thereon.

Section 7.7. Compensation and Reimbursement.

The Issuer and the Guarantors agree:

(1) to, jointly and severally, pay to the Trustee and the Agents from time to time upon demand such compensation for all services rendered by it hereunder as shall be agreed upon in writing (which compensation shall not be limited by any provision of law in regard to the compensation of a trustee of an express trust), as such fees may be adjusted from time to time;

(2) except as otherwise expressly provided herein, to, jointly and severally, reimburse each of the Trustee and the Agents upon its request for all reasonable expenses and disbursements incurred or made by it in accordance with any provision of this Indenture (including the reasonable compensation and the expenses and disbursements of their agents and counsel), except any such expense, disbursement or advance as may be attributable to its gross negligence or willful misconduct; and

(3) to, jointly and severally, indemnify each the Trustee and the Agents for, and to hold each harmless against, any loss, liability, cost, damage, claim or expense (including taxes, other than taxes based on or measured by income, and the reasonable compensation, expenses and disbursements of its agents, accountants, experts and counsel) incurred without gross negligence or willful misconduct on its part as determined in a final judgment of a court with competent jurisdiction, arising out of or in connection with the acceptance or administration of this trust or the performance by it of its duties and obligations or the exercise of its rights hereunder, including the costs and expenses of enforcing this Indenture against the Issuer or the Guarantors, as the case may be (including, without limitation, this Section 7.7), and of defending against any claim (whether asserted by any Holder or the Issuer or the Guarantors or any other Person, as the case may be) or liability in connection with the exercise or performance of any of its powers or duties hereunder. The provisions of this Section 7.7 shall survive any termination of this Indenture and the resignation or removal of the Trustee, the Principal Paying Agent or other Paying Agent.

As security for the performance of the obligations of the Issuer or the Guarantors, as the case may be, under this Section 7.7, the Trustee shall have a lien prior to the Notes upon all property and funds held or collected by the Trustee, except funds held in trust for the payment of principal of (and premium, if any) or interest on particular Notes. The Trustee's right to receive payment of any amounts due under this Section 7.7 shall not be subordinate to any other liability or indebtedness of the Issuer or the Guarantors, as the case may be (even though the Notes may be so subordinated).

The obligation of the Issuer under this Section 7.7 shall survive the satisfaction and discharge of this Indenture and the earlier resignation or removal of the Trustee. The indemnification provided in this Section 7.7 shall extend to the officers, directors, agents and employees of the Trustee.

When the Trustee incurs expenses or renders services after an Event of Default specified in Section 6.1 occurs, the expenses and the compensation for such services are intended to constitute expenses of administration under Title 11, U.S. Code, or any similar Federal, State or analogous foreign law for the relief of debtors.

Section 7.8. Corporate Trustee Required; Eligibility.

There shall at all times be a Trustee hereunder which shall be a Person that is eligible pursuant to the Trust Indenture Act to act as such and has a combined capital and surplus of at least U.S.\$50,000,000 and its Corporate Trust Office in The City of New York, New York. If such Person publishes reports of condition at least annually, pursuant to law or to the requirements of a Federal, State, Territorial or District of Columbia supervising or examining authority, then for the purposes of this Section, the combined capital and surplus of such Person shall be deemed to be its combined capital and surplus as set forth in its most recent report of condition so published. If at any time the Trustee shall cease to be eligible in accordance with the provisions of this Section, it shall resign immediately in the manner and with the effect hereinafter specified in this Article.

Section 7.9. Resignation and Removal; Appointment of Successor.

(a) No resignation or removal of the Trustee and no appointment of a successor Trustee pursuant to this Article shall become effective until the acceptance of appointment by the successor Trustee under Section 7.10, at which time the retiring Trustee shall be fully discharged from its obligations hereunder.

(b) The Trustee and the Principal Paying Agent may resign at any time by giving written notice thereof to the Issuer. If an instrument of acceptance by a successor Trustee or Principal Paying Agent shall not have been delivered to the Trustee or Principal Paying Agent, as the case may be, within 30 days after the giving of such notice of resignation, the resigning Trustee or Principal Paying Agent may petition, at the expense of the Issuer, any court of competent jurisdiction for the appointment of a successor Trustee or Principal Paying Agent, as the case may be.

(c) The Trustee may be removed at any time by Act of the Holders of a majority in principal amount of the Outstanding Notes, delivered to the Trustee and to the Issuer. If an

instrument of acceptance by a successor Trustee shall not have been delivered to the Trustee within 30 days after the giving of such notice of removal, the Issuer may petition, at its expense, any court of competent jurisdiction for the appointment of a successor Trustee.

(d) The Agents (other than the Principal Paying Agent) may resign at any time by giving written notice thereof to the Issuer. The Agents may appoint a successor Agent if the Issuer does not.

(e) So long as no Event of Default has occurred and is continuing, the Issuer may remove the Trustee or any Agent and appoint a new Trustee or Agent, as applicable, provided that such Trustee meets the eligibility requirements of Section 7.8.

(f) If at any time:

(1) the Trustee shall fail to comply with Section 7.8 after written request therefor by the Issuer or by any Holder who has been a bona fide Holder of a Note for at least six months; or

(2) the Trustee shall cease to be eligible under Section 7.8 and shall fail to resign after written request therefor by the Issuer or by any such Holder; or

(3) the Trustee shall become incapable of acting or shall be adjudged a bankrupt or insolvent or a receiver of the Trustee or of its property shall be appointed or any public officer shall take charge or control of the Trustee or of its property or affairs for the purpose of rehabilitation, conservation or liquidation, then, in any such case, (i) the Issuer by a Board Resolution may remove the Trustee, or (ii) any Holder who has been a bona fide Holder of a Note for at least six months may, on behalf of himself or herself and all others similarly situated, petition any court of competent jurisdiction for the removal of the Trustee and the appointment of a successor Trustee.

(g) If the Trustee shall resign, be removed or become incapable of acting, or if a vacancy shall occur in the office of Trustee for any cause, the Issuer, by a Board Resolution, shall promptly appoint a successor Trustee. If, within one year after such resignation, removal or incapability, or the occurrence of such vacancy, a successor Trustee shall be appointed by Act of the Holders of a majority in principal amount of the Outstanding Notes delivered to the Issuer and the retiring Trustee, the successor Trustee so appointed shall, forthwith upon its acceptance of such appointment, become the successor Trustee and supersede the successor Trustee appointed by the Issuer. If no successor Trustee shall have been so appointed by the Issuer or the Holders and accepted appointment in the manner hereinafter provided, any Holder who has been a bona fide Holder of a Note for at least six months may, on behalf of himself or herself and all others similarly situated, petition any court of competent jurisdiction at the expense of the Issuer for the appointment of a successor Trustee.

(h) The Issuer shall give notice of each resignation and each removal of the Trustee and each appointment of a successor Trustee to all Holders in the manner provided in Section 1.6. Each notice shall include the name of the successor Trustee and the address of its Corporate Trust Office at the expense of the Issuer.

Section 7.10. Acceptance of Appointment by Successor.

Every successor Trustee appointed hereunder shall execute, acknowledge and deliver to the Issuer, the Guarantors and to the retiring Trustee an instrument accepting such appointment, and thereupon the resignation or removal of the retiring Trustee shall become effective and such successor Trustee, without any further act, deed or conveyance, shall become vested with all the rights, powers, trusts and duties of the retiring Trustee; but, on request of the Issuer or the successor Trustee, such retiring Trustee shall, upon payment of its charges, execute and deliver an instrument transferring to such successor Trustee all the rights, powers and trusts of the retiring Trustee and shall duly assign, transfer and deliver to such successor Trustee all property and money held by such retiring Trustee hereunder, subject nevertheless to its Lien, if any, provided for in Section 7.7. Upon request of any such successor Trustee, the Issuer and the Guarantors shall execute any and all instruments for more fully and certainly vesting in and confirming to such successor Trustee all such rights, powers and trusts. No successor Trustee shall accept its appointment unless at the time of such acceptance such successor Trustee shall be qualified and eligible under this Article.

Section 7.11. Merger, Conversion, Consolidation or Succession to Business.

Any corporation or other entity into which the Trustee may be merged or convened or with which it may be consolidated, or any corporation or other entity resulting from any merger, conversion or consolidation to which the Trustee shall be a party, or any corporation or other entity succeeding to all or substantially all the corporate trust business of the Trustee, shall be the successor of the Trustee hereunder, provided that such corporation or other entity shall be otherwise qualified and eligible under this Article, without the execution or filing of any paper or any further act on the part of any of the parties hereto. In case any Notes shall have been authenticated, but not delivered, by the Trustee then in office, any successor by merger, conversion or consolidation to such authenticating Trustee may adopt such authentication and deliver the Notes so authenticated with the same effect as if such successor Trustee had itself authenticated such Notes.

Section 7.12. Appointment of Authenticating Agent.

The Trustee may appoint an Authenticating Agent or Agents with respect to the Notes which shall be authorized to act on behalf of the Trustee to authenticate Notes issued upon original issue and upon exchange, registration of transfer or partial redemption thereof or pursuant to Section 3.5, and Notes so authenticated shall be entitled to the benefits of this Indenture and shall be valid and obligatory for all purposes as if authenticated by the Trustee hereunder. Wherever reference is made in this Indenture to the authentication and delivery of Notes by the Trustee or the Trustee's certificate of authentication, such reference shall be deemed to include authentication and delivery on behalf of the Trustee by an Authenticating Agent and a certificate of authentication executed on behalf of the Trustee by an Authenticating Agent. Each Authenticating Agent shall be acceptable to the Issuer and shall at all times be a corporation organized and doing business under the laws of the United States, any State thereof or the District of Columbia, authorized under such laws to act as Authenticating Agent, having a combined capital and surplus of not less than U.S.\$50,000,000 and subject to supervision or examination by Federal or State authority. If such Authenticating Agent publishes reports of

condition at least annually, pursuant to law or to the requirements of said supervising or examining authority, then for the purposes of this Section, the combined capital and surplus of such Authenticating Agent shall be deemed to be its combined capital and surplus as set forth in its most recent report of condition so published. If at any time an Authenticating Agent shall cease to be eligible in accordance with the provisions of this Section, such Authenticating Agent shall resign immediately in the manner and with the effect specified in this Section.

Any corporation or other entity into which an Authenticating Agent may be merged or converted or with which it may be consolidated, or any corporation or other entity resulting from any merger, conversion or consolidation to which such Authenticating Agent shall be a party, or any corporation or other entity succeeding to all or substantially all the corporate agency or corporate trust business of an Authenticating Agent, shall continue to be an Authenticating Agent, provided such corporation or other entity shall be otherwise eligible under this Section, without the execution or filing of any paper or any further act on the part of the Trustee or the Authenticating Agent.

An Authenticating Agent may resign at any time by giving written notice thereof to the Trustee and to the Issuer. The Trustee may at any time terminate the agency of an

Authenticating Agent by giving written notice thereof to such Authenticating Agent and to the Issuer. Upon receiving such a notice of resignation or upon such a termination, or in case at any time such Authenticating Agent shall cease to be eligible in accordance with the provisions of this Section, the Trustee may appoint a successor Authenticating Agent which shall be acceptable to the Issuer and shall give notice of such appointment in the manner provided in Section 1.6 to all Holders of Notes. Any successor Authenticating Agent upon acceptance of its appointment hereunder shall become vested with all the rights, powers and duties of its predecessor hereunder, with like effect as if originally named as an Authenticating Agent. No successor Authenticating Agent shall be appointed unless eligible under the provisions of this Section.

The Issuer agrees to pay to each Authenticating Agent from time to time reasonable compensation for its services under this Section.

If an appointment is made pursuant to this Section, the Notes may have endorsed thereon, in lieu of the Trustee's certificate of authentication, an alternative certificate of authentication in the following form:

"This is one of the Notes referred to in the within-mentioned Indenture.

THE BANK OF NEW YORK MELLON
as Trustee

By: _____
as Authenticating Agent"

ARTICLE VIII

HOLDERS LISTS AND COMMUNICATIONS BY TRUSTEE AND ISSUER

Section 8.1. Issuer to Furnish Trustee; Names and Addresses of Holders.

The Issuer will furnish or cause to be furnished to the Trustee

(a) semi-annually, not more than 15 days after each Record Date, a list, in such form as the Trustee may reasonably require, of the names and addresses of the Holders as of such Record Date; and

(b) at such other times as the Trustee may request in writing, within 30 days after the receipt by the Issuer of any such request, a list of similar form and content as of a date not more than 15 days prior to the time such list is furnished;

excluding from any such list names and addresses received by the Trustee in its capacity as Registrar.

Section 8.2. Preservation of Information; Communications to Holders.

(a) The Trustee shall preserve, in as current a form as is reasonably practicable, the names and addresses of Holders contained in the most recent list furnished to the Trustee as provided in Section 8.1 and the names and addresses of Holders received by the Trustee in its capacity as Registrar. The Trustee may destroy any list furnished to it as provided in Section 8.1 upon receipt of a new list so furnished.

(b) If a Holder (herein referred to as an “applicant”) applies in writing to the Trustee, and furnishes to the Trustee reasonable proof that each such applicant has owned a Note for a period of at least six months preceding the date of such application, and such application states that such applicant desires to communicate with other Holders with respect to their rights under this Indenture or under the Notes and is accompanied by a copy of the form of proxy or other communication which such applicant proposes to transmit, then the Trustee shall, within five Business Days after the receipt of such application, at its election, either

(1) afford such applicant access to the information preserved at the time by the Trustee in accordance with Section 8.2(a); or

(2) inform such applications as to the approximate number of Holders whose names and addresses appear in the information preserved at the time by the Trustee in accordance with Section 8.2(a), as to the approximate cost of mailing to such Holders the form of proxy or other communication, if any, specified in such application.

(c) Every Holder of Notes, by receiving and holding the same, agrees with the Issuer and the Trustee that neither the Issuer nor the Trustee nor any agent of either of them shall be held accountable by reason of the disclosure of any such information as to the names and addresses of the Holders in accordance with Section 8.2(b), regardless of the source from which

such information was derived, and that the Trustee shall not be held accountable by reason of mailing any material pursuant to a request made under Section 8.2(b).

ARTICLE IX

CONSOLIDATION, MERGER, CONVEYANCE, TRANSFER OR LEASE

Section 9.1. Mergers, Consolidations and Certain Sales of Assets.

So long as any of the Notes are Outstanding, neither the Issuer nor any Guarantor may, in a single transaction or a series of related transactions:

(1) unless the Issuer or such Guarantor, as applicable, is the surviving Person, consolidate with or merge into any other Person or permit any other Person to consolidate with or merge into the Issuer or such Guarantor, as applicable (other than a consolidation or merger of a Wholly Owned Subsidiary organized under the laws of Luxembourg, Brazil, Peru, the United States or any OECD country, in each case, with or into the Issuer or such Guarantor, as applicable); or

(2) directly or indirectly, transfer, sell, lease or otherwise dispose of all or substantially all of its assets (determined on a consolidated basis of the Issuer and its Subsidiaries or the relevant Guarantor and its Subsidiaries, as applicable) to any Person (other than the Issuer or a Guarantor) (provided that the creation of a Lien on or in any of its assets shall not in and of itself constitute the transfer, sale, lease or disposition of the assets subject to the Lien),

unless the following conditions, to the extent applicable, are met:

(i) in the case of a transaction in which the Issuer or a Guarantor does not survive or in which the Issuer or a Guarantor sells, leases or otherwise disposes of all or substantially all of its assets to any other Person, the successor entity to the Issuer or such Guarantor (1) shall expressly assume, by a supplemental indenture executed and delivered to the Trustee, all of the Issuer's or such Guarantor's obligations under this Indenture and (2) shall be organized under the laws of (x) Luxembourg, Brazil, Peru or any state or political subdivision thereof, (y) the United States or any state thereof or the District of Columbia or (z) any other country if such successor entity undertakes, in such supplemental indenture, to pay such additional amounts in respect of principal (and premium, if any) and interest as may be necessary in order that the net amounts paid pursuant to the Notes after deduction or withholding of any present or future withholding taxes, duties, assessments, levies, imposts or charges whatsoever imposed by or for the account of such country or any political subdivision or taxing authority thereof or therein shall equal the respective amounts of principal (and premium, if any) and interest specified in the Notes, subject to the same exceptions set forth under clauses (1) through (7) of Section 11.9, but replacing existing references in such clauses to the jurisdiction of incorporation of the Issuer or such Guarantor, as applicable, with references to such other country and references to the jurisdiction of incorporation of the Issuer or such

Guarantor, as applicable, under Section 4.1 shall automatically be deemed to be references to such other country;

(ii) if, as a result of any such transaction, property or assets of the Issuer or such Guarantor would become subject to a Lien prohibited by Section 12.10, the Issuer or such Guarantor, as applicable, or the successor entity to the Issuer or such Guarantor, as applicable, shall have secured the Notes as described thereunder; and

(iii) the Issuer or such Guarantor, as applicable, has delivered to the Trustee an Officer's Certificate and an Opinion of Counsel, each stating that such consolidation, merger, conveyance, transfer, lease or acquisition and, if a supplemental indenture is required in connection with such transaction, such supplemental indenture complies with this covenant and that all conditions precedent provided for in this Indenture relating to such transaction have been complied with.

In the event of any transaction (other than a lease) described in and complying with the provisions of this Section 9.1 in which the Issuer or a Guarantor, as applicable, is not the surviving Person and the surviving Person assumes all the obligations of the Issuer or such Guarantor, as applicable, under this Indenture and the Notes or the Guarantee, as applicable, pursuant to a supplemental Indenture, such surviving Person shall succeed to, and be substituted for, and may exercise every right and power of, the Issuer or such Guarantor, as applicable, and the Issuer or such Guarantor, as applicable, will be discharged from its obligations under this Indenture and the Notes or the Guarantee, as applicable.

ARTICLE X

SUPPLEMENTAL INDENTURES

Section 10.1. Supplemental Indentures Without Consent of Holders.

Without the consent of any Holders, the Issuer and the Trustee, at any time and from time to time, may enter into one or more supplemental indentures hereto in form satisfactory to the Trustee, for any of the following purposes:

- (1) to evidence the succession of another Person to the Issuer or any Guarantor and the assumption by any such successor of the covenants of the Issuer or any Guarantor, as applicable, herein and in the Notes or the Guarantees, as applicable;
- (2) to add to the covenants of the Issuer for the benefit of the Holders, or to surrender any right or power herein conferred upon the Issuer;
- (3) to cure any ambiguity, defect or inconsistency or to correct a manifest error;
- (4) to provide for uncertificated Notes in addition to or in place of certificated Notes;
- (5) to comply with Section 9.1 of this Indenture;

- (6) to evidence and provide for the acceptance of an appointment by a successor trustee;
- (7) to provide for any additional guarantee of the Notes;
- (8) to secure the Notes or to confirm and evidence the release, termination or discharge of any guarantee of or Lien securing the Notes when such release, termination or discharge is permitted by this Indenture;
- (9) to provide for or confirm the issuance of Additional Notes;
- (10) to conform the provisions of this Indenture to the caption entitled "Description of the Notes" in the offering memorandum relating to the Notes; or
- (11) to make any other modification and any waiver or authorization of any breach or proposed breach of any provision of this Indenture or the Notes which is not materially prejudicial to the Holders.

Section 10.2. Supplemental Indentures with Consent of Holders.

With the consent of the Holders of not less than a majority in aggregate principal amount of the Outstanding Notes, by Act of said Holders delivered to the Issuer and the Trustee, and consistent with Section 6.13, the Issuer and the Trustee may enter into an indenture or supplemental indentures hereto for the purpose of adding any provisions to or changing in any manner or eliminating any of the provisions of this Indenture or of modifying in any manner the rights of the Holders under this Indenture; provided, however, that no such supplemental indenture shall, without the consent of the Holder of each outstanding Note affected thereby:

- (1) change the Stated Maturity of the principal of, or any installment of interest on, any Note, or reduce the principal amount thereof or the rate of interest thereon or any premium payable thereon, or change the place of payment where, or the coin or currency in which, any Note or any premium or interest thereon is payable, or impair the right to institute suit for the enforcement of any such payment on or with respect to any Note on or after the Stated Maturity thereof (or, in the case of redemption, on or after the Redemption Date),
- (2) reduce the percentage in principal amount of the Outstanding Notes, the consent of whose Holders is required for any such supplemental indenture, or the consent of whose Holders is required for any waiver (of compliance with certain provisions of this Indenture or certain defaults hereunder and their consequences) provided for in this Indenture;
- (3) modify any of the provisions of this Section 10.2 or Section 6.12 or Section 11.9, except to increase any such percentage described in clause (2) above or to provide that certain other provisions of this Indenture cannot be modified or waived without the consent of the Holder of each Outstanding Note affected thereby;

(4) release any Guarantors from its obligations under its Guarantee or this Indenture, except in compliance with the terms of this Indenture.

It shall not be necessary for any Act of Holders under this Section to approve the particular form of any proposed supplemental indenture, but it shall be sufficient if such Act shall approve the substance thereof.

Section 10.3. Execution of Supplemental Indentures.

In executing, or accepting the additional trusts created by, any supplemental indenture permitted by this Article or the modifications thereby of the trusts created by this Indenture, the Trustee shall receive, and (subject to Section 7.1) shall be fully protected in conclusively relying upon, in addition to the documents required by Section 1.2, an Officer's Certificate and Opinion of Counsel stating that the execution of such supplemental indenture is authorized or permitted by this Indenture. The Trustee may, but shall not be obligated to, enter into any such supplemental indenture which affects the trustee's own rights, duties or immunities under this Indenture.

Section 10.4. Effect of Supplemental Indentures.

Upon the execution of any supplemental indenture under this Article, this Indenture shall be modified in accordance therewith, and such supplemental indenture shall form a part of this Indenture for all purposes; and every Holder of Notes theretofore or thereafter authenticated and delivered hereunder shall be bound thereby.

Section 10.5. Reference in Notes to Supplemental Indentures.

Notes authenticated and delivered after the execution of any supplemental indenture pursuant to this Article may, and shall if required by the Trustee, bear a notation in form approved by the Trustee as to any matter provided for in such supplemental indenture. If the Issuer shall so determine, new Notes so modified as to conform, in the opinion of the Issuer, to any such supplemental indenture may be prepared and executed by the Issuer and authenticated and delivered by the Trustee in exchange for Outstanding Notes.

Section 10.6. Notice to Holders.

After a supplemental indenture under this Article becomes effective, the Issuer will send to the Holders affected thereby a notice briefly describing the terms of the supplement. The Issuer will send supplemental indentures to Holders upon request. Any failure of the Issuer to send such notice, or any defect therein, will not, however, in any way impair or affect the validity of any such supplemental indenture.

ARTICLE XI

COVENANTS

Section 11.1. Payment Under the Notes.

Each of the Issuer and the Guarantors shall duly and punctually pay all amounts owed by it, and comply with all its other obligations, under the terms of the Notes, the Guarantees and this Indenture (collectively, the “Transaction Documents”).

Section 11.2. Maintenance of Office or Agency.

The Issuer and the Guarantors will maintain in the Borough of Manhattan, The City of New York, New York, an office or agency where Notes may be presented or surrendered for payment, where Notes may be surrendered for registration of transfer or exchange and where notices and demands to or upon the Issuer or the Guarantors in respect of the Notes, the Guarantees and this Indenture may be served. Initially, this office will be at the Corporate Trust Office of the Trustee, unless the Issuer shall designate and maintain any other office or agency for one or more such purposes, and the Issuer and the Guarantors shall agree not to change the designation of such office without prior written notice to the Trustee and designation of a replacement office in the same general location. The Issuer will give prompt written notice to the Trustee of the location, and any change in the location, of such offices or agencies. If at any time the Issuer or the Guarantors shall fail to maintain any such required offices or agencies or shall fail to furnish the Trustee with the address thereof, such presentations, surrenders, notices and demands may be made or served at the Corporate Trust Office of the Trustee. The Issuer and the Guarantors hereby appoint the Trustee as their agent to receive all such presentations, surrenders, notices and demands.

The Issuer may also from time to time designate one or more other offices or agencies (in or outside the Borough of Manhattan, The City of New York, New York) where the Notes may be presented or surrendered for any or all such purposes and may from time to time rescind such designations (each, a “Transfer Agent”); provided, however, that no such designation or rescission shall in any manner relieve the Issuer of its obligation to maintain an office or agency in the Borough of Manhattan, The City of New York, New York. The Issuer has initially designated the offices of The Bank of New York Mellon to act as Transfer Agent. The Issuer will give prompt written notice to the Trustee of any such designation or rescission and of any change in the location of any such other office or agency.

Section 11.3. Money for Note Payments to Be Held in Trust.

If the Issuer shall at any time act as its own Paying Agent, it will, on or before each due date of the principal of (and premium, if any) or interest on any of the Notes, segregate and hold in trust for the benefit of the Persons entitled thereto a sum sufficient to pay the principal (and premium, if any) or interest so becoming due until such sums shall be paid to such Persons or otherwise disposed of as herein provided and will promptly notify the Trustee in writing of its action or failure so to act.

Whenever the Issuer shall have one or more Paying Agents, it will, prior to each due date of the principal of (and premium, if any) or interest on any Notes, deposit with the Principal Paying Agent a sum sufficient to pay the principal (and premium, if any) or interest (including Additional Amounts, if any) so becoming due, such sum to be held in trust for the benefit of the Persons entitled to such principal, premium or interest, and (unless such Paying Agent is the Trustee) the Issuer will promptly notify the Trustee in writing of its action or failure so to act.

The Issuer will cause each Paying Agent other than the Trustee and the Principal Paying Agent to execute and deliver to the Trustee an instrument in which such Paying Agent shall agree with the Trustee, subject to the provisions of this Section 11.3, that such Paying Agent will:

- (1) hold all sums held by it for the payment of the principal of (and premium, if any) or interest on Notes in trust for the benefit of the Persons entitled thereto until such sums shall be paid to such Persons or otherwise disclosed of as herein provided;
- (2) give the Trustee written notice of any default by the Issuer (or any other obligor upon the Notes) in the making of any payment of principal (and premium, if any) or interest;
- (3) at any time during the continuance of any such default, upon the written request of the Trustee, forthwith pay to the Trustee all sums so held in trust by such Paying Agent; and
- (4) acknowledge, accept and agree to comply in all respects with the provisions of this Indenture relating to the duties, rights and obligations of such Paying Agent.

The Issuer may at any time, for the purpose of obtaining the satisfaction and discharge of this Indenture or for any other purpose, pay, or by Issuer Order direct any Paying Agent to pay, to the Trustee all sums held in trust by the Issuer or such Paying Agent, such sums to be held by the Trustee upon the same trusts as those upon which such sums were held by the Issuer or such Paying Agent; and, upon such payment by any Paying Agent to the Trustee, such Paying Agent shall be released from all further liability with respect to such money.

Any money deposited with the Trustee or any Paying Agent, or then held by the Issuer, in trust for the payment of the principal of (and premium, if any) or interest on any Note and remaining unclaimed for two years after such principal (and premium, if any) or interest has become due and payable shall be paid to the Issuer on the Issuer's Request, or (if then held by the Issuer) shall be discharged from such trust; and the Holder of such Note shall thereafter, as an unsecured general creditor, look only to the Issuer for payment thereof, and all liability of the Trustee or such Paying Agent with respect to such trust money, and all liability of the Issuer as trustee thereof, shall thereupon cease.

Section 11.4. Maintenance of Corporate Existence.

The Issuer and the Guarantors shall, and shall cause each of their respective Subsidiaries to, maintain in effect its corporate existence and all registrations necessary therefor and take all

actions to maintain all rights, privileges, titles to property, franchises and the like necessary or desirable in the normal conduct of its business, activities or operations provided that this covenant shall not require (i) the Issuer, the Guarantors or any of their respective Subsidiaries to maintain any such registration, right, privilege, title to property, franchise or the like or require the Issuer or the Guarantors to preserve the corporate existence of any of their respective Subsidiaries (other than a Subsidiary that is a Guarantor), if the failure to do so would not have a material adverse effect on the Issuer and its Subsidiaries taken as a whole or have a material adverse effect on the rights of the Holders or (ii) the Guarantors or the Issuer to preserve its corporate existence if it complies with the provisions of Section 9.1.

Section 11.5. Repurchases at the Option of the Holders upon Change of Control.

If a Change of Control occurs that results in a Rating Decline, each Holder will have the right to require the repurchase of all or any part (equal to U.S.\$200,000 and integral multiples of U.S.\$1,000 in excess thereof) of the Notes of that Holder pursuant to a Change of Control Offer by the Issuer or the Guarantors. No such purchase in part shall reduce the principal amount of the Notes held by any Holder to below U.S.\$200,000. In the Change of Control Offer, the Issuer or a Guarantor will offer a "Change of Control Payment" in U.S. dollars equal to 101% of the aggregate principal amount of Notes repurchased plus accrued and unpaid interest and Additional Amounts, if any, on the Notes repurchased, to the date of purchase (subject to the right of the Holders of record on the relevant Record Date to receive interest and Additional Amounts, if any, on the relevant Interest Payment Date).

Within 30 days following any Change of Control that results in a Rating Decline the Issuer or the Guarantor will make a "Change of Control Offer" by notice to each Holder of Notes in accordance with the provision set out under Section 1.6, describing the transaction or transactions that constitute the Change of Control and offering to repurchase Notes on the date specified in the notice (the "Change of Control Payment Date"), which date will be no earlier than 30 days and no later than 60 days from the date such notice is mailed, pursuant to the procedures required by this Indenture and described in such notice.

The Issuer or the applicable Guarantor will comply, to the extent applicable, with the requirements of Section 14(e)-1 of the Exchange Act and any other applicable securities laws or regulations in connection with the repurchase of Notes pursuant to this covenant. To the extent that the provisions of any applicable securities laws or regulations conflict with provisions of this covenant, the Issuer or the applicable Guarantor will comply with the applicable securities laws and regulations and will not be deemed to have breached its obligations under this covenant by virtue of its compliance with such securities laws or regulations.

On the Change of Control Payment Date, the Issuer or the applicable Guarantor will, to the extent lawful:

- (1) accept for payment all Notes or portions of Notes properly tendered pursuant to the Change of Control Offer; and
- (2) procure that the Change of Control Payment is made in respect of all Notes or portions of Notes properly tendered.

The Paying Agents will promptly mail to each Holder who properly tendered Notes the Change of Control Payment for such Notes, and the Trustee will promptly authenticate and mail (or cause to be transferred by book entry) to each Holder a new Note equal in principal amount to any unpurchased portion of the Notes surrendered, if any; provided that each new Note will be in minimum denominations of U.S.\$200,000 and integral multiples of U.S.\$1,000 in excess thereof.

The provisions described above that require the Issuer or a Guarantor to make a Change of Control Offer following a Change of Control will be applicable whether or not any other provisions of this Indenture are applicable. However, a Change of Control Offer is only required to be made in the event that a Change of Control results in a Rating Decline. Consequently, if a Change of Control were to occur which does not result in a Rating Decline, none of the Issuer and the Guarantors would be required to launch a Change of Control Offer. Except as described above with respect to a Change of Control, this Indenture does not contain provisions that permit the Holders to require that the Issuer or a Guarantor repurchase or redeem the Notes in the event of a takeover, recapitalization or similar transaction.

None of the Issuer or the Guarantors will be required to make a Change of Control Offer upon a Change of Control if (1) a third party makes the Change of Control Offer in the manner, at the times and otherwise in compliance with the requirements, set forth in this Indenture, that are applicable to a Change of Control Offer made by the Issuer or a Guarantor and such third party purchases all Notes properly tendered and not withdrawn under the Change of Control Offer or (2) a notice of redemption has been given for all outstanding Notes pursuant to this Indenture as described under Section 4.2 unless and until there is a default in payment of the applicable Redemption Price.

Notwithstanding anything to the contrary contained herein and subject to applicable law, a Change of Control Offer may be made in advance of a Change of Control and conditioned upon the occurrence of such Change of Control and Rating Decline if a definitive agreement is in place for the Change of Control at the time of making of the Change of Control Offer.

In the event that the Holders of not less than 85% of the aggregate principal amount of Outstanding Notes accept a Change of Control Offer and the Issuer or a Guarantor or a third party purchases all the Notes held by such holders, the Issuer or a Guarantor will have the right, on not less than 10 nor more than 60 days' prior notice to the Holders, given not more than 30 days following the purchase date pursuant to the Change of Control Offer, to redeem all of the Notes that remain outstanding following such purchase at the purchase price equal to that in the Change of Control Offer plus, to the extent not included in the purchase price, accrued and unpaid interest and Additional Amounts, if any, on the Notes that remain Outstanding, to, but excluding, the date of redemption.

Section 11.6. Payment of Taxes and Other Claims.

The Issuer and the Guarantors shall, and shall cause each of their respective Subsidiaries to, pay or discharge or cause to be paid or discharged before the same shall become delinquent, (i) all taxes, assessments and governmental charges levied or imposed upon the Issuer and the Guarantors or any of their respective Subsidiaries, as the case may be, and (ii) all lawful claims

for labor, materials and supplies which, if unpaid, might by law become a Lien upon the property of the Issuer or a Guarantor or any of their respective Subsidiaries, as the case may be; provided, however, that neither the Issuer nor any Guarantor nor any of their respective Subsidiaries shall be required to pay or discharge or cause to be paid or discharged any such tax, assessment, charge or claim whose amount, applicability or validity is being contested in good faith and, if appropriate, by appropriate legal proceedings, or where the failure to do so would not have a material adverse effect on the Issuer, the Guarantors and their Subsidiaries taken as a whole or have a material adverse effect on the rights of the Holders.

Section 11.7. Provision of Financial Information.

The Issuer has agreed that it will furnish to the Trustee and the Holders and to any prospective purchasers of such Notes, to the extent permitted by applicable law or contractual restrictions, upon their request, the information required to be delivered pursuant to Rule 144A(d)(4) under the Securities Act; provided that the foregoing obligation will only apply to the Issuer if it ceases to be subject to and in compliance with the reporting requirements of Section 13 or 15(d) of the Exchange Act or exempt from reporting pursuant to Rule 12g3-2(b) under the Exchange Act.

Additionally, the Issuer shall provide the Trustee and the Holders, within 120 days of the end of each fiscal year and within 60 days of the end of each of the first three fiscal quarters, annual or quarterly financial statements, as applicable, in accordance with applicable GAAP and audited in the case of annual financial statements.

Notwithstanding the foregoing, if the Issuer makes available the information described above on the Issuer's or an Affiliate's website or on the Electronic Data Gathering, Analysis, and Retrieval (EDGAR) website of the SEC, the Issuer will be deemed to have satisfied the reporting requirement set forth in such applicable clause. It is understood that the Trustee shall have no responsibility to determine whether any information has been posted on such websites.

Delivery of such reports, information and documents to the Trustee is for informational purposes only and the Trustee's receipt of such reports shall not constitute constructive notice of any information contained therein or determinable from information contained therein, including the Issuer's compliance with any of its covenants hereunder (as to which the Trustee is entitled to rely exclusively on an Officer's Certificate or notice). The Trustee shall have no obligation to determine if and when the Issuer's statements or reports are publicly available and accessible electronically.

Section 11.8. Statement by Officers as to Default.

(a) The Issuer will be required to furnish to the Trustee together with the delivery (or the posting on the Issuer's or an Affiliate's website) of its annual financial statements and in any event within 120 days after the end of each such fiscal period, an Officer's Certificate stating whether or not to the best knowledge of the signer thereof none of the Issuer or any Guarantor is in default in the performance and observance of any of the terms, provisions and conditions of this Indenture and if the Issuer or any Guarantor is in default, specifying all such defaults and the nature and status thereof of which they may have knowledge.

(b) The Issuer shall deliver to the Trustee, as soon as is practicable and in any event within ten calendar days after the Issuer becomes aware of the occurrence of a Default or an Event of Default, an Officer's Certificate of the Issuer, setting forth the details of such Default or Event of Default and stating what action the Issuer, proposes to take with respect thereto. None of the Agents shall have notice of any Default or Event of Default unless a Responsible Officer of such Agent has actual knowledge thereof.

Section 11.9. Payment of Additional Amounts.

Any and all payments to a Holder of principal (and premium, if any) and interest in respect of the Notes will be made free and clear of, and without withholding or deduction for, any and all present and future withholding taxes, duties, assessments, levies, imposts or charges ("Taxes") whatsoever imposed by or on behalf of, Luxembourg, Brazil, Peru or any political subdivision or taxing authority thereof or therein or any other jurisdiction from or through which payment on the Notes is made, unless such withholding or deduction is required by law. In that event, the Issuer or a Guarantor, as the case may be, shall pay such additional amounts (the "Additional Amounts") as will result in the receipt by the Holders of such amounts as would have been received by them if no such withholding or deduction had been required, except that no such Additional Amounts shall be payable in respect of any Note:

(1) held by, or by a third party on behalf of, a Holder or beneficial owner which is liable for such taxes, duties, assessments, levies, imposts or charges in respect of such Note by reason of its (or a fiduciary, settlor, member, shareholder or beneficiary of, or possessor of a power over, such Holder, if such Holder is an estate, trust, partnership or corporation) having some present or former connection with Luxembourg, Brazil or Peru (including being or having been a citizen or resident of Luxembourg, Brazil or Peru or being or having been engaged in trade or business therein) other than the mere holding of such Note or the enforcement of rights in respect of such Note; or

(2) where (in the case of a payment of principal, premium, if any, or interest on the Maturity Date or date of earlier redemption) the relevant Note is surrendered for payment more than 30 days after the Relevant Date except to the extent that the relevant Holder would have been entitled to such Additional Amounts if it had surrendered the relevant Note on the last day of such period of 30 days; or

(3) if such tax is an estate, inheritance, gift, sales, transfer or personal property tax or any similar tax, assessment, levy, impost or charge; or

(4) if such tax, duty, assessment, levy, impost or charge is (a) payable other than by withholding or deduction from a payment on such Note, or (b) required to be withheld or deducted by a Paying Agent and such Holder of a Note would have been able to avoid such withholding or deduction by presenting the relevant Note to another Paying Agent; or

(5) if such tax, duty, assessment, levy, impost or charge would not have been imposed but for the failure of a Holder or beneficial owner of the Note to comply with applicable certification, information, documentation or other reporting requirements

concerning the nationality, residence, identity or connection with Luxembourg, Brazil or Peru of such Holder or beneficial owner if (i) such compliance is required as a precondition to relief or exemption from withholding or deduction of all or part of such tax, duty, assessment, levy, impost or charge and (ii) at least 30 days prior to the date on which the Issuer or a Guarantor, as the case may be, applies this clause (5), it will have notified such Holder or beneficial owner that it will be required to comply with such requirement;

(6) if such tax, duty, assessment, levy, impost or charge is payable pursuant to the Luxembourg law dated December 23, 2005, as amended, introducing a domestic withholding tax on interest income for Luxembourg resident individuals (*Relibi law*); or

(7) on account of a payment on such Note that is paid to a Holder that is a fiduciary or partnership or other than the sole beneficial owner of such payment to the extent a beneficiary or settlor with respect to such fiduciary or a member of such partnership or a beneficial owner would not have been entitled to the Additional Amounts had such beneficiary, settlor, member or beneficial owner been the Holder of such note; or

(8) in the case of any combination of items (1) through (7).

"Relevant Date" means whichever is the later of (a) the date on which the payment in question first becomes due and (b) if the full amount payable has not been received by the Paying Agent on or prior to such due date, the date on which (the full amount having been so received) notice to that effect has been given to the Holders.

Notwithstanding anything to the contrary above, none of the Issuer, a Guarantor, any Paying Agent or any other Person shall be required to pay any Additional Amounts with respect to any withholding or deduction imposed on or in respect of any Note pursuant to FATCA, any treaty, law, regulation or other official guidance enacted by any jurisdiction implementing FATCA, or any agreement between the Issuer and the United States or any authority thereof implementing FATCA.

The Issuer or the relevant Guarantor, as applicable, shall pay any present or future stamp, court or documentary taxes, or any other excise or property taxes, charges or similar levies which arise in any jurisdiction from the execution, delivery or registration of the Notes, this Indenture or any other document or instrument referred to therein, excluding any such taxes, charges or similar levies imposed by any jurisdiction outside of Luxembourg, Brazil or Peru, as applicable, except those resulting from, or required to be paid in connection with, (i) the execution in or bringing to such jurisdiction of the Notes or any document or instrument; (ii) the production before a court of such jurisdiction of the Notes or any document or instrument or (iii) the enforcement of the Notes or any other such document or instrument following the occurrence of any Event of Default with respect to the Notes.

References to principal, premium, if any, or interest in this Indenture or the Notes shall be deemed to include any Additional Amounts in respect of principal, premium, if any, or interest (as the case may be) which may be payable under the Notes.

If the Issuer or a Guarantor becomes subject at any time to any taxing jurisdiction other than Luxembourg, Brazil or Peru, references herein to Luxembourg, Brazil or Peru, as applicable, shall be construed to include such other jurisdiction.

The Trustee shall have no obligation to determine whether any Additional Amounts are owed or for the calculation thereof.

Section 11.10. Limitation on Liens.

The Issuer shall not, and shall not permit any of its Designated Subsidiaries to, Incur or suffer to exist any Lien on any of its Restricted Property to secure any Indebtedness of the Issuer or such Designated Subsidiary without making, or causing such Designated Subsidiary to make, effective provision for securing the Notes (x) equally and ratably with (or prior to) such Indebtedness as to such Restricted Property for so long as such Indebtedness will be so secured or (y) in the event such Indebtedness is Indebtedness of the Issuer or such Designated Subsidiary which is subordinate in right of payment to the Notes, prior to such Indebtedness as to any such Restricted Property for so long as such Indebtedness will be so secured.

The foregoing restrictions shall not apply to:

(1) any Lien on the inventory or receivables and related assets (other than those described in clause (3) below) securing obligations:

- (i) under any short term lines of credit, entered into in the normal course of business; or
- (ii) under any working capital facility;

(2) Liens created solely for the purpose of securing the payment of all or a part of the purchase price (or the cost of construction or improvement, and any related transaction fee and expenses) of assets or property (including Capital Stock of any Person) acquired, constructed or improved after the Issue Date; provided that (a) the aggregate principal amount of Indebtedness secured by such Liens shall not exceed the purchase price of the assets or property so acquired, constructed or improved, (b) such Liens shall not encumber any assets or property other than the assets or property so acquired, constructed or improved and other than any unimproved real property on which the property so constructed, or the improvement, is located and (c) such Lien shall attach to such assets or property within 365 days of the construction, acquisition or improvement of such assets or property; provided, further, that to the extent that the property or asset acquired is Capital Stock, and subject to the limitations in clause (c) above, the Lien also may encumber other property or assets of the Person so acquired, provided, further, that any Lien is permitted to be incurred on the Capital Stock of any Person securing any Indebtedness of that Person that is (a) non-recourse to the Issuer or the Designated Subsidiary, and (b) incurred solely for purposes of financing the acquisition, construction or improvement of any property or assets of such Person;

(3) Liens on accounts receivable and related assets in connection with any credit facility, including export or import financings and other trade transactions, or in

connection with any Securitization Transaction provided that the aggregate amount of any Receivables sold or transferred in such Securitization Transaction securing Indebtedness shall not exceed (a) with respect to transactions related to revenues from exports, 80% of such Person's consolidated net sales from exports; or (b) with respect to transactions related to revenues from domestic sales, 80% of such Person's consolidated net sales in the jurisdiction in which such Person is located;

(4) Liens granted to secure borrowings from (i) *Banco Nacional de Desenvolvimento Econômico e Social-BNDES*, or any other federal, regional or state governmental development bank or credit agency, or (ii) any international or multilateral development bank, government-sponsored agency, export-import bank or official export-import credit insurer;

(5) Liens existing on the Issue Date;

(6) Liens on property or shares of Capital Stock of another Person at the time such other Person becomes a Subsidiary; provided, however, that the Liens may not extend to any other property owned by such Person;

(7) Liens on property at the time such Person or any of its Subsidiaries acquires the property, including any acquisition by means of a merger or consolidation with or into such Person or a Subsidiary of such Person; provided, however, that the Liens may not extend to any other property owned by such Person;

(8) Liens securing Indebtedness or other obligations of a Subsidiary of such Person owing to such Person or a Subsidiary of such Person;

(9) Liens in favor of surety bonds or letters of credit issued pursuant to the request of, and for the account of, such Person in the ordinary course of its business;

(10) any Lien securing obligations owed under applicable Peruvian laws to the Peruvian Ministry of Energy and Mines or other governmental authorities incurred in the ordinary course of business, including but not limited to, mine closure plans;

(11) Liens securing obligations under hedging agreements not for speculative purposes;

(12) any Lien extending, renewing or replacing (or successive extensions, renewals or replacements of), in whole or in part, any Lien referred to in clauses (2), (4), (5), (6) or (7) above; provided that the principal amount of Indebtedness secured thereby shall not exceed the principal amount of Indebtedness so secured at the time of such extension, renewal or replacement except for any increase reflecting premiums, fees and expenses in connection with such extension, renewal or replacement, and that such extension, renewal or replacement shall be limited to all or a part of the property which secured the Lien so extended, renewed or replaced (plus improvements on such property); and

(13) Lien that do not fall within clauses (1) through (12) above and that secure Indebtedness which, exclusive of Indebtedness secured by other Liens permitted under this covenant, does not exceed an aggregate principal amount equal to 20% of Consolidated Total Assets.

For the avoidance of doubt, a Lien permitted by this Section 11.10 need not be permitted solely by reference to a single clause permitting such Lien, but may be permitted in part by such clause and in part by one or more other clauses of this covenant otherwise permitting such Lien.

Section 11.11. [Intentionally Omitted].

Section 11.12. Performance Obligations Under Other Documents.

The Issuer shall duly and punctually perform, comply with and observe all obligations and agreements to be performed by it set forth in the Transaction Documents.

Section 11.13. Compliance with Laws.

Each of the Issuer and the Guarantors shall comply, and shall cause their respective Subsidiaries to comply, at all times with all applicable laws, rules, regulations, orders and directives of any government or government agency or authority having jurisdiction over the Issuer or any Guarantors, any of their respective Subsidiaries or the business of any of them or any of the transactions contemplated herein, except where the failure to do so would not have a material adverse effect on the Issuer and its Subsidiaries taken as a whole or have a material adverse effect on the rights of the Holders.

Section 11.14. Maintenance of Government Approvals.

Each of the Issuer and the Guarantors shall, and shall cause their respective Subsidiaries to, duly obtain and maintain in full force and effect all governmental approvals, consents or licenses of any government or governmental agency or authority under the laws of Luxembourg, Brazil, Peru (including any Central Bank) or any other government or government agency having jurisdiction over the Issuer or necessary in all cases for the Guarantors and the Issuer to perform their respective obligations under the Transaction Documents or for the validity or enforceability thereof, except where the failure to do so would not have a material adverse effect on the Issuer and its Subsidiaries taken as a whole or have a material adverse effect on the rights of the Holders.

Section 11.15. [Intentionally Omitted].

Section 11.16. Maintenance of Books and Records.

Each of the Issuer and the Guarantors shall, and shall cause each of their respective Subsidiaries to, maintain books, accounts and records in all material respects in accordance with applicable GAAP, and in any case in the manner necessary to facilitate consolidation into the Guarantors' consolidated financial statements.

Section 11.17. Ranking.

The Issuer shall ensure that the Notes will constitute senior unsecured and unsubordinated obligations of the Issuer, and will rank at least equally to all other present and future senior unsecured and unsubordinated obligations of the Issuer (other than obligations preferred by statute or by operation of law). Each of the Guarantors shall ensure that its Guarantee will constitute senior unsecured and unsubordinated obligations of such Guarantor, and will rank at least equally to all other present and future senior unsecured and unsubordinated obligations of the Guarantors (other than obligations preferred by statute or by operation of law). No obligation will be considered to be senior to the Notes or the Guarantees by virtue of being secured on a first or junior priority basis.

ARTICLE XII

LEGAL DEFEASANCE AND COVENANT DEFEASANCE

Section 12.1. Option to Effect Defeasance or Covenant Defeasance.

The Issuer or a Guarantor may at its option, at any time elect to have either Section 12.2 or Section 12.3 applied to the Outstanding Notes upon compliance with the conditions set forth below in this Article XII.

Section 12.2. Defeasance and Discharge.

Upon the Issuer's or a Guarantor's exercise of the option provided in Section 12.1 applicable to this Section, the Issuer and a Guarantor shall be deemed to have been discharged from their obligations with respect to the Outstanding Notes on the date the conditions set forth below are satisfied (hereinafter, "defeasance"). For this purpose, such defeasance means that the Issuer and a Guarantor shall be deemed to have paid and discharged the entire indebtedness represented by the Outstanding Notes and to have satisfied all their other obligations under such Notes and this Indenture insofar as such Notes are concerned (and the Trustee, at the expense of the Issuer and a Guarantor, shall execute proper instruments acknowledging the same), except for the following which shall survive until otherwise terminated or discharged hereunder: (A) the rights of Holders of Outstanding Notes to receive, solely from the trust fund described in Section 12.4 and as more fully set forth in such Section, payments in respect of the principal of (and premium, if any) and interest (and Additional Amounts, if any) on such Notes when such payments are due, (B) the Issuer's and the Guarantors' obligations with respect to such Notes under Sections 3.3, 3.4, 3.5, 11.2 and 11.3, (C) the rights, powers, trusts, duties and immunities of the Trustee hereunder and (D) this Article XII. Subject to compliance with this Article XII, the Issuer and the Guarantors may exercise their option under this Section 12.2 notwithstanding the prior exercise of their option under Section 12.3.

Section 12.3. Covenant Defeasance.

Upon the Issuer or a Guarantor's exercise of the option provided in Section 12.1 applicable to this Section, (i) the Issuer and the Guarantors shall be released from their obligations under Sections Section 9.1 and 11.15 through 11.17, inclusive and the Guarantors shall be released from all of its obligations under the Guarantees and under Article XIII of this Indenture, and (ii) the occurrence of an event specified in Section 6.1(3) (with respect to Section 9.1 and Sections 11.15 through 11.17, inclusive) shall not be deemed to be or result in an Event of Default, on and after the date the conditions set forth below are satisfied (hereinafter, "covenant defeasance"). For this purpose, such covenant defeasance means that the Issuer and the Guarantors may omit to comply with and shall have no liability in respect of any term, condition or limitation set forth in any such Section or Article, whether directly or indirectly by reason of any reference elsewhere herein to any such Section or Article or by reason of any reference in any such Section or Article to any other provision herein or in any other document, but the remainder of this Indenture and such Notes shall be unaffected thereby.

Section 12.4. Conditions to Defeasance or Covenant Defeasance.

The following shall be the conditions to application of either Section 12.2 or Section 12.3 to the Outstanding Notes:

(1) the Issuer or a Guarantor shall irrevocably have deposited or caused to be deposited with the Trustee or its designee, in trust, for the benefit of the Holders (A) cash, (B) Cash Equivalents, (C) U.S. Government Obligations, or (D) a combination thereof, sufficient, in the written opinion of an internationally recognized firm of independent certified public accountants, investment bank or consulting firm to pay and discharge, the principal of, premium, if any, and each installment of interest (including Additional Amounts, if any) on the Notes on the Stated Maturity of such principal or installment of interest on the day on which such payments are due and payable in accordance with the terms of this Indenture and of such Notes. For this purpose, "U.S. Government Obligations" means securities that are (x) direct obligations of the United States for the payment of which its full faith and credit is pledged or (y) obligations of a Person controlled or supervised by and acting as an agency or instrumentality of the United States the payment of which is unconditionally guaranteed as a full faith and credit obligation by the United States, which, in either case, are not callable or redeemable at the option of the issuer thereof, and shall also include a depositary receipt issued by a bank (as defined in Section 3(a)(2) of the Securities Act) as custodian with respect to any such U.S. Government Obligation or a specific payment of principal of or interest on any such U.S. Government Obligation held by such custodian for the account of the Holder of such depositary receipt, provided that (except as required by law) such custodian is not authorized to make any deduction from the amount payable to the Holder of such depositary receipt from any amount received by the custodian in respect of the U.S. Government Obligation or the specific payment of principal of or interest on the U.S. Government Obligation evidenced by such depositary receipt;

(2) no Default or Event of Default shall have occurred and be continuing on the date of such deposit;

(3) the Issuer or a Guarantor shall have delivered to the Trustee an Officer's Certificate and an Opinion of Counsel, each stating that all conditions precedent provided for relating to either the defeasance under Section 12.2 or the covenant defeasance under Section 12.3 (as the case may be) have been complied with;

(4) in the case of an election under Section 12.2, the Issuer or a Guarantor shall have delivered to the Trustee an Opinion of Counsel from counsel in the United States stating that (x) the Issuer or a Guarantor has received from, or there has been published by, the Internal Revenue Service a ruling, or (y) since the date of this Indenture there has been a change in the applicable United States Federal income tax law, in either case to the effect that, and based thereon such Opinion of Counsel shall confirm that, the beneficial owners of the Outstanding Notes will not recognize income, gain or loss for United States Federal income tax purposes as a result of such deposit, defeasance and discharge and will be subject to United States Federal income tax on the same amounts, in the same manner and at the same times as would have been the case if such deposit, defeasance and discharge had not occurred; and

(5) in the case of an election under Section 12.3, the Issuer or a Guarantor shall have delivered to the Trustee an Opinion of Counsel from counsel in the United States to the effect that the beneficial owners of the Outstanding Notes will not recognize income, gain or loss for United States Federal income tax purposes as a result of such deposit and covenant defeasance and will be subject to United States Federal income tax on the same amounts, in the same manner and at the same times as would have been the case if such covenant defeasance had not occurred.

Section 12.5. Deposited Money and U.S. Government Obligations to Be Held in Trust; Other Miscellaneous Provisions.

Subject to the provisions of the last paragraph of Section 11.3, all money and U.S. Government Obligations (including the proceeds thereof) deposited with the Trustee (or other qualifying trustee—collectively, for purposes of this Section 12.5, the “Defeasance Trustee”) pursuant to Section 12.4 in respect of the Notes shall be held in trust and applied by the Defeasance Trustee, in accordance with the provisions of such Notes and this Indenture, to the payment, either directly or through any Paying Agent (including the Issuer or a Guarantor acting as their own Paying Agent) as the Defeasance Trustee may determine, to the Holders of such Notes, of all sums due and to become due thereon in respect of principal (and premium, if any) and interest, but such money need not be segregated from other funds except to the extent required by law.

The Issuer and the Guarantors shall, jointly and severally, pay and indemnify the Defeasance Trustee against any tax, fee or other charge imposed on or assessed against the U.S. Government Obligations deposited pursuant to Section 12.4 or the principal and interest received in respect thereof other than any such tax, fee or other charge which by law is for the account of the Holders of the Outstanding Notes.

Anything in this Article to the contrary notwithstanding, the Defeasance Trustee shall deliver or pay to the Issuer from time to time upon Issuer Request any money or U.S. Government Obligations held by it as provided in Section 12.4 which, in the opinion of an internationally recognized accounting firm expressed in a written certification thereof delivered to the Defeasance Trustee, are in excess of the amount thereof which would then be required to be deposited to effect an equivalent defeasance or covenant defeasance.

Section 12.6. Reinstatement.

If the Defeasance Trustee or the Paying Agent is unable to apply any money in accordance with Section 12.2 or 12.3 by reason of any order or judgment of any court or governmental authority enjoining, restraining or otherwise prohibiting such application, then the obligations of the Issuer and the Guarantors under this Indenture, the Guarantees and the Notes, if any, shall be revived and reinstated as though no deposit had occurred pursuant to this Article until such time as the Defeasance Trustee or Paying Agent is permitted to apply all such money in accordance with Section 12.2 or 12.3; provided, however, that if the Issuer or the Guarantors makes any payment of principal of (and premium, if any) any Note following the reinstatement of such obligations, the Issuer or the Guarantors shall be subrogated to the rights of the Holders of such Notes to receive such payment from the money held by the Defeasance Trustee or the Paying Agent.

Section 12.7. Repayment to Issuer or the Guarantors.

Any money deposited with the Defeasance Trustee or any Paying Agent, or then held by the Issuer or a Guarantor, in trust for the payment of the principal of, premium, if any, or interest on any Note and remaining unclaimed for two years after such principal, and premium, if any, or interest has become due and payable shall be paid to the Issuer or the Guarantors on its written request or (if then held by the Issuer or the Guarantors) shall be discharged from such trust; and the Holder of such security shall thereafter, as a creditor, look only to the Issuer or the Guarantors for payment thereof, and all liability of the Defeasance Trustee or such Paying Agent with respect to such trust money, and all liability of the Issuer or the Guarantor as trustee thereof, shall thereupon cease; provided, however, that the Defeasance Trustee or such Paying Agent, before being required to make any such repayment, shall at the expense of the Issuer and the Guarantors cause to be published once, in *The New York Times* and *The Wall Street Journal* (national edition), notice that such money remains unclaimed and that, after a date specified therein, which shall not be less than 30 days from the date of such notification or publication, any unclaimed balance of such money then remaining will be repaid to the Issuer or the Guarantors.

ARTICLE XIII

SUBSTITUTION OF THE ISSUER

Section 13.1. Substitution of the Issuer.

Notwithstanding any other provision contained in this Indenture,

(a) the Issuer may, without the consent of the Holders of the Notes (and by subscribing for any Notes, each Holder of the Notes expressly consents to it), be replaced and substituted by (i) any Wholly Owned Subsidiary of the Issuer or (ii) any Permitted Holding Company as principal debtor (in such capacity, the "Substituted Issuer") in respect of the Notes provided that:

(1) such documents (together, the "Issuer Substitution Documents") shall be executed by the Substituted Issuer, the Issuer and the Trustee as may be necessary to give

full effect to the substitution, including a supplemental indenture whereby (i) the Substituted Issuer assumes all of the Issuer's obligations under this Indenture and the Notes and (ii) the Issuer (the "Additional Guarantor") guarantees on an unsecured and unsubordinated basis the due and punctual payment of all amounts under this Indenture and with respect to the Notes (without limiting the generality of the foregoing) pursuant to which the Substituted Issuer shall undertake in favor of each Holder of the Notes to be bound by the terms and conditions of the Notes and the provisions of this Indenture as fully as if the Substituted Issuer had been named in the Notes and this Indenture as the principal debtor in respect of the Notes in place of the Issuer (or any previous substitute) and pursuant to which the Additional Guarantor will guarantee on an unsecured and unsubordinated basis the due and punctual payment of all amounts under this Indenture and with respect to the Notes (together, the "Substitution");

(2) if the Substituted Issuer is organized in a jurisdiction other than Luxembourg, the Issuer Substitution Documents shall contain a covenant by the Substituted Issuer and/or such other provisions as may be necessary to ensure that each Holder of the Notes has the benefit of a covenant in terms corresponding to the obligations of the Issuer in respect of the payment of Additional Amounts set forth in Section 11.9, and the Substituted Issuer will have a corresponding right of tax redemption set forth in Section 4.1, with the substitution in each case for the references to Luxembourg for references to the jurisdiction in which the Substituted Issuer is organized;

(3) if the Substituted Issuer is organized in a jurisdiction other than Luxembourg, the Issuer Substitution Documents shall contain a covenant by the Additional Guarantor and/or such other provisions as may be necessary to ensure that each Holder of the Notes has the benefit of a covenant in terms corresponding to the obligations of the Additional Guarantor as a guarantor of the Notes in respect of the payment of Additional Amounts set forth in Section 11.9 (but with references to Luxembourg as the jurisdiction of incorporation of the Additional Guarantor);

(4) if the Substituted Issuer is organized in a jurisdiction other than Luxembourg, the Issuer Substitution Documents shall also contain a covenant by the Substituted Issuer to indemnify each Holder and beneficial owner of the Notes, the Trustee and the Agents against all taxes or duties which arise by reason of a law or regulation in effect or contemplated on the effective date of the Substitution, which may be incurred or levied against such Holder or beneficial owner of the Notes or Trustee or Agent as a result of the Substitution and which would not have been so incurred or levied had the Substitution not been made, subject to similar exceptions set forth under clauses (1) through (7) of Section 11.9, *mutatis mutandis*; provided, that any Holder or beneficial owner of the Notes making a claim with respect to such tax indemnity shall provide the Issuer and the Substituted Issuer with notice of such claim, along with supporting documentation, within four weeks of the announcement of the Substitution of the Substituted Issuer as issuer; provided, further, that none of the Issuer (including the Substituted Issuer), the Guarantors (including the Additional Guarantor), any Paying Agent or any other Person shall be required to indemnify any Holder or beneficial owner of the Notes for any taxes imposed pursuant to FATCA, any treaty, law, regulation or

other official guidance enacted by any jurisdiction implementing FATCA, or any agreement between the Issuer or the Substituted Issuer and the United States or any authority thereof implementing FATCA;

(5) the Substituted Issuer shall have delivered, or procured the delivery to the Trustee of, an Opinion of Counsel addressed to the Substituted Issuer from a leading firm of lawyers in the country of incorporation of the Substituted Issuer, to the effect that the Issuer Substitution Documents constitute legal, valid and binding obligations of the Substituted Issuer and the Additional Guarantor;

(6) the Issuer shall have delivered, or procured the delivery to the Trustee of, an Opinion of Counsel addressed to the Issuer and the Substituted Issuer from a leading firm of New York lawyers to the effect that the Issuer Substitution Documents constitute legal, valid and binding obligations of the Substituted Issuer and the Additional Guarantor under New York law;

(7) the Issuer and the Substituted Issuer shall have appointed a process agent in the Borough of Manhattan, the City of New York to receive service of process on its behalf in relation to any legal action or proceedings arising out of or in connection with the Issuer Substitution Documents;

(8) there is no continuing Event of Default in respect of the Notes.

(b) Upon effectiveness of the substitution, the Substituted Issuer and the Issuer shall deliver to the Trustee an Officer's Certificate, executed by an Authorized Officer, certifying that the terms of this section have been complied with and attaching copies of all documents contemplated herein.

(c) Upon the execution of the Issuer Substitution Documents as referred to in paragraph (a)(1) above and compliance with the other conditions in paragraph (a), (1) the Substituted Issuer shall be deemed to be named in the Notes as the principal debtor in place of the Issuer (or of any previous substitute under these provisions), (2) the Additional Guarantor shall be deemed to be named as a guarantor of the Notes and (3) the Notes shall thereupon be deemed to be amended to give effect to the transactions referred to in (1) and (2). Except as set forth above, the execution of the Issuer Substitution Documents shall operate to release the Issuer (or such previous substitute as aforesaid) from all its obligations as issuer of the Notes.

(d) Not later than 10 Business Days after the execution of the Issuer Substitution Documents, the Substituted Issuer shall give notice thereof to the Holders of the Notes in accordance with the provisions described under Section 1.6.

ARTICLE XIV

GUARANTEES

Section 14.1. Guarantees.

Nexa CJM and Nexa Brazil hereby, jointly, severally, fully, absolutely and unconditionally guarantee on an unsecured basis to each Holder of a Note authenticated and delivered by the Trustee, and to the Trustee on behalf of such Holder, and for itself and the Paying Agents, the due and punctual payment of the principal of (and premium, if any) and interest (including any Additional Amounts) on such Note and all other obligations of the Issuer under this Indenture, when and as the same shall become due and payable, whether at the Stated Maturity or by acceleration, redemption, purchase or otherwise, in accordance with the terms of such Note and of this Indenture. In case of the failure of the Issuer punctually to make any such payment, each of the Guarantors hereby agrees to cause such payment to be made punctually when and as the same shall become due and payable, whether at the Stated Maturity or by acceleration, call for redemption, purchase or otherwise, and as if such payment were made by the Issuer.

The Guarantees constitute unconditional and unsubordinated obligations of each of the Guarantors that will at all times rank at least equally with all other present and future unsecured senior obligations of each such Guarantor, except for any obligations that may be preferred by provisions of law that are both mandatory and of general application.

Each of the Guarantors hereby agrees that its obligations hereunder shall be unconditional, irrespective of the validity, regularity or enforceability of any Note or this Indenture, the absence of any action to enforce the same, any release or amendment or waiver of any term of any other guarantee of, or any consent to depart from any requirement of any other guarantee, of all or any of the Notes, any waiver or consent by the Holder of any Note or by the Trustee with respect to any provisions thereof or of this Indenture, the obtaining of any judgment against the Issuer or any action to enforce the same or any other circumstances which might otherwise constitute a legal or equitable discharge or defense of a guarantor. Each of the Guarantors hereby waives notice of the acceptance of its Guarantee and of any of the obligations under this Indenture or the Notes (the “Obligations”) or of the accrual thereof, and further waives presentment, protest, notice or demand. This is a continuing guarantee and is a guarantee of payment and not of collection, and each of the Guarantors waives any right to require the Holders to initiate collection proceeds or otherwise enforce payment of the Obligations or any security or other guarantee therefor before obtaining payment hereunder.

The Guarantees shall continue to be in effect or be reinstated, as the case may be, if at any time (i) any payment in respect of any of the Obligations is rescinded or must otherwise be returned by the Holders, whether by reason of the insolvency, bankruptcy, receivership, reorganization or liquidation of the Issuer or any Guarantor or any other obligor or otherwise, all as though such payment had not been made or (ii) a Substituted Issuer, as defined in Section 13.1, assumes the Issuer’s obligations under the Notes pursuant to Article XIII hereof.

Each of the Guarantors hereby waives the benefits of diligence, presentment, demand of payment, any requirement that the Trustee or any of the Holders protect, secure, perfect or insure any security interest in or other Lien on any property subject thereto or exhaust any right or take any action against the Issuer or any other Person or any collateral, filing of claims with a court in the event of insolvency or bankruptcy of the Issuer, any right to require a proceeding first against the Issuer, protest or notice with respect to any Note or the indebtedness evidenced thereby and all demands whatsoever, and covenants, that these Guarantees will be discharged in respect of

any Note except by complete performance of the obligations contained in such Note and in the Guarantees. Each of the Guarantors hereby agrees that, in the event of a default in payment of principal (or premium, if any) or interest on any Note, whether at its Stated Maturity or by acceleration, redemption, purchase or otherwise, legal proceedings may be instituted by the Trustee on behalf of, or by, the Holder of such Note, subject to the terms and conditions set forth in this indenture, directly against any or all of the Guarantors to enforce the Guarantees without first proceeding against the Issuer. Each of the Guarantors agrees that if, after the occurrence and during the continuance of an Event of Default, the Trustee or any of the Holders are prevented by applicable law from exercising their respective rights to accelerate the maturity of the Notes, to collect interest on the Notes or to enforce or exercise any other right or remedy with respect to the Notes, or the Trustee or the Holders are prevented from taking any action to realize on any collateral, each of the Guarantors agrees to pay to the Trustee for the account of the Holders, upon demand therefor, the amount that would otherwise have been due and payable had such rights and remedies been permitted to be exercised by the Trustee or any of the Holders.

No provision of the Guarantees, Notes or of this Indenture shall alter or impair the Guarantees of the Guarantors, of which the Guarantees are absolute and unconditional, of the due and punctual payment of the principal (and premium, if any) and interest (and Additional Amounts, if any) on the Note and the obligation under this Indenture upon which each Guarantee is endorsed.

Each of the Guarantors shall be subrogated to all rights of the Holders of the Notes upon which its Guarantee is endorsed against the Issuer in respect of any amounts paid by each of the Guarantors on account of such Note pursuant to the provisions of the Guarantees or this Indenture; provided, however, that none of the Guarantors shall be entitled to enforce or to receive any payments arising out of, or based upon, such right of subrogation until the principal of (and premium, if any) and interest (and Additional Amounts, if any) on all Notes issued hereunder shall have been paid in full.

The Guarantees shall remain in full force and effect and continue to be effective should any petition be filed by or against the Issuer for liquidation or reorganization, should the Issuer become insolvent or make an assignment for the benefit of creditors or should a receiver or trustee be appointed for all or any significant part of the Issuer's assets, and shall, to the fullest extent permitted by law, continue to be effective or be reinstated, as the case may be, if at any time payment and performance of the obligations under the Notes is, pursuant to applicable law, rescinded or reduced in amount, or must otherwise be restored or returned by any obligee on the Notes, whether as a "voidable preference," "fraudulent transfer" or otherwise, all as though such payment or performance had not been made. In the event that any payment, or any part thereof, is rescinded, reduced, restored or returned, the Notes shall, to the fullest extent permitted by law, be reinstated and deemed reduced only by such amount paid and not so rescinded, reduced, restored or returned.

Each of the Guarantors hereby irrevocably waives all benefits set forth in the following provisions of the Brazilian law: articles 333, sole paragraph, 366, 368, 827, 829, sole paragraph, 830, 834, 835, 837 and 838 of the Brazilian Civil Code and articles 130 and 794 of the Brazilian Civil Procedure Code.

No stockholder, officer, director, employer or incorporator, past, present or future, of any Guarantor, as such, shall have any personal liability under the Guarantee by reason of his, her or its status as such stockholder, officer, director, employer or incorporator.

Section 14.2. Delivery of the Guarantee.

The delivery of any Note by the Trustee, after the authentication thereof hereunder, shall constitute due delivery of the Guarantees set forth herein on behalf of the Guarantors.

Section 14.3. Release of Guarantor.

(a) Concurrently with any consolidation or merger of any of the Guarantors or any sale or conveyance of the property of any of the Guarantors as an entirety or substantially as an entirety, in each case as permitted by Section 9.1(a) hereof, and upon delivery by such Guarantor to the Trustee of an Officer's Certificate and an Opinion of Counsel to the effect that such consolidation, merger, sale or conveyance was made in accordance with Section 9.1(a) hereof, the Trustee shall execute any documents reasonably required in order to evidence the release of such Guarantor from its obligations under its Guarantee endorsed on the Notes and under this Article XIV.

(b) Concurrently with the defeasance of the Notes under Section 12.2 hereof or the covenant defeasance of the Notes under Section 12.3 hereof, each of the Guarantors shall be released from all of its obligations under its Guarantee endorsed on the Notes and under this Article XIV.

ARTICLE XV

MEETINGS OF HOLDERS OF SECURITIES

Section 15.1. Purposes for Which Meetings May Be Called.

A meeting of Holders of Notes may be called at any time and from time to time pursuant to this Article to consider any matter affecting their interests, including, if proposed by the Issuer, the modification of the terms and conditions of the Notes; provided that any modification postponing the date for payment of any interest, reducing or canceling any amount of principal or the rate of interest payable or altering the currency of payment in respect of the Notes will only be binding if passed at a meeting of Holders at which a special quorum (as set forth in Section 15.4) is present.

Section 15.2. Call, Notice and Place of Meetings.

(1) The Trustee may at any time call a meeting of Holders of Notes of any series for any purpose specified in Section 15.1, to be held at such time and at such place in the Borough of Manhattan, The City of New York as the Trustee shall determine. Notice of every meeting of Holders of Notes, setting forth the time and the place of such meeting and in general terms the action proposed to be taken at such meeting, shall be given, in the manner provided in Section 1.6, not less than 21 nor more than 180 days prior to the date fixed for the meeting.

(2) In case at any time the Issuer, pursuant to a Board Resolution, or the Holders of at least 10% in principal amount of the Outstanding Notes shall have requested the Trustee to call a meeting of the Holders of Notes for any purpose specified in Section 15.1, by written request setting forth in reasonable detail the action proposed to be taken at the meeting, and the Trustee shall not have made the first publication of the notice of such meeting within 21 days after receipt of such request or shall not thereafter proceed to cause the meeting to be held as provided herein, then the Issuer or the Holders of Notes in the amount specified above, as the case may be, may determine the time and the place in the Borough of Manhattan, The City of New York for such meeting and may call such meeting for such purposes by giving notice thereof as provided in subsection (1) of this Section.

Section 15.3. Persons Entitled to Vote at Meetings.

To be entitled to vote at any meeting of Holders of Notes, a Person shall be (i) a Holder on a Record Date established pursuant to Section 15.5 of one or more Outstanding Notes, or (ii) a Person appointed by an instrument in writing as proxy for a Holder or Holders of one or more Outstanding Notes by such Holder or Holders. The only Persons who shall be permitted to be present or to speak at any meeting of Holders of Notes of any series shall be the Persons entitled to vote at such meeting and their counsel, any representatives of the Trustee and its counsel and any representatives of the Issuer and its counsel.

Section 15.4. Quorum; Action.

The Persons entitled to vote a majority in principal amount of the Outstanding Notes shall constitute a “quorum” for a meeting of Holders of Notes, however, any modification postponing the date for payment of any interest, reducing or canceling any amount of principal or the rate of interest payable or altering the currency of payment in respect of the Notes will only be binding if passed at a meeting of Holders of at least 66 ⅔% of the Notes (a “special quorum”). In the absence of a quorum or a special quorum, as the case may be, within 15 minutes (or such longer period not exceeding 30 minutes as the chairman may decide) of the time appointed for any such meeting, the meeting shall if convened upon the requisition of Holders be dissolved. In any other case it shall stand adjourned to the same day in the next week (or if such day is not a Business Day the next succeeding Business Day) at the same time and place. If within 15 minutes (or such longer period not exceeding 30 minutes as the chairman may decide) after the time appointed for any adjourned meeting a quorum or a special quorum, as the case may be, is not present for the transaction of any particular business, then, subject and without prejudice to the transaction of the business (if any) for which a quorum or a special quorum, as the case may be, is present, the chairman may either (with the approval of the Trustee) dissolve such meeting or adjourn the same for such period, being not less than ten calendar days (but without any maximum number of calendar days), and to such place as may be appointed by the chairman either at or subsequent to such adjourned meeting and approved by the Trustee, and the provisions of this sentence shall apply to all further adjourned such meetings.

Notice of the reconvening of any adjourned meeting shall be given as provided in Section 15.2(1), except that such notice need be given only once not less than five days prior to the date on which the meeting is scheduled to be reconvened. Notice of a reconvening of an adjourned

meeting shall state expressly the percentage, as provided above, of the principal amount of the Outstanding Notes of such series which shall constitute a quorum.

Any resolution passed or decision taken at any meeting of Holders of Notes of any series duly held in accordance with this Section shall be binding on all the Holders of Notes of such series, whether or not presented or represented at the meeting. However, for the avoidance of doubt, no actions taken at such meeting shall be binding on all Holders of Notes unless such actions were approved by the minimum percentage in principal amount of the Outstanding Notes of the series as required elsewhere in this Indenture with respect to such actions.

Section 15.5. Determination of Voting Rights; Conduct and Adjournment of Meetings.

(a) Notwithstanding any other provisions of this Indenture, the Trustee may make such reasonable regulations as it may deem advisable for any meeting of Holders of Notes of a series in regard to proof of the holding of Notes of such series and the appointment of proxies and in regard to the appointment and duties of inspectors of votes, the submission and examination of proxies, certificates and other evidence of the right to vote, and such other matters concerning the conduct of the meeting as it shall deem appropriate. Except as otherwise permitted or required by any such regulations, the holding of Notes shall be proved in the manner specified in Section 1.4 and the appointment of any proxy shall be proved in the manner specified in Section 1.4. Such regulations may provide that written instruments appointing proxies, regular on their face, may be presumed valid and genuine without the proof specified in Section 1.4 or other proof.

(b) The Trustee shall, by an instrument in writing, appoint a temporary chairman of the meeting, unless the meeting shall have been called by the Issuer or by Holders of Notes as provided in Section 15.2(2), in which case the Issuer or the Holders of Notes of the series calling the meeting, as the case may be, shall in like manner appoint a temporary chairman. A permanent chairman and a permanent secretary of the meeting shall be elected by vote of the Persons entitled to vote a majority in principal amount of the Outstanding Notes of such series represented at the meeting.

(c) At any meeting each Holder of a Note of such series or proxy shall be entitled to one vote for each \$1,000 principal amount of the Outstanding Notes of such series held or represented by him or her; provided, however, that no vote shall be cast or counted at any meeting in respect of any Note challenged as not Outstanding and ruled by the chairman of the meeting to be not Outstanding. The chairman of the meeting shall have no right to vote, except as a Holder of a Note of such series or proxy.

(d) Any meeting of Holders of Notes of any series duly called pursuant to Section 15.2 at which a quorum is present may be adjourned from time to time by Persons entitled to vote a majority in principal amount of the Outstanding Notes of such series represented at the meeting, and the meeting may be held as so adjourned without further notice.

Section 15.6. Counting Votes and Recording Action of Meetings.

The vote upon any resolution submitted to any meeting of Holders of Notes of any series shall be by written ballots on which shall be subscribed the signatures of the Holders of Notes of

such series or of their representatives by proxy and the principal amounts and serial numbers of the Outstanding Notes of such series held or represented by them. The permanent chairman of the meeting shall appoint two inspectors of votes who shall count all votes cast at the meeting for or against any resolution and who shall make and file with the secretary of the meeting their verified written reports in duplicate of all votes cast at the meeting. A record, at least in duplicate, of the proceedings of each meeting of Holders of Notes of any series shall be prepared by the secretary of the meeting and there shall be attached to said record the original reports of the inspectors of votes on any vote by ballot taken thereat and affidavits by one or more persons having knowledge of the facts setting forth a copy of the notice of the meeting and showing that said notice was given as provided in Section 15.2 and, if applicable, Section 15.5. Each copy shall be signed and verified by the affidavits of the permanent chairman and secretary of the meeting and one such copy shall be delivered to the Issuer, and another to the Trustee to be preserved by the Trustee, the latter to have attached thereto the ballots voted at the meeting. Any record so signed and verified shall be conclusive evidence of the matters therein stated.

IN WITNESS WHEREOF, the parties hereto have caused this Indenture to be duly executed as of the day and year first above written.

NEXA RESOURCES S.A.

By: /s/ José Carlos del Valle Castro
Name: José Carlos del Valle Castro
Title: CFO

By: /s/ Jones Aparecido Belther
Name: Jones Aparecido Belther
Title: Executive Officer

Signature Page to Indenture

IN WITNESS WHEREOF, the parties hereto have caused this Indenture to be duly executed as of the day and year first above written.

NEXA RESOURCES CAJAMARQUILLA S.A.

By: /s/ José Carlos del Valle Castro
Name: José Carlos del Valle Castro
Title: CFO

By: /s/ Jones Aparecido Belther
Name: Jones Aparecido Belther
Title: Executive Officer

Signature Page to Indenture

IN WITNESS WHEREOF, the parties hereto have caused this Indenture to be duly executed as of the day and year first above written.

NEXA RECURSOS MINERAIS S.A.

By: /s/ Jones Aparecido Belther
Name: Jones Aparecido Belther
Title: Executive Officer

By: /s/ Marcio Luis Silva Godoy
Name: Marcio Luis Silva Godoy
Title: Executive Officer

Witnesses:
By: /s/ Rodrigo Cammarosano
Name: Rodrigo Cammarosano

By: /s/ Marcos Paiva
Name: Marcos Paiva

Signature Page to Indenture

THE BANK OF NEW YORK MELLON,
as Trustee, Principal Paying Agent, Transfer Agent and Registrar

By: /s/ Bhawna Dhayal
Name: Bhawna Dhayal
Title: Agent

Signature Page to Indenture

**FORM OF CERTIFICATION FOR TRANSFER OR EXCHANGE OF
RESTRICTED GLOBAL NOTE TO REGULATION S GLOBAL
NOTE**

*(Exchanges or transfers pursuant to
Section 3.4(c)(2) of the Indenture)*

The Bank of New York Mellon
240 Greenwich Street
New York, New York 10286
United States
Attention: Global Corporate Trust

Re: Nexa Resources S.A.

6.750% Senior Unsecured Notes due 2034 (the “Notes”)

Reference is hereby made to the Indenture, dated as of April 9, 2024 (the “Indenture”), among Nexa Resources S.A., as Issuer, Nexa Resources Cajamarquilla S.A. and Nexa Recursos Minerais S.A., as Guarantors, and The Bank of New York Mellon, a New York banking corporation, as trustee (the “Trustee”), as principal paying agent (the “Principal Paying Agent”), as transfer agent (the “Transfer Agent”) and registrar (the “Security Registrar”). Capitalized terms used but not defined herein shall have the meanings given to them in the Indenture.

This letter relates to U.S.\$[] aggregate principal amount of Notes which are held in the form of the Restricted Global Note (CUSIP No. 65290DAB9 / ISIN No. US65290DAB91 / Common Code 279741005) with the Depositary in the name of [insert name of transferor] (the “Transferor”). The Transferor has requested a transfer of such beneficial interest in the Notes to a Person who will take delivery thereof in the form of an equal aggregate principal amount of Notes evidenced by the Regulation S Global Note (CUSIP No. L67359AB2 / ISIN No. USL67359AB21 / Common Code 279741226).

In connection with such request, and in respect of such Notes, the Transferor does hereby certify that such transfer has been effected in accordance with the transfer restrictions set forth in the Notes and that:

- (A) The offer of the Notes was not made to a person in the United States; and
 - (B) either:
 - (i) at the time the buy order was originated, the transferee was outside the United States or the Transferor and any person acting on its behalf reasonably believed that the transferee was outside the United States; or
 - (ii) the transaction was executed in, on or through the facilities of a designated offshore securities market and neither the Transferor nor any person acting on our behalf knows that the transaction was pre-arranged with a buyer in the United States;
-

(C) no directed selling efforts have been made in contravention of the requirements of Rule 903(a)(2) or 904(a)(2) of Regulation S, as applicable; and

(D) the transaction is not part of a plan or scheme to evade the registration requirements of the Securities Act.

We understand that this certificate is required in connection with certain securities laws of the United States. In connection therewith, if administrative or legal proceedings are commenced or threatened in connection with which this certificate is or would be relevant, we irrevocably authorize you to produce this certificate to any interested party in such proceeding. This certificate and the statements contained herein are made for your benefit and the benefit of the Issuer and the Guarantors.

[INSERT NAME OF TRANSFEROR]

By: _____
Name:
Title:

Dated: _____

cc: Nexa Resources S.A.

**FORM OF CERTIFICATION FOR TRANSFER OR EXCHANGE OF
REGULATION S GLOBAL NOTE TO RESTRICTED GLOBAL
NOTE**

*(Exchanges or transfers pursuant to
Section 3,4(c)(3) of the Indenture)*

The Bank of New York Mellon
240 Greenwich Street
New York, New York 10286
United States
Attention: Global Corporate Trust

Re: Nexa Resources S.A.

6.750% Senior Unsecured Notes due 2034 (the “Notes”)

Reference is hereby made to the Indenture, dated as of April 9, 2024 (the “Indenture”), among Nexa Resources S.A., as Issuer, Nexa Resources Cajamarquilla S.A. and Nexa Recursos Minerais S.A., as Guarantors, and The Bank of New York Mellon, a New York banking corporation, as trustee (the “Trustee”), as principal paying agent (the “Principal Paying Agent”), as transfer agent (the “Transfer Agent”) and registrar (the “Security Registrar”). Capitalized terms used but not defined herein shall have the meanings given to them in the Indenture.

This letter relates to U.S.\$[] principal amount of Notes which are evidenced by an aggregate Regulation S Global Note (CUSIP No. L67359AB2 / ISIN No. USL67359AB21 / Common Code 279741226) and held with the Depositary through [Euroclear] [Clearstream] in the name of [*insert name of transferor*] (the “Transferor”). The Transferor has requested a transfer of such beneficial interest in Notes to a person that will take delivery thereof in the form of an equal principal amount of Notes evidenced by a Restricted Global Note of the same series and of like tenor as the Notes (CUSIP No. 65290DAB9 / ISIN No. US65290DAB91 / Common Code 279741005).

In connection with such request and in respect of such Notes, the Transferor does hereby certify that such transfer is being effected pursuant to and in accordance with Rule 144A under the Securities Act and, accordingly, the Transferor does hereby further certify that the Notes are being transferred to a Person that the Transferor reasonably believes is purchasing the Notes for its own account, or for one or more accounts with respect to which such person exercises sole investment discretion, and such person and each such account is a “qualified institutional buyer” within the meaning of Rule 144A, in each case in a transaction meeting the requirements of Rule 144A and in accordance with any applicable securities laws of any state of the United States.

This certificate and the statements contained herein are made for your benefit and the benefit of the Issuer and the Guarantors.

[INSERT NAME OF TRANSFEROR]

By: _____
Name: _____
Title: _____

Dated: _____

cc: Nexa Resources S.A.

**FORM OF CERTIFICATION FOR TRANSFER
OR EXCHANGE OF NON-GLOBAL RESTRICTED NOTE TO
RESTRICTED GLOBAL NOTE**
*(Transfers and exchanges pursuant to
Section 3.4(c)(4) of the Indenture)*

The Bank of New York Mellon
240 Greenwich Street
New York, New York 10286
United States
Attention: Global Corporate Trust

Re: Nexa Resources S.A.

6.750% Senior Unsecured Notes due 2034 (the “Notes”)

Reference is hereby made to the Indenture, dated as of April 9, 2024 (the “Indenture”), among Nexa Resources S.A., as Issuer, Nexa Resources Cajamarquilla S.A. and Nexa Recursos Minerais S.A., as Guarantors, and The Bank of New York Mellon, a New York banking corporation, as trustee (the “Trustee”), as principal paying agent (the “Principal Paying Agent”), as transfer agent (the “Transfer Agent”) and registrar (the “Security Registrar”). Capitalized terms used but not defined herein shall have the meanings given to them in the Indenture.

This letter relates to U.S.\$[] principal amount of Restricted Notes held in definitive form (CUSIP No. 65290DAB9 / ISIN No. US65290DAB91 / Common Code 279741005) by [insert name of transferor] (the “Transferor”). The Transferor has requested an exchange or transfer of such Notes.

In connection with such request and in respect of such Notes, the Transferor does hereby certify that (i) such Notes are owned by the Transferor and are being exchanged without transfer or (ii) such transfer has been effected pursuant to and in accordance with Rule 144A or Rule 144 under the United States Securities Act of 1933, as amended (the “Securities Act”) and accordingly the Transferor does hereby further certify that:

- (A) the Notes are being transferred to a person that the Transferor reasonably believes is purchasing the Notes for its own account, or for one or more accounts with respect to which such Person exercises sole investment discretion;
- (B) such Person and each such account is a “qualified institutional buyer” within the meaning of Rule 144A; and
- (C) the Notes have been transferred in a transaction meeting the requirements of Rule 144A and in accordance with any applicable securities laws of any state of the United States.

We understand that this certificate is required in connection with certain securities laws of the United States. In connection therewith, if administrative or legal proceedings are commenced or

threatened in connection with which this certificate is or would be relevant, we irrevocably authorize you to produce this certificate to any interested party in such proceeding. This certificate and the statements contained herein are made for your benefit and the benefit of the Issuer and the Guarantors.

[INSERT NAME OF TRANSFEROR]

By: _____
Name:
Title:

Dated: _____

cc: Nexa Resources S.A.

**FORM OF CERTIFICATION FOR TRANSFER
OR EXCHANGE OF NON-GLOBAL RESTRICTED NOTE TO
REGULATION S GLOBAL NOTE**
*(Transfers and exchanges pursuant to
Section 3.4(c)(4) of the Indenture)*

The Bank of New York Mellon
240 Greenwich Street
New York, New York 10286
United States
Attention: Global Corporate Trust

Re: Nexa Resources S.A.

6.750% Senior Unsecured Notes due 2034 (the “Notes”)

Reference is hereby made to the Indenture, dated as of April 9, 2024 (the “Indenture”), among Nexa Resources S.A., as Issuer, Nexa Resources Cajamarquilla S.A. and Nexa Recursos Minerais S.A., as Guarantors, and The Bank of New York Mellon, a New York banking corporation, as trustee (the “Trustee”), as principal paying agent (the “Principal Paying Agent”), as transfer agent (the “Transfer Agent”) and registrar (the “Security Registrar”). Capitalized terms used but not defined herein shall have the meanings given to them in the Indenture.

This Letter relates to U.S.\$[] principal amount of Restricted Notes held in definitive form (CUSIP No. 65290DAB9 / ISIN No. US65290DAB91 / Common Code 279741005) by [insert name of transferor] (the “Transferor”). The Transferor has requested an exchange or transfer of such Notes.

In connection with such request and in respect of such Notes, the Transferor does hereby certify that (i) such Notes are owned by the Transferor and are being exchanged without transfer or (ii) such transfer has been effected pursuant to and in accordance with (a) Rule 903 or Rule 904 under the Securities Act of 1933, as amended (the “Act”), or (b) Rule 144 under the Act, and accordingly the Transferor does hereby further certify that:

- (A) the offer of the Notes was not made to a person in the United States; (B) either:
 - (i) at the time the buy order was originated, the transferee was outside the United States or the Transferor and any person acting on its behalf reasonably believed that the transferee was outside the United States, or
 - (ii) the transaction was executed in, on or through the facilities of a designated offshore securities market and neither the Transferor nor any person acting on its behalf knows that the transaction was pre-arranged with a buyer in the United States;
 - (C) no directed selling efforts have been made in contravention of the requirements of Rule 903(a)(2) or 904(b)(2) of Regulation S, as applicable; and
-

(D) the transaction is not part of a plan or scheme to evade the registration requirements of the Act.

We understand that this certificate is required in connection with certain securities laws of the United States. In connection therewith, if administrative or legal proceedings are commenced or threatened in connection with which this certificate is or would be relevant, we irrevocably authorize you to produce this certificate to any interested party in such proceeding. This certificate and the statements contained herein are made for your benefit and the benefit of the Issuer and the Guarantors.

[INSERT NAME OF TRANSFEROR]

By: _____
Name: _____
Title: _____

Dated: _____

cc: Nexa Resources S.A.

**FORM OF CERTIFICATION FOR TRANSFER
OR EXCHANGE OF NON-GLOBAL REGULATION S
NOTE TO RESTRICTED GLOBAL NOTE**
*(Transfers and exchanges pursuant to
Section 3.4(c)(5) of the Indenture)*

The Bank of New York Mellon
240 Greenwich Street
New York, New York 10286
United States
Attention: Global Corporate Trust

**Re: Nexa Resources S.A.
6.750% Senior Unsecured Notes due 2034 (the “Notes”)**

Reference is hereby made to the Indenture, dated as of April 9, 2024 (the “Indenture”), among Nexa Resources S.A., as Issuer, Nexa Resources Cajamarquilla S.A. and Nexa Recursos Minerais S.A., as Guarantors, and The Bank of New York Mellon, a New York banking corporation, as trustee (the “Trustee”), as principal paying agent (the “Principal Paying Agent”), as transfer agent (the “Transfer Agent”) and registrar (the “Security Registrar”). Capitalized terms used but not defined herein shall have the meanings given to them in the Indenture.

This letter relates to U.S.\$[] principal amount of Regulation S Global Notes held in definitive form (CUSIP No. L67359AB2 / ISIN No. USL67359AB21 / Common Code 279741226) by [insert name of transferor] (the “Transferor”). The Transferor has requested an exchange or transfer of such Notes.

In connection with such request and in respect of such Notes, the Transferor does hereby certify that (i) such Notes are owned by the Transferor and are being exchanged without transfer or (ii) such transfer has been effected pursuant to and in accordance with Rule 144A under the United States Securities Act of 1933, as amended, and accordingly the Transferor does hereby further certify that the Notes are being transferred to a person that the Transferor reasonably believes is purchasing the Notes for its own account, or for one or more accounts with respect to which such Person exercises sole investment discretion, and such Person and each such account is a “qualified institutional buyer” within the meaning of Rule 144A, in each case in a transaction meeting the requirements of Rule 144A and in accordance with any applicable securities laws of any state of the United States.

We understand that this certificate is required in connection with certain securities laws of the United States. In connection therewith, if administrative or legal proceedings are commenced or threatened in connection with which this certificate is or would be relevant, we irrevocably authorize you to produce this certificate to any interested party in such proceeding. This certificate and the statements contained herein are made for your benefit and the benefit of the Issuer and the Guarantors.

[INSERT NAME OF TRANSFEROR]

By: _____
Name:
Title:

Dated: _____

cc: Nexa Resources S.A.

**FORM OF CERTIFICATION FOR TRANSFER
OR EXCHANGE OF NON-GLOBAL REGULATION S
NOTE TO REGULATION S GLOBAL NOTE**
*(Transfers and exchanges pursuant to
Section 3.4(c)(5) of the Indenture)*

The Bank of New York Mellon
240 Greenwich Street
New York, New York 10286
United States
Attention: Global Corporate Trust

**Re: Nexa Resources S.A.
6.750% Senior Unsecured Notes due 2034 (the “Notes”)**

Reference is hereby made to the Indenture, dated as of April 9, 2024 (the “Indenture”), among Nexa Resources S.A., as Issuer, Nexa Resources Cajamarquilla S.A. and Nexa Recursos Minerais S.A., as Guarantors, and The Bank of New York Mellon, a New York banking corporation, as trustee (the “Trustee”), as principal paying agent (the “Principal Paying Agent”), as transfer agent (the “Transfer Agent”) and registrar (the “Security Registrar”). Capitalized terms used but not defined herein shall have the meanings given to them in the Indenture.

This letter relates to U.S.\$[] principal amount of Regulation S Global Notes held in definitive form (CUSIP No. L67359AB2 / ISIN No. USL67359AB21 / Common Code 279741226) by [insert name of transferor] (the “Transferor”). The Transferor has requested an exchange or transfer of such Notes.

In connection with such request and in respect of such Notes, the Transferor does hereby certify that (i) such Notes are owned by the Transferor and are being exchanged without transfer or (ii) such transfer has been effected pursuant to and in accordance with (a) Rule 903 or Rule 904 under the Securities Act of 1933, as amended (the “Act”), or (b) Rule 144 under the Act, and accordingly the Transferor does hereby further certify that:

- (A) the offer of the Notes was not made to a person in the United States; (B) either:
 - (i) at the time the buy order was originated, the transferee was outside the United States or the Transferor and any person acting on its behalf reasonably believed that the transferee was outside the United States, or
 - (ii) the transaction was executed in, on or through the facilities of a designated offshore securities market and neither the Transferor nor any person acting on its behalf knows that the transaction was pre-arranged with a buyer in the United States;
 - (C) no directed selling efforts have been made in contravention of the requirements of Rule 903(a)(2) or 904(b)(2) of Regulation S, as applicable; and
-

(D) the transaction is not pan of a plan or scheme to evade the registration requirements of the Act.

We understand that this certificate is required in connection with certain securities laws of the United States. In connection therewith, if administrative or legal proceedings are commenced or threatened in connection with which this certificate is or would be relevant, we irrevocably authorize you to produce this certificate to any interested party in such proceeding. This certificate and the statements contained herein are made for your benefit and the benefit of the Issuer and the Guarantors.

[INSERT NAME OF TRANSFEROR]

By: _____
Name: _____
Title: _____

Dated: _____

cc: Nexa Resources S.A.

NEXA RESOURCES S.A.
as Issuer,

NEXA RESOURCES CAJAMARQUILLA S.A.

and

NEXA RECURSOS MINERAIS S.A.
as Guarantors,

and

THE BANK OF NEW YORK MELLON
as Trustee, Principal Paying Agent, Transfer Agent and Registrar,

Indenture

Dated as of April 8, 2025

U.S.\$500,000,000

6.600% Senior Unsecured Notes due 2037

Table of Contents

	<u>Page</u>
Article I DEFINITIONS AND OTHER PROVISIONS OF GENERAL APPLICATION	
Section 1.1. Definitions	2
Section 1.2. Compliance Certificates and Opinions	14
Section 1.3. Form of Documents Delivered to Trustee	15
Section 1.4. Acts of Holders; Record Date	15
Section 1.5. Notices, Etc., to Trustee, the Paying Agents and the Issuer	17
Section 1.6. Notice to Holders; Waiver	19
Section 1.7. Effect of Headings and Table of Contents	19
Section 1.8. Successors and Assigns	19
Section 1.9. Separability Clause	19
Section 1.10. Benefits of Indenture	20
Section 1.11. Governing Law	20
Section 1.12. Legal Holidays	20
Section 1.13. Consent to Jurisdiction and Service of Process	20
Section 1.14. Currency of Account; Conversion of Currency; Foreign Exchange Restrictions	21
Section 1.15. Counterparts	23
Section 1.16. Force Majeure	24
Section 1.17. U.S.A. PATRIOT Act	24
Section 1.18. Anti-Money Laundering, Terrorism and Economic Sanctions	24
Section 1.19. FATCA Reporting.	25
Section 1.20. Effective Date	25
Article II NOTE FORMS	
Section 2.1. Forms Generally	25
Section 2.2. Form of Face of Note	27
Section 2.3. Form of Reverse of Note	30
Section 2.4. Form of Trustee's Certificate of Authentication	36
Article III THE NOTES	
Section 3.1. Title and Terms	38
Section 3.2. Denominations	39
Section 3.3. Execution, Authentication, Delivery and Dating	39

Section 3.4.	Global Notes; Registration, Registration of Transfer and Exchange	39
Section 3.5.	Mutilated, Destroyed, Lost and Stolen Notes	45
Section 3.6.	Payment of Interest; Interest Rights Preserved	45
Section 3.7.	Persons Deemed Owners	46
Section 3.8.	Cancellation	47
Section 3.9.	Computation of Interest	47
Section 3.10.	CUSIP Numbers	47
Section 3.11.	Paying Agents; Discharge of Payment Obligations; Indemnity of Holders	47

Article IV REDEMPTION OF NOTES

Section 4.1.	Redemption for Tax Reasons	49
Section 4.2.	Optional Redemption	50
Section 4.3.	Applicability of Article	52
Section 4.4.	Election to Redeem; Notice to Trustee, Registrar and Paying Agent	52
Section 4.5.	Notice of Redemption	52
Section 4.6.	Deposit of Redemption Price	53
Section 4.7.	Notes Payable on Redemption Date	53

Article V SATISFACTION AND DISCHARGE

Section 5.1.	Satisfaction and Discharge of Indenture.	53
Section 5.2.	Application of Trust Money	54

Article VI REMEDIES

Section 6.1.	Events of Default	54
Section 6.2.	Collection of Indebtedness and Suits for Enforcement by Trustee	56
Section 6.3.	Trustee May File Proofs of Claim	57
Section 6.4.	Trustee May Enforce Claims Without Possession of Notes	57
Section 6.5.	Application of Money Collected	57
Section 6.6.	Limitation on Suits	58
Section 6.7.	Unconditional Right of Holders to Receive Principal, Premium and Interest	59
Section 6.8.	Restoration of Rights and Remedies	59
Section 6.9.	Rights and Remedies Cumulative	59
Section 6.10.	Delay or Omission Not Waiver	59
Section 6.11.	Control by Holders	59
Section 6.12.	Waiver of Past Defaults	60
Section 6.13.	Undertaking for Costs	60

Article VII THE TRUSTEE

Section 7.1.	Certain Duties and Responsibilities	60
Section 7.2.	Notice of Defaults	63
Section 7.3.	Certain Rights of Trustee and the Agents	63
Section 7.4.	Not Responsible for Recitals or Issuance of Notes	64
Section 7.5.	May Hold Notes	65
Section 7.6.	Money Held in Trust	65
Section 7.7.	Compensation and Reimbursement	65
Section 7.8.	Corporate Trustee Required; Eligibility	66
Section 7.9.	Resignation and Removal; Appointment of Successor	66
Section 7.10.	Acceptance of Appointment by Successor	68
Section 7.11.	Merger, Conversion, Consolidation or Succession to Business	68
Section 7.12.	Appointment of Authenticating Agent	68

Article VIII HOLDERS LISTS AND COMMUNICATIONS BY TRUSTEE AND ISSUER

Section 8.1.	Issuer to Furnish Trustee; Names and Addresses of Holders	70
Section 8.2.	Preservation of Information; Communications to Holders	70

Article IX CONSOLIDATION, MERGER, CONVEYANCE, TRANSFER OR LEASE

Section 9.1.	Mergers, Consolidations and Certain Sales of Assets	71

Article X SUPPLEMENTAL INDENTURES

Section 10.1.	Supplemental Indentures Without Consent of Holders	72
Section 10.2.	Supplemental Indentures with Consent of Holders	73
Section 10.3.	Execution of Supplemental Indentures	74
Section 10.4.	Effect of Supplemental Indentures	74
Section 10.5.	Reference in Notes to Supplemental Indentures	74
Section 10.6.	Notice to Holders	74

Article XI COVENANTS

Section 11.1.	Payment Under the Notes	75
Section 11.2.	Maintenance of Office or Agency	75
Section 11.3.	Money for Note Payments to Be Held in Trust	75

Section 11.4.	Maintenance of Corporate Existence	76
Section 11.5.	Repurchases at the Option of the Holders upon Change of Control	77
Section 11.6.	Payment of Taxes and Other Claims	78
Section 11.7.	Provision of Financial Information	79
Section 11.8.	Statement by Officers as to Default	79
Section 11.9.	Payment of Additional Amounts	80
Section 11.10.	Limitation on Liens	82
Section 11.11.	[Intentionally Omitted]	84
Section 11.12.	Performance Obligations Under Other Documents	84
Section 11.13.	Compliance with Laws	84
Section 11.14.	Maintenance of Government Approvals	84
Section 11.15.	[Intentionally Omitted]	84
Section 11.16.	Maintenance of Books and Records	84
Section 11.17.	Ranking	84

Article XII LEGAL DEFEASANCE AND COVENANT DEFEASANCE

Section 12.1.	Option to Effect Defeasance or Covenant Defeasance	85
Section 12.2.	Defeasance and Discharge	85
Section 12.3.	Covenant Defeasance	85
Section 12.4.	Conditions to Defeasance or Covenant Defeasance	86
Section 12.5.	Deposited Money and U.S. Government Obligations to Be Held in Trust; Other Miscellaneous Provisions	87
Section 12.6.	Reinstatement	88
Section 12.7.	Repayment to Issuer or the Guarantors	88

Article XIII SUBSTITUTION OF THE ISSUER

Section 13.1.	Substitution of the Issuer	88

Article XIV GUARANTEES

Section 14.1.	Guarantees	90
Section 14.2.	Delivery of the Guarantee	93
Section 14.3.	Release of Guarantor.	93

Article XV MEETINGS OF HOLDERS OF SECURITIES

Section 15.1.	Purposes for Which Meetings May Be Called	93
Section 15.2.	Call, Notice and Place of Meetings	93

Section 15.3.	Persons Entitled to Vote at Meetings	94
Section 15.4.	Quorum; Action	94
Section 15.5.	Determination of Voting Rights; Conduct and Adjournment of Meetings	95
Section 15.6.	Counting Votes and Recording Action of Meetings	95

EXHIBITS

Exhibit A —	FORM OF CERTIFICATION FOR TRANSFER OR EXCHANGE OF RESTRICTED GLOBAL SECURITY TO REGULATION S GLOBAL SECURITY	
Exhibit B —	FORM OF CERTIFICATION FOR TRANSFER OR EXCHANGE OF REGULATION S GLOBAL SECURITY TO RESTRICTED GLOBAL SECURITY	
Exhibit C-1 —	FORM OF CERTIFICATION FOR TRANSFER OR EXCHANGE OF NON-GLOBAL RESTRICTED SECURITY TO RESTRICTED GLOBAL SECURITY	
Exhibit C-2 —	FORM OF CERTIFICATION FOR TRANSFER OR EXCHANGE OF NON-GLOBAL RESTRICTED SECURITY TO REGULATION S GLOBAL SECURITY	
Exhibit D-1 —	FORM OF CERTIFICATION FOR TRANSFER OR EXCHANGE OF NON-GLOBAL REGULATION S SECURITY TO RESTRICTED GLOBAL SECURITY	
Exhibit D-2 —	FORM OF CERTIFICATION FOR TRANSFER OR EXCHANGE OF NON-GLOBAL REGULATION S SECURITY TO REGULATION S GLOBAL SECURITY	

Note: This Table of Contents shall not, for any purpose, be deemed to be part of this Indenture.

THIS INDENTURE, dated as of April 8, 2025, among Nexa Resources S.A., a public limited liability company validly organized under the laws of the Grand Duchy of Luxembourg having its registered office at 37A Avenue J.F. Kennedy, L-1855, Luxembourg, Grand Duchy of Luxembourg and registered with the *Registre de Commerce et des Sociétés* in Luxembourg under number B 185.489 (the “Issuer”), Nexa Resources Cajamarquilla S.A., a corporation (*sociedad anónima*) validly organized under the laws of the Republic of Peru (“Nexa CJM”), Nexa Recursos Minerais S.A., a corporation (*sociedade anônima*) validly organized under the laws of the Federative Republic of Brazil (“Nexa Brazil”, and, together with Nexa CJM, the “Guarantors”), and The Bank of New York Mellon, a New York banking corporation, as trustee (the “Trustee”), a paying agent (the “Principal Paying Agent” and any other paying agents to be appointed hereunder, the “Paying Agents”), transfer agent (the “Transfer Agent”), and registrar (the “Registrar”) and any other paying agents to be appointed hereunder, the “Paying Agents.”

RECITALS

WHEREAS, the Issuer has duly authorized the creation of an issue of U.S.\$500,000,000 of its 6.600% Senior Unsecured Notes due 2037 (the “Initial Notes” and, together with any Additional Notes (as defined herein) issued as provided for in Section 2.3 and Section 3.1 hereof, the “Notes”) of substantially the tenor and amount hereinafter set forth, and to provide therefor the Issuer has duly authorized the execution and delivery of this Indenture.

WHEREAS, Nexa CJM and Nexa Brazil have duly authorized the execution and delivery of this Indenture to provide for their Guarantees with respect to the Notes as set forth in this Indenture.

WHEREAS, all things necessary (i) to make the Initial Notes, when executed by the Issuer and authenticated and delivered hereunder and duly issued by the Issuer, the valid obligations of the Issuer, (ii) to make the Guarantees of Nexa CJM and Nexa Brazil, when executed by Nexa CJM and Nexa Brazil and endorsed on the Notes executed, authenticated and delivered hereunder, the valid obligations of Nexa CJM and Nexa Brazil and (iii) to make this Indenture a valid agreement of the Issuer, Nexa CJM and Nexa Brazil, all in accordance with their respective terms, have been done.

NOW, THEREFORE, THIS INDENTURE WITNESSETH:

For and in consideration of the premises and the purchase of the Notes by the Holders (as defined below) thereof, it is mutually covenanted and agreed, for the equal and proportionate benefit of all Holders of the Notes, as follows:

ARTICLE I

DEFINITIONS AND OTHER PROVISIONS OF GENERAL APPLICATION

Section 1.1. Definitions.

For all purposes of this Indenture, except as otherwise expressly provided or unless the context otherwise requires:

- (1) the terms defined in this Article have the meanings assigned to them in this Article and include the plural as well as the singular;
- (2) all accounting terms not otherwise defined herein have the meanings assigned to them in accordance with GAAP (whether or not such is indicated herein);
- (3) the words “herein,” “hereof” and “hereunder” and other words of similar import refer to this Indenture as a whole and not to any particular Article, Section or other subdivision;
- (4) whenever there is mentioned in this Indenture, in any context, the payment of, or in respect of, a Redemption Price, the principal of or any premium or interest on any Note or the net proceeds received on the sale or exchange of any Notes, such mention shall be deemed to include mention of the payment of Additional Amounts to the extent that, in such context, Additional Amounts are, were or would be payable in respect thereof pursuant to this Indenture;
- (5) All references in this Indenture to “\$,” “U.S.\$,” “dollars” or “United States dollars” shall refer to the lawful currency of the United States.

“Act” when used with respect to any Holder, has the meaning specified in Section 1.4.

“Additional Amounts” has the meaning specified in Section 11.9.

“Additional Notes” means additional 6.600% Senior Unsecured Notes due 2037 issued from time to time after the Issue Date under the terms of this Indenture.

“Affiliate” of any Person means any other Person controlling or controlled by or under direct or indirect common control with such Person. For the purposes of this definition, “control,” when used with respect to any Person, means the power to direct the management and policies of such Person, directly or indirectly, whether through the ownership of voting securities, by contract or otherwise; and the terms “controlling” and “controlled” have meanings correlative to the foregoing.

“Agent Member” means any member of, or participant in, the Depositary.

“Agents” means any Paying Agent, the Registrar, the Transfer Agent and any Principal Paying Agent appointed hereunder.

“Authorized Officers” has the meaning set forth in Section 1.5.

“Bankruptcy Law” means Title 11, United States Code, Brazilian Federal Law No. 11,101, dated February 9, 2005, as amended, Peruvian Insolvency Law (Law No. 27,809), as amended, or any similar federal or state law relating to bankruptcy, insolvency, receivership, winding-up, suspension of payments, liquidation, reorganization or relief of debtors or the law of any other jurisdiction relating to bankruptcy, insolvency, receivership, winding-up, suspension of payments, liquidation, dissolution, *“procedimiento concursal ordinario,” “procedimiento concursal preventivo,” “procedimiento acelerado de refinanciación concursal,” “recuperação judicial,” “recuperação extrajudicial,”* reorganization or relief of debtors, the judicial proceedings referred to in article 13, items 2 to 11 of the Luxembourg law dated 19 December 2002 relating to the register of commerce and companies as well as the accounting and the annual accounts of companies, as amended, including in particular, bankruptcy (*faillite*), judicial reorganization (*réorganisation judiciaire*), suspension of payments (*sursis de paiement*) and judicial liquidation (*liquidation judiciaire*) proceedings or any amendment to, succession to or change in any such law, procedure or process.

“Bankruptcy Order” means any court order made in a proceeding pursuant to or within the meaning of any Bankruptcy Law, containing an adjudication of bankruptcy or insolvency, or providing for liquidation, receivership, winding-up, dissolution, *“procedimiento concursal ordinario,” “procedimiento concursal preventivo,” “procedimiento acelerado de refinanciación concursal,” “recuperação judicial,” “recuperação extrajudicial,”* or reorganization, or appointing a custodian of a debtor or of all or any substantial part of a debtor’s property, or providing for the staying, arrangement, adjustment or composition of Indebtedness or other relief of a debtor or in any court order made in connection with the judicial proceedings referred to in article 13, items 2 to 11 of the Luxembourg law dated 19 December 2002 relating to the register of commerce and companies as well as the accounting and the annual accounts of companies, as amended, including in particular, bankruptcy (*faillite*), judicial reorganization (*réorganisation judiciaire*), suspension of payments (*sursis de paiement*) and judicial liquidation (*liquidation judiciaire*) proceedings.

“Base Currency” has the meaning set forth in Section 1.14.

“Board of Directors” means the board of directors of the Issuer.

“Board Resolution” means a duly adopted resolution of the Board of Directors in full force and effect at the time of determination.

“Brazil” means the Federative Republic of Brazil and any ministry, department, authority (including the Central Bank of Brazil) or statutory corporation or other entity (including a trust), owned or controlled directly or indirectly by the Federative Republic of Brazil or any of the foregoing.

“Business Day” means each day that is not a Saturday, Sunday or other day on which banking institutions in New York, United States, Luxembourg, Grand Duchy of Luxembourg, São Paulo, Brazil or Lima, Peru are authorized or required by law to close.

“Capital Lease Obligation” of any Person means the obligation to pay rent or other payment amounts under a lease of (or other Indebtedness arrangements conveying the right to use) real or personal property of such Person which is required to be classified and accounted for as a capital lease or a liability set forth on a balance sheet of such Person in accordance with applicable GAAP. The stated maturity of such obligation shall be the date of the last payment of rent or any other amount due under such lease prior to the first date upon which such lease may be terminated by the lessee without payment of a penalty. The principal amount of such obligation shall be the capitalized amount thereof that would appear on the face of a balance sheet of such Person in accordance with applicable GAAP.

“Capital Stock” of any Person means any and all shares, interests, participations or other equivalents (however designated and whether voting or non-voting) of corporate stock or other equity participations or ownership interests, including quotas in a Brazilian limited liability quota company (*limitada*) or partnership interests, whether general or limited, of such Person.

“Cash Equivalents” means:

- (1) United States dollars, Brazilian *reais*, Peruvian *Soles*, Euros, or money in other currencies received in the ordinary course of business of the Issuer and its Subsidiaries that are readily convertible into United States dollars or Euros,
- (2) any evidence of Debt with a maturity of 180 days or less issued or directly and fully guaranteed or insured by Brazil, Peru or the United States or any agency or instrumentality thereof, provided that the full faith and credit of Brazil, Peru or the United States is pledged in support thereof,
- (3) (i) demand deposits, (ii) time deposits and certificates of deposit with maturities of one year or less from the date of acquisition, (iii) bankers’ acceptances with maturities not exceeding one year from the date of acquisition, and (iv) overnight bank deposits, in each case with any bank or trust company organized or licensed under the laws of Luxembourg, Brazil, Peru or the United States or any political subdivision or state thereof having capital, surplus and undivided profits in excess of U.S.\$500.0 million whose short-term debt is rated “A-2” or higher by S&P, “F2” or higher by Fitch or “P-2” or higher by Moody’s,
- (4) repurchase obligations with a term of not more than seven days for underlying securities of the type described in clauses (2) and (3) above entered into with any financial institution meeting the qualifications specified in clause (3) above,
- (5) commercial paper rated at least “P-1” by Moody’s, “F1” by Fitch or “A-1” by S&P and maturing within six months after the date of acquisition, and
- (6) money market funds at least 95% of the assets of which consist of investments of the type described in clauses (1) through (5) above.

“Change of Control” means that the Permitted Holders shall cease to own, directly or indirectly, at least a majority of the outstanding voting power of the Voting Stock of the Issuer

and shall cease to have the power to direct or cause the direction of the management and policies of the Issuer.

“Change of Control Offer” has the meaning specified in Section 11.5.

“Change of Control Payment” has the meaning specified in Section 11.5.

“Change of Control Payment Date” has the meaning specified in Section 11.5.

“Central Bank” means (i) the Central Bank of Luxembourg, (ii) the Central Bank of Brazil and (iii) the Central Reserve Bank of Peru or, in each case, any successor entity thereto.

“Change of Law” has the meaning specified in Section 4.1.

“Clearstream” means Clearstream Banking, *société anonyme*.

“Consolidated Total Assets” means, on a consolidated basis, the Issuer’s total amount of assets, calculated based on the most recent balance sheet delivered by the Issuer to the Trustee pursuant to this Indenture, after giving pro forma effect to any acquisition or disposition of companies, divisions, lines of businesses, operations or assets by the Issuer and its Subsidiaries subsequent to such date.

“Corporate Trust Office” means the principal office of the Trustee in The City of New York, New York, at which at any particular time its corporate trust business shall be administered, which at the date hereof is located at 240 Greenwich Street, New York, New York 10286, United States, Attention: Global Corporate Trust, e-mail: gcs.specialty.glam.conv@bny.com, and such other offices as the Trustee may designate from time to time.

“corporation” means a corporation, association, company, limited liability company, joint stock company or business trust.

“covenant defeasance” has the meaning specified in Section 12.3.

“Default” means an event that with the passing of time or the giving of notice or both shall constitute an Event of Default.

“Defaulted Interest” has the meaning specified in Section 3.6.

“Depository” means, with respect to the Notes issuable or issued in whole or in part in the form of one or more Global Notes, DTC for so long as it shall be a clearing agency registered under the Exchange Act, or such successor as the Issuer shall designate from time to time in an Officer’s Certificate delivered to the Trustee.

“Designated Subsidiary” means (i) each Guarantor and (ii) any other Subsidiary of the Issuer which, as of the date of the Issuer’s most recent quarterly or annual, as applicable, consolidated balance sheet, constituted 15% or more of the Consolidated Total Assets of the Issuer, after giving pro forma effect to any acquisition or disposition of companies, divisions,

lines of businesses, operations or assets by the Issuer and its Subsidiaries subsequent to such date.

“Director” means a member of the Board of Directors.

“Disqualified Stock” of any Person means any Capital Stock of such Person which, by its terms (or by the terms of any security into which it is convertible or for which it is exchangeable), or upon the happening of any event, matures or is mandatorily redeemable, pursuant to a sinking fund obligation or otherwise, or is redeemable at the option of the holder thereof, in whole or in part, on or prior to the Stated Maturity of the Notes.

“DTC” means The Depository Trust Company.

“Electronic Means” means the following communications methods: e-mail, secure electronic transmission containing applicable authorization codes, passwords and/or authentication keys issued by the Trustee, or another method or system specified by the Trustee as available for use in connection with its services hereunder.

“Euroclear” means Euroclear Bank S.A./N.V., as operator of the Euroclear system or its successors.

“Event of Default” has the meaning specified in Section 6.1.

“Exchange Act” means the United States Securities Exchange Act of 1934, as amended (or any successor act), and the rules and regulations thereunder.

“Expiration Date” has the meaning set forth in Section 1.4.

“FATCA” means Sections 1471 to 1474 of the U.S. Internal Revenue Code of 1986, as amended.

“Fitch” means Fitch Rating Service, Inc. and its successors.

“GAAP” means, as elected from time to time by the Issuer, (i) generally accepted accounting principles prescribed by the laws, rules and regulations applicable in the jurisdiction of incorporation of the Issuer, (ii) International Financial Reporting Standards, or (iii) accounting practices generally accepted in the United States, in each case, as in effect from time to time.

“Global Note” means, as the context may require, any or all of the Regulation S Global Note(s) and the Restricted Global Note(s), evidencing all or part of a series of Notes which is issued to the Depositary or its nominee and is registered in the name of the Depositary or its nominee.

“guarantee” by any Person means any obligation, contingent or otherwise, of such Person guaranteeing, or having the economic effect of guaranteeing, any Indebtedness of any other Person (the “primary obligor”) in any manner, whether directly or indirectly, and including, without limitation, any obligation of such Person, (i) to purchase or pay (or advance or supply funds for the purchase or payment of) such Indebtedness or to purchase (or to advance or supply

funds for the purchase of) any security for the payment of such Indebtedness, (ii) to purchase property, securities or services for the purpose of assuring the holder of such Indebtedness of the payment of such Indebtedness, or (iii) to maintain working capital, equity capital or other financial statement condition or liquidity of the primary obligor so as to enable the primary obligor to pay such Indebtedness (and “guaranteed,” “guaranteeing” and “guarantor” shall have meanings correlative to the foregoing); provided that, the guarantee by any Person shall not include endorsements by such Person for collection or deposit, in either case, in the ordinary course of business; provided further that, the Incurrence by the Issuer or a Designated Subsidiary of a Lien permitted under clause (2) of Section 11.10 shall not be deemed to constitute a guarantee by the Issuer or a Designated Subsidiary of any purchase money debt of such Person secured thereby.

“Guarantee” means the guarantee by the Guarantors of the due and punctual payment of the principal (and premium, if any) and interest (including any Additional Amounts) on, the Notes and other amounts due under this Indenture.

“Guarantors” mean Nexa CJM and Nexa Brazil.

“Holder” means a Person in whose name a Note is registered on the Registrar’s books.

“Incur” means, with respect to any Indebtedness or other obligation of any Person, to create, issue, incur (by conversion, exchange or otherwise), assume, guarantee or otherwise become liable in respect of such Indebtedness or other obligation including by acquisition of Subsidiaries or the recording, as required pursuant to applicable GAAP or otherwise, of any such Indebtedness or other obligation on the balance sheet of such Person (and “Incurrence,” “Incurred,” “Incurable” and “Incurring” shall have meanings correlative to the foregoing); provided that a change in applicable GAAP that results in an obligation of such Person that exists at such time becoming Indebtedness shall not be deemed an Incurrence of such Indebtedness and that neither the accrual of interest nor the accretion of original issue discount shall be deemed an Incurrence of Indebtedness; provided further that, the Issuer may elect to treat all or any portion of revolving credit debt commitments, whether or not then outstanding, of the Issuer or a Subsidiary as being incurred from and after any date beginning the date the relevant revolving credit commitment is extended to the Issuer or a Subsidiary, as the case may be, by furnishing written notice thereof to the Trustee, and any borrowings or reborrowings by the Issuer or a Subsidiary under such commitment up to the amount of such commitment designated by the Issuer or such Subsidiary as Incurred shall not be deemed to be new Incurrences of Indebtedness by the Issuer or such Subsidiary, as the case may be.

“Indebtedness” means (without duplication), with respect to any Person, whether recourse is to all or a portion of the assets of such Person and whether or not contingent, (i) every obligation of such Person for money borrowed, (ii) every obligation of such Person evidenced by bonds, debentures, notes or other similar instruments, including any such obligations Incurred in connection with the acquisition of property, assets or businesses, (iii) every reimbursement obligation of such Person with respect to letters of credit, bankers’ acceptances or similar facilities issued for the account of such Person, (iv) every obligation of such Person issued or assumed as the deferred purchase price of property or services (including securities repurchase agreements but excluding trade accounts payable or accrued liabilities arising in the ordinary

course of business which are payable on customary trade terms or which are being contested in good faith), (v) all obligations to redeem Disqualified Stock issued by such Person, (vi) every Net Obligation under Interest Rate or Currency Protection Agreements of such Person, (vii) every Capital Lease Obligation of such Person, and (viii) every obligation of the type referred to in clauses (i) through (vii) of another Person and all dividends of another Person the payment of which, in either case, such Person has guaranteed, other than with respect to clauses (iii) and (vi) above, in each case, if and to the extent any of the preceding items would appear as a liability upon the financial statements of the specified Person in accordance with applicable GAAP.

“Indenture” means this instrument as originally executed or as it may from time to time be supplemented or amended by one or more supplemental indentures hereto entered into pursuant to the applicable provisions hereof.

“Initial Notes” means the U.S.\$500,000,000 of Notes designated in the first paragraph of the Recitals.

“Instructions” has the meaning set forth in Section 1.5.

“Interest Payment Date” means each April 8 and October 8, commencing on October 8, 2025.

“Interest Rate or Currency Protection Agreement” of any Person means any forward contract, futures contract, swap, option, hedge or other financial agreement or arrangement (including, without limitation, caps, floors, collars and similar agreements) relating to, or the value of which is dependent upon, interest rates or currency exchange rates or indices.

“Investment Grade Rating” means a rating equal to or higher than (i) BBB- (or the equivalent) by S&P, (ii) Baa3 (or the equivalent) by Moody’s or (iii) BBB- (or the equivalent) by Fitch.

“Issue Date” means April 8, 2025.

“Issuer” means the Person named as the “Issuer” in the first paragraph of this instrument until a successor Person shall have become such pursuant to the applicable provisions of this Indenture and thereafter “Issuer” shall mean such successor Person.

“Issuer Request” or “Issuer Order” means a written request or order signed in the name of the Issuer by an authorized signatory of the Issuer and delivered to the Trustee.

“Lien” means any mortgage, pledge, security interest, encumbrance or charge of any kind (including, without limitation, any conditional sale or other title retention agreement or lease in the nature thereof or any agreement to give any security interest).

“Luxembourg” means the Grand Duchy of Luxembourg and any ministry, department, authority (including the Central Bank of Luxembourg) or statutory corporation or other entity (including a trust), owned or controlled directly or indirectly by the Grand Duchy of Luxembourg or any of the foregoing.

"Maturity" when used with respect to any Note, means the date on which the principal of such Note becomes due and payable as therein or herein provided, whether at the Stated Maturity or by declaration of acceleration, call for redemption or otherwise.

"Maturity Date" means April 8, 2037.

"Moody's" means Moody's Investors Service, Inc. and its successors.

"Net Obligation" at any date of determination means the net amount, exclusive of any commissions or administrative fees that a Person would be obligated to pay upon the termination of an Interest Rate or Currency Protection Agreement as of such date.

"Nexa Brazil" means the Person named as "Nexa Brazil" in the first paragraph of this instrument until a successor Person shall have become such pursuant to the applicable provisions of this Indenture and thereafter "Nexa Brazil" shall mean such successor Person.

"Nexa CJM" means the Person named as "Nexa CJM" in the first paragraph of this instrument until a successor Person shall have become such pursuant to the applicable provisions of this Indenture and thereafter "Nexa CJM" shall mean such successor Person.

"Note Register" has the meaning specified in Section 3.4(b).

"Notes" has the meaning specified in the first paragraph of the Recitals.

"Notice of Default" has the meaning set forth in Section 7.2.

"OECD" means the Organization for Economic Co-operation and Development.

"Officer's Certificate" means a certificate signed by any of the following: the Chief Executive Officer, President, Chief Financial Officer or a Vice President; and delivered to the Trustee and containing the statements provided for in Section 1.2 hereof (if applicable).

"Opinion of Counsel" means a written opinion of legal counsel, who may be counsel for the Issuer or a Guarantor, containing the statements provided for in Section 1.2 in form and substance reasonably acceptable to the Trustee.

"Outstanding" when used with respect to the Notes, means, as of the date of determination, all the Notes theretofore authenticated and delivered under this Indenture (including, as of such date, all the Notes represented by Global Notes authenticated and delivered under this Indenture), except the reduced portion or portions of any Global Note, as such reduction or reductions shall have been endorsed on such Global Note by the Trustee as provided herein and, except:

- (i) the Notes theretofore cancelled by the Trustee or delivered to the Trustee for cancellation;
- (ii) the Notes for whose payment or redemption money in the necessary amount has been theretofore deposited with the Trustee or any Paying Agent (other than

the Issuer) in trust or set aside and segregated in trust by the Issuer (if the Issuer shall act as its own Paying Agent) for the Holders of such Notes; provided that if such Notes are to be repurchased, notice of such repurchase has been duly given pursuant to this Indenture; and

(iii) Notes which have been issued pursuant to Section 3.5 or in exchange for or in lieu of which other Notes have been authenticated and delivered pursuant to this Indenture, other than any such Notes in respect of which there shall have been presented to the Trustee proof satisfactory to it that such Notes are held by a bona fide purchaser in whose hands such Notes are valid obligations of the Issuer;

provided, however, that in determining whether the Holders of the requisite principal amount of the Outstanding Notes have given any request, demand, authorization, direction, notice, consent or waiver hereunder, Notes owned by the Issuer or any other obligor upon the Notes or any Affiliate of the Issuer or of such other obligor shall be disregarded and deemed not to be Outstanding, except that, in determining whether the Trustee shall be protected in relying upon any such request, demand, authorization, direction, notice, consent or waiver, only Notes which a Responsible Officer of the Trustee actually knows to be so owned shall be so disregarded. Notes so owned which have been pledged in good faith may be regarded as Outstanding if the pledgee establishes to the satisfaction of the Trustee the pledgee's right so to act with respect to such Notes and that the pledgee is not the Issuer or any other obligor upon the Notes or any Affiliate of the Issuer or of such other obligor.

"Paying Agent" means any Person authorized by the Issuer to pay the principal of (and premium, if any) or interest on any Notes on behalf of the Issuer. The Issuer has initially appointed the Principal Paying Agent to act as Paying Agent.

"Payment Date" has the meaning set forth in Section 3.11(b).

"Permitted Holders" mean (i) the estate of Mr. Antonio Ermírio de Moraes and any of Mr. Ermírio Pereira de Moraes, Mrs. Maria Helena de Moraes Scripilliti and Mr. José Ermírio de Moraes Filho and any of their descendants, (ii) any Affiliate of any of the foregoing and (iii) any corporation, partnership, joint venture, association, trust, fund, unincorporated organization, or any other entity or group formed pursuant to a shareholders, control or voting agreement or similar agreement, of which any one or more of the Permitted Holders referred to in clauses (i) or (ii) hereof is a shareholder, partner, beneficiary, member or party.

"Permitted Holding Company" means any entity which owns at least 95% of the outstanding Capital Stock or other ownership interests (other than directors' qualifying shares) of the Issuer.

"Person" means any individual, corporation, partnership, joint venture, association, trust, unincorporated organization, government or agency or political subdivision thereof or any other entity.

"Peru" means the Republic of Peru and any ministry, department, authority (including the Central Reserve Bank of Peru) or statutory corporation or other entity (including a trust), owned or controlled directly or indirectly by the Republic of Peru or any of the foregoing.

"Predecessor Note" of any particular Note means every previous Note evidencing all or a portion of the same debt as that evidenced by such particular Note; and, for the purposes of this definition, any Note authenticated and delivered under Section 3.5 in exchange for or in lieu of a mutilated, destroyed, lost or stolen Note shall be deemed to evidence the same debt as the mutilated, destroyed, lost or stolen Note.

"Principal Paying Agent" means The Bank of New York Mellon, a New York banking corporation, or any successor in its capacity as Principal Paying Agent.

"Rating Agency" means each of S&P, Moody's and Fitch; provided that if two of S&P, Moody's or Fitch cease to rate the Notes or fail to make a rating on the Notes publicly available, the Issuer will appoint at least one replacement for such Rating Agency that is a "nationally recognized statistical rating organization" within the meaning of Rule 15c3-1(c)(2)(vi)(F) under the Exchange Act.

"Rating Date" means the date which is 90 days prior to the earlier of (i) a Change of Control and (ii) public notice of the occurrence of a Change of Control or of the intention of the Permitted Holders or the Issuer to effect a Change of Control.

"Rating Decline" means the occurrence of the following on, or within 90 days after, the date of public notice of the occurrence of a Change of Control or of the intention by a Permitted Holder or the Issuer to effect a Change of Control (which period shall be extended so long as the rating of the Notes is under publicly announced consideration for possible downgrade by any of the Rating Agencies): (i) in the event the Notes are assigned an Investment Grade Rating by at least two of the Rating Agencies on the Rating Date, the rating of the Notes by at least two of the Rating Agencies shall be below an Investment Grade Rating; or (ii) in the event the Notes are rated below an Investment Grade Rating by at least two of the Rating Agencies on the Rating Date, the rating of the Notes by at least two of the Rating Agencies shall be decreased by one or more gradations (including gradations (but not outlooks) within rating categories as well as between rating categories); provided that any such Rating Decline is expressly stated by the applicable Rating Agencies to have been the result of the Change of Control. The Issuer will provide the Trustee with prompt written notice of any Rating Decline, and the Trustee shall not be deemed to have knowledge of any Rating Decline until it receives such notice.

"rate(s) of exchange" has the meaning set forth in Section 1.14.

"Receivables" means receivables, chattel paper, instruments, documents or intangibles evidencing or relating to the right to payment of money in respect of the sale of goods or services.

"Record Date" means the second Business Day immediately preceding an Interest Payment Date.

"Redemption Date" when used with respect to any Note to be redeemed, means the date fixed for such redemption by or pursuant to this Indenture.

"Redemption Price" when used with respect to any Note to be redeemed, means the price at which it is to be redeemed pursuant to this Indenture.

“Registrar” has the meaning specified in Section 3.4(b).

“Relevant Date” has the meaning specified in Section 11.9.

“Responsible Officer” means any officer within the corporate trust department of the Trustee, including any director, managing director, vice president, assistant vice president, trust officer, assistant trust officer or any other officer or assistant officer of the Trustee customarily performing functions similar to those performed by the persons who at that time shall be such officers having direct responsibility for the administration of this Indenture, and also means, with respect to a particular corporate trust matter, any other officer to whom such trust matter is referred because of his or her knowledge of and familiarity with the particular subject.

“Regulation S” means Regulation S (including any successor regulation thereto) under the Securities Act, as it may be amended from time to time.

“Regulation S Global Note” has the meaning set forth in Section 2.1

“Remaining Life” has the meaning set forth in Section 4.2.

“Restricted Global Note” has the meaning set forth in Section 2.1.

“Restricted Notes” means the Restricted Global Note and any Successor Note, other than (i) any Note issued upon a transfer or exchange for which a certificate substantially in the form set forth in (a) Exhibit A is required to be provided and is provided pursuant to Section 3.4(c)(2) or (b) Exhibit C-2 is required to be provided and is provided pursuant to Section 3.4(c)(5), (ii) any Note issued in exchange for or in lieu of any Note specified in clause (i) of this definition or any Note issued in exchange therefor or in lieu thereof, or (iii) any Note as to which the Issuer has removed and has not replaced the legend described in Section 3.4(b).

“Restricted Property” means any mineral property (including any mineral concessions, authorizations or rights in respect of minerals granted by any governmental authority), concentrate plant, manufacturing or processing plant used in connection with the processing, refining or manufacturing of metals or minerals, power plant or transmission lines of the Issuer or any Designated Subsidiary and any capital stock of any Subsidiary directly owning any such mineral property, concentrate, manufacturing or processing plant, power plant or transmission lines.

“Reuters” means Reuters Group plc, a U.K. corporation, and its successors and assigns.

“Rule 144A” means Rule 144A (including any successor regulation thereto) under the Securities Act, as it may be amended from time to time.

“S&P” means S&P Global Ratings, a business unit of Standard & Poor’s Financial Services LLC and its successors.

“SEC” means the United States Securities and Exchange Commission.

“Securities Act” means the United States Securities Act of 1933, as amended, and the rules and regulations of the SEC promulgated thereunder.

“Securitization Transaction” means a transaction in which the Issuer or a Subsidiary thereof sells or transfers an interest in Receivables (and/or any rights arising under the documentation governing or relating to such Receivables covered by such transaction, any proceeds of Receivables and any lockboxes or accounts in which such proceeds are deposited and any related assets) to a special purpose entity that issues securities payable from collections of such Receivables or other assets.

“Special Record Date” for the payment of any Defaulted Interest means a date fixed by the Trustee pursuant to Section 3.6.

“Stated Maturity” when used with respect to any Note or any installment of interest thereon, means the date specified in such Note as the date on which the principal of such Note or such installment of interest, as the case may be, is due and payable.

“Subsidiary” of any Person means (i) a corporation more than 50% of the combined voting power of the outstanding Voting Stock of which is owned, directly or indirectly, by such Person or by one or more other Subsidiaries of such Person or by such Person and one or more Subsidiaries thereof or (ii) any other Person (other than a corporation) in which such Person, or one or more other Subsidiaries of such Person or such Person and one or more other Subsidiaries thereof, directly or indirectly, has at least a majority ownership and power to direct the policies, management and affairs thereof.

“Successor Note” of any particular Note means every Note issued after, and evidencing all or a portion of the same debt as that evidenced by, such particular Note; and, for the purposes of this definition, any Note authenticated and delivered under Section 3.5 in exchange for or in lieu of a mutilated, destroyed, lost or stolen Note shall be deemed to evidence the same debt as the mutilated, destroyed, lost or stolen Note.

“Taxes” has the meaning set forth in Section 11.9.

“Transaction Documents” has the meaning set forth in Section 11.1.

“Transfer Agent” means the agent designated by the Issuer (not including the Registrar) for the registration of transfer of securities as provided in Section 11.2.

“Treasury Rate” has the meaning set forth in Section 4.2.

“Trustee” means the Person named as the “Trustee” in the first paragraph of this instrument until a successor Trustee shall have been appointed pursuant to the applicable provisions of this Indenture, and thereafter “Trustee” shall mean such successor Trustee.

“United States” means the United States of America.

“U.S. Dollar Equivalent” means, with respect to any monetary amount in a currency other than the U.S. Dollar, at any time for the determination thereof, the amount of U.S. Dollars

obtained by converting such foreign currency involved in such computation into U.S. Dollars at the spot rate for the purchase of U.S. Dollars with the applicable foreign currency as quoted by Reuters at approximately 11:00 a.m. (New York time) on the date not more than two Business Days prior to such determination.

"U.S. Global Notes" has the meaning specified in Section 2.1.

"Vice President" when used with respect to the Issuer or any Guarantor, means any vice president, whether or not designated by a number or a word or words added before or after the title "vice president."

"Voting Stock" of a Person means all classes of Capital Stock of such Person then outstanding that are entitled (without regard to the occurrence of any contingency) to vote in the election of the directors of such Person, but excluding such classes of Capital Stock or other interests that are entitled, as a group in a separate cast, to appoint one director of such Person as representative of the minority shareholders.

"Wholly Owned Subsidiary" of any Person means any entity owned by such Person of which at least 95% of the outstanding Capital Stock or other ownership interests (other than directors' qualifying shares) of such entity shall at the time be owned by such Person or by one or more Wholly Owned Subsidiaries of such Person.

Section 1.2. Compliance Certificates and Opinions.

Upon any application or request by the Issuer or a Guarantor to the Trustee to take any action under any provision of this Indenture, the Issuer or such Guarantor shall furnish to the Trustee such certificates and opinions as may be required under this Indenture; provided, however, that such certificate and opinion shall not be required in the case of the initial issuance of Notes hereunder. Each such certificate or opinion, and any certificate evidencing a determination required to be made by the Issuer or a Guarantor under this Indenture, shall be given in the form of an Officer's Certificate, if to be given by an officer of the Issuer or such Guarantor, or an Opinion of Counsel, if to be given by counsel, and shall comply with the requirements set forth in this Indenture.

Every certificate or opinion with respect to compliance by or on behalf of the Issuer or a Guarantor with a condition or covenant provided for in this Indenture shall include:

- (1) a statement that each individual signing such certificate or opinion has read such covenant or condition and the definitions herein relating thereto;
- (2) a brief statement as to the nature and scope of the examination or investigation upon which the statements or opinions contained in such certificate or opinion are based;
- (3) a statement that, in the opinion of each such individual, he has made such examination or investigation as is necessary to enable him or her to express an informed opinion as to whether or not such covenant or condition has been complied with; and

(4) a statement as to whether, in the opinion of each such individual, such condition or covenant has been complied with.

Section 1.3. Form of Documents Delivered to Trustee.

In any case where several matters are required to be certified by, or covered by an opinion of, any specified Person, it is not necessary that all such matters be certified by, or covered by the opinion of, only one such Person, or that they be so certified or covered by only one document, but one such Person may certify or give an opinion with respect to some matters and one or more other such Persons as to other matters, and any such Person may certify or give an opinion as to such matters in one or several documents.

Any certificate of an officer of the Issuer or a Guarantor may be based, insofar as it relates to legal matters, upon an Opinion of Counsel submitted therewith, unless such officer knows, or in the exercise of reasonable care should know, that the opinion with respect to the matters upon which his certificate is based is erroneous. Any Opinion of Counsel may be based, insofar as it relates to factual matters, upon a certificate of an officer or officers of the Issuer or a Guarantor submitted therewith stating the information on which counsel is relying, unless such counsel knows, or in the exercise of reasonable care should know, that the certificate with respect to such matters is erroneous.

Where any Person is required to make, give or execute two or more applications, requests, consents, certificates, statements, opinions or other instruments under this Indenture, they may, but need not, be consolidated and form one instrument.

Section 1.4. Acts of Holders; Record Date.

Any request, demand, authorization, direction, notice, consent, waiver or other action provided by this Indenture to be given or taken by Holders may be embodied in and evidenced by one or more instruments of substantially similar tenor signed by such Holders in person or by an agent duly appointed in writing; and, except as herein otherwise expressly provided, such action shall become effective when such instrument or instruments are delivered to the Trustee and, where it is hereby expressly required, to the Issuer. Such instrument or instruments (and the action embodied therein and evidenced thereby) are herein sometimes referred to as the “Act” of the Holders signing such instrument or instruments. Proof of execution of any such instrument or of a writing appointing any such agent shall be sufficient for any purpose of this Indenture and (subject to Section 6.1) conclusive in favor of the Trustee and the Issuer, if made in the manner provided in this Section.

The fact and date of the execution by any Person of any such instrument or writing pursuant to this Section 1.4 may be proved by the affidavit of a witness of such execution or by a certificate of a notary public or other officer authorized by law to take acknowledgments of deeds, certifying that the individual signing such instrument or writing acknowledged to him or her the execution thereof. Where such execution is by a signer acting in a capacity other than his individual capacity, such certificate or affidavit shall also constitute sufficient proof of his authority. The fact and date of the execution of any such instrument or writing, or the authority

of the Person executing the same, may also be proved in any other manner which the Trustee deems sufficient.

The ownership of Notes shall be proved by the Note Register.

Any request, demand, authorization, direction, notice, consent, waiver or other Act of the Holder of any Note shall bind every future Holder of the same Note and the Holder of every Note issued upon the registration of transfer thereof or in exchange therefor or in lieu thereof in respect of anything done, omitted or suffered to be done by the Trustee or the Issuer in reliance thereon, whether or not notation of such action is made upon such Note.

The Issuer may set any day as a Record Date for the purpose of determining the Holders of Outstanding Notes entitled to give, make or take any request, demand, authorization, direction, notice, consent, waiver or other action provided or permitted by this Indenture to be given, made or taken by Holders of Notes, provided that the Issuer may not set a Record Date for, and the provisions of this paragraph shall not apply with respect to, the giving or making of any notice, declaration, request or direction referred to in the next paragraph. If not set by the Issuer prior to the first solicitation of a Holder made by any Person in respect of any such matter referred to in the foregoing sentence, the Record Date for any such matter shall be the 30th day (or, if later, the date of the most recent list of Holders required to be provided pursuant to Section 7.1) prior to such first solicitation. If any Record Date is set pursuant to this paragraph, the Holders of Outstanding Notes on such Record Date, and no other Holders, shall be entitled to take the relevant action, whether or not such Holders remain Holders after such Record Date; provided that no such action shall be effective hereunder unless taken on or prior to the applicable Expiration Date by Holders of the requisite principal amount of Outstanding Notes on such Record Date.

The Trustee may set any day as a Record Date for the purpose of determining the Holders of Outstanding Notes entitled to join in the giving or making of (i) any Notice of Default, (ii) any declaration of acceleration referred to in Section 5.1, (iii) any request to institute proceedings referred to in Section 5.6(2) or (iv) any direction referred to in Section 5.11. If any Record Date is set pursuant to this paragraph, the Holders of Outstanding Notes on such Record Date, and no other Holders, shall be entitled to join in such notice, declaration, request or direction, whether or not such Holders remain Holders after such Record Date; provided that no such action shall be effective hereunder unless taken on or prior to the applicable Expiration Date by Holders of the requisite principal amount of Outstanding Notes on such Record Date. Nothing in this paragraph shall be construed to prevent the Trustee from (i) giving or making any notice required to be made pursuant to the Trustee's duties and obligations under this Indenture and (ii) setting a new Record Date for any action for which a Record Date has previously been set pursuant to this paragraph (whereupon the Record Date previously set shall automatically and with no action by any Person be cancelled and of no effect), and nothing in this paragraph shall be construed to render ineffective any action taken by Holders of the requisite principal amount of Outstanding Notes on the date such action is taken. Promptly after any Record Date is set pursuant to this paragraph, the Trustee, at the Issuer's expense, shall cause notice of such Record Date, the proposed action by Holders and the applicable Expiration Date to be given to the Issuer in writing and to each Holder of Notes in the manner set forth in Section 1.6.

Nothing in this paragraph shall be construed to prevent the Issuer from setting a new Record Date for any action for which a Record Date has previously been set pursuant to this paragraph (whereupon the Record Date previously set shall automatically and with no action by any Person be cancelled and of no effect), and nothing in this paragraph shall be construed to render ineffective any action taken by Holders of the requisite principal amount of Outstanding Notes on the date such action is taken. Promptly after any Record Date is set pursuant to this paragraph, the Issuer, at its own expense, shall cause notice of such Record Date, the proposed action by Holders and the applicable Expiration Date to be given to the Trustee in writing and to each Holder of Notes in the manner set forth in Section 1.6.

With respect to any Record Date set pursuant to this Section, the party hereto which sets such Record Dates may designate any day as the “Expiration Date,” and from time to time may change the Expiration Date to any earlier or later day; provided that no such change shall be effective unless notice of the proposed new Expiration Date is given to the other party hereto in writing, and to each Holder of Notes in the manner set forth in Section 1.6, on or prior to the existing Expiration Date. If an Expiration Date is not designated with respect to any Record Date set pursuant to this Section, the party hereto which set such Record Date shall be deemed to have initially designated the 180th day after such Record Date as the Expiration Date with respect thereto, subject to its right to change the Expiration Date as provided in this paragraph. Notwithstanding the foregoing, no Expiration Date shall be later than the 180th day after the applicable Record Date.

Without limiting the foregoing, a Holder entitled hereunder to take any action hereunder with regard to any particular Note may do so with regard to all or any part of the principal amount of such Note or by one or more duly appointed agents each of which may do so pursuant to such appointment with regard to all or any part of such principal amount.

Section 1.5. Notices, Etc., to Trustee, the Paying Agents and the Issuer.

Any request, demand, authorization, direction, notice, consent, waiver or Act of Holders or other document provided or permitted by this Indenture to be made upon, given or furnished to, or filed with:

(1) the Trustee or any Agent by any Holder or by the Issuer or the Guarantor shall be sufficient for every purpose hereunder if made, given, furnished or filed, in writing in English or accompanied by a certified translation to English, to or with the Trustee at The Bank of New York Mellon, 240 Greenwich Street, New York, New York 10286, United States, Attention: Global Corporate Trust, Fax: (212) 815-5630, and such other offices as the Trustee may designate from time to time or at any other address previously furnished in writing to the Holders, the Issuer by the Trustee;

(2) the Principal Paying Agent by the Trustee, the Issuer or any Holder shall be sufficient for every purpose hereunder (except as otherwise expressly provided herein) if in writing and mailed, first class postage prepaid, to the Principal Paying Agent addressed to it at 240 Greenwich Street, New York, New York 10286, United States, Attention: Global Corporate Trust, or at any other address previously furnished in writing to the Trustee by the Principal Paying Agent;

(3) the Issuer by the Trustee or by any Holder shall be sufficient for every purpose hereunder (except as otherwise expressly provided herein) if in writing and mailed, first-class postage prepaid, to the Issuer addressed to it at 37A, Avenue J.F. Kennedy, L-1855, Luxembourg, Grand Duchy of Luxembourg, Attention: José Carlos del Valle (Group Chief Financial Officer), or at any other address previously furnished in writing to the Trustee by the Issuer;

(4) Nexa CJM by the Trustee or by any Holder shall be sufficient for every purpose hereunder (except as otherwise expressly provided herein) if in writing and mailed, first-class postage prepaid, to Nexa CJM addressed to it at Carretera Central Km 9.5, desvío a Huachipa, Lurigancho-Chosica, Provincia y Departamento de Lima, Peru, Attention: José Carlos del Valle (Group Chief Financial Officer), or at any other address previously furnished in writing to the Trustee by Nexa CJM; and

(5) Nexa Brazil by the Trustee or by any Holder shall be sufficient for every purpose hereunder (except as otherwise expressly provided herein) if in writing and mailed, first-class postage prepaid, to Nexa Brazil addressed to it at Av. Engenheiro Luis Carlos Berrini, 105, São Paulo, SP 04571-010, Brazil, Attention: Rodrigo Cammarosano (Treasurer), or at any other address previously furnished in writing to the Trustee by Nexa Brazil.

The Trustee shall have the right to accept and act upon instructions, including funds transfer instructions ("Instructions") given pursuant to this Indenture and delivered using Electronic Means; *provided, however*, that the Issuer and/or each Guarantor, as applicable, shall provide to the Trustee an incumbency certificate listing officers with the authority to provide such Instructions ("Authorized Officers") and containing specimen signatures of such Authorized Officers, which incumbency certificate shall be amended by the Issuer and/or each Guarantor, as applicable, whenever a person is to be added or deleted from the listing. If the Issuer and/or a Guarantor, as applicable, elects to give the Trustee Instructions using Electronic Means and the Trustee in its discretion elects to act upon such Instructions, the Trustee's understanding of such Instructions shall be deemed controlling. The Issuer and the Guarantors understand and agree that the Trustee cannot determine the identity of the actual sender of such Instructions and that the Trustee shall conclusively presume that directions that purport to have been sent by an Authorized Officer listed on the incumbency certificate provided to the Trustee have been sent by such Authorized Officer. The Issuer and the Guarantors shall be responsible for ensuring that only Authorized Officers transmit such Instructions to the Trustee and that the Issuer, the Guarantors and all Authorized Officers are solely responsible to safeguard the use and confidentiality of applicable user and authorization codes, passwords and/or authentication keys upon receipt by the Issuer and/or the Guarantors, as applicable. The Trustee shall not be liable for any losses, costs or expenses arising directly or indirectly from the Trustee's reliance upon and compliance with such Instructions notwithstanding such directions conflict or are inconsistent with a subsequent written instruction. Each of the Issuer and each Guarantor agree: (i) to assume all risks arising out of the use of Electronic Means to submit Instructions to the Trustee, including without limitation the risk of the Trustee acting on unauthorized Instructions, and the risk of interception and misuse by third parties; (ii) that it is fully informed of the protections and risks associated with the various methods of transmitting Instructions to the Trustee and that there may be more secure methods of transmitting Instructions than the

method(s) selected by the Issuer and/or the Guarantor, as applicable; (iii) that the security procedures (if any) to be followed in connection with its transmission of Instructions provide to it a commercially reasonable degree of protection in light of its particular needs and circumstances; and (iv) to notify the Trustee immediately upon learning of any compromise or unauthorized use of the security procedures.

Section 1.6. Notice to Holders; Waiver.

Where this Indenture provides for notice to Holders of any event, such notice shall be sufficiently given (unless otherwise herein expressly provided) if (i) in the case of a Global Note, in writing by electronic mail and/or by first-class mail to the Depositary, and (ii) in the case of securities other than Global Notes, in writing and mailed, first-class postage prepaid, to each Holder affected by such event, at his address as it appears in the Note Register on the Business Day immediately preceding the date of mailing, which shall be not later than the latest date (if any), and not earlier than the earliest date (if any), prescribed for the giving of such notice. In any case where notice to Holders is given by mail, neither the failure to mail such notice, nor any defect in any notice so mailed, to any particular Holder shall affect the sufficiency of such notice with respect to other Holders. Where this Indenture provides for notice in any manner, such notice may be waived in writing by the Person entitled to receive such notice, either before or after the event, and such waiver shall be the equivalent of such notice. Waivers of notice by Holders shall be filed with the Trustee, but such filing shall not be a condition precedent to the validity of any action taken in reliance upon such waiver.

In case by reason of the suspension of regular mail service or by reason of any other cause it shall be impracticable to give such notice by mail, then such notification as shall be made with the approval of the Trustee shall constitute a sufficient notification for every purpose hereunder.

Any obligation the Issuer (and the Paying Agents on its behalf) may have to publish a notice to Holders shall have been met upon delivery of the notice to the Depositary.

Section 1.7. Effect of Headings and Table of Contents.

The Article and Section headings herein and the Table of Contents are for convenience only and shall not affect the construction hereof.

Section 1.8. Successors and Assigns.

All covenants and agreements in this Indenture by each of the Issuer and the Guarantors shall bind its successors and assigns, whether so expressed or not.

Section 1.9. Separability Clause.

In case any provision in this Indenture or in the Notes or in the Guarantees shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions of each of this Indenture, the Notes or the Guarantees shall not in any way be affected or impaired thereby.

Section 1.10. Benefits of Indenture.

Nothing in this Indenture or in the Notes, express or implied, shall give to any Person, other than the parties hereto and their successors hereunder and the Holders of Notes, any benefit or any legal or equitable right, remedy or claim under this Indenture, the Notes or the Guarantees.

Section 1.11. Governing Law.

THIS INDENTURE, THE NOTES AND THE GUARANTEES SHALL BE GOVERNED BY, AND CONSTRUED IN ACCORDANCE WITH, THE LAWS OF THE STATE OF NEW YORK, without regard to conflicts of laws principles thereof. For the purposes of paragraph 2 of article 9 of the Brazilian Decree-Law No. 4,567, dated September 4, 1942, as amended, the Trustee shall be deemed the “proponent” of the transactions contemplated by this Indenture. Articles 470-1 through 470-19 of the Luxembourg law dated August 10, 1915 on commercial companies, as amended, which set the provisions related to the representation of the Holders of the Notes, are not applicable to the Notes or the Guarantees.

EACH OF THE PARTIES HERETO, AND EACH HOLDER BY ITS ACCEPTANCE OF A NOTE, HEREBY IRREVOCABLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, ANY AND ALL RIGHT TO TRIAL BY JURY IN ANY LEGAL PROCEEDING ARISING OUT OF OR RELATING TO THIS INDENTURE, THE NOTES OR THE TRANSACTION CONTEMPLATED HEREBY.

Section 1.12. Legal Holidays.

In any case where any Interest Payment Date, Redemption Date or Stated Maturity of any Note shall not be a Business Day, then (notwithstanding any other provision of this Indenture, the Notes or the Guarantees) payment of interest or principal (and premium, if any) need not be made on such date, but may be made on the next succeeding Business Day with the same force and effect as if made on the Interest Payment Date or Redemption Date, or at the Stated Maturity, provided that no interest shall accrue on account of such delay for the period from and after such Interest Payment Date or Redemption Date or Stated Maturity, as the case may be.

Section 1.13. Consent to Jurisdiction and Service of Process.

(a) Each of the Issuer and the Guarantors agrees that any suit, action or proceeding against it brought by any Holder or the Trustee arising out of or based upon this Indenture, the Notes or the Guarantees may be instituted in any state or Federal court in the Borough of Manhattan in The City of New York, New York, and waives any objection which it may now or hereafter have to the laying of venue of any such proceeding, and irrevocably submits to the non-exclusive jurisdiction of such courts in any suit, action or proceeding.

(b) By the execution and delivery of this Indenture or any amendment or supplement hereto, each of the Issuer and the Guarantors (i) acknowledges that it has, by separate written instrument, designated and appointed Cogency Global Inc. currently located at 122 East 42nd Street, 18th Floor, New York, NY 10168, as its authorized agent upon which process may be served in any suit, action or proceeding with respect to, arising out of, or relating to, the Notes,

this Indenture or the Guarantees, that may be instituted in any Federal or state court in the State of New York, The City of New York, the Borough of Manhattan, or brought under Federal or state securities laws or brought by the Trustee or the Paying Agent (whether in its individual capacity or in its capacity as Trustee or the Paying Agent, as the case may be, hereunder), and acknowledges that Cogency Global Inc. has accepted such designation, (ii) submits to the jurisdiction of any such court in any such suit, action or proceeding, and (iii) agrees that service of process upon Cogency Global Inc. shall be deemed in every respect effective service of process upon the Issuer and the Guarantors, as the case may be, in any such suit, action or proceeding. Each of the Issuer and the Guarantors further agrees to take any and all action, including the execution and filing of any and all such documents and instruments as may be necessary to continue such designation and appointment of Cogency Global Inc. in full force and effect so long as this Indenture shall be in full force and effect; provided that the Issuer and the Guarantors may and shall (to the extent Cogency Global Inc. ceases to be able to be served on the basis contemplated herein), by written notice to the Trustee, designate such additional or alternative agents for service of process under this Section 1.13 that (i) maintains an office located in the Borough of Manhattan, The City of New York in the State of New York, (ii) are either (x) counsel for the Issuer and the Guarantors or (y) a corporate service company which acts as agent for service of process for other persons in the ordinary course of its business and (iii) agrees to act as agent for service of process in accordance with this Section 1.13. Such notice shall identify the name of such agent for process and the address of such agent for process in the Borough of Manhattan, The City of New York, State of New York. Upon the request of any Holder, the Trustee shall deliver such information to such Holder. Notwithstanding the foregoing, there shall, at all times, be at least one agent for service of process for the Issuer and the Guarantors appointed and acting in accordance with this Section 1.13.

(c) To the extent that the Issuer or the Guarantors has or hereafter may acquire any immunity from jurisdiction of any court or from any legal process (whether through service of notice, attachment prior to judgment, attachment in aid of execution, execution or otherwise) with respect to itself or its property, each of the Issuer and the Guarantors hereby irrevocably waives such immunity in respect of its obligations under this Indenture, the Notes and the Guarantees, to the fullest extent permitted by law.

Section 1.14. Currency of Account; Conversion of Currency; Foreign Exchange Restrictions.

(a) U.S. Dollars are the sole currency of account and payment for all sums payable by the Issuer and the Guarantors under or in connection with the Notes, the Guarantees or this Indenture, including damages. Any amount received or recovered in a currency other than U.S. dollars (whether as a result of, or of the enforcement of, a judgment or order of a court of any jurisdiction, in the winding-up or dissolution of the Issuer or the Guarantors or otherwise) by any Holder of the Notes in respect of any sum expressed to be due to it from the Issuer or the Guarantors shall only constitute a discharge to the Issuer or the Guarantors, as the case may be, to the extent of the U.S. dollar amount which the recipient is able to purchase with the amount so received or recovered in that other currency on the date of that receipt or recovery (or, if it is not practicable to make that purchase on that date, on the first date on which it is practicable to do so). If that U.S. dollar amount is less than the U.S. dollar amount expressed to be due to the recipient under the Notes, the Issuer and the Guarantors shall, jointly and severally, indemnify it

against any loss sustained by it as a result as set forth in Section 1.14(b). In any event, the Issuer and the Guarantors shall, jointly and severally, indemnify the recipient against the cost of making any such purchase. For the purposes of this Section 1.14, it will be sufficient for the Holder of a Note to certify in a satisfactory manner (indicating sources of information used) that it would have suffered a loss had an actual purchase of U.S. dollars been made with the amount so received in that other currency on the date of receipt or recovery (or, if a purchase of U.S. dollars on such date had not been practicable, on the first date on which it would have been practicable, it being required that the need for a change of date be certified in the manner mentioned above). The indemnities set forth in this Section 1.14 constitute separate and independent obligations from other obligations of the Issuer and the Guarantors, shall give rise to a separate and independent cause of action, shall apply irrespective of any indulgence granted by any Holder of the Notes and shall continue in full force and effect despite any other judgment, order, claim or proof for a liquidated amount in respect of any sum due under the Notes.

(b) The Issuer and the Guarantors covenant and agree that the following provisions shall apply to conversion of currency in the case of the Notes, the Guarantees and this Indenture:

(i) (A) if for the purpose of obtaining judgment in, or enforcing the judgment of, any court in any country, it becomes necessary to convert into a currency (the "judgment currency") an amount due in any other currency (the "Base Currency"), then the conversion shall be made at the rate of exchange prevailing on the Business Day before the day on which the judgment is given or the order of enforcement is made, as the case may be (unless a court shall otherwise determine), and

(B) if there is change in the rate of exchange prevailing between the Business Day before the day on which the judgment is given or an order of enforcement is made, as the case may be (or such other date as a court shall determine), and the date of receipt of the amount due, the Issuer or the Guarantors, as the case may be, will pay such additional (or, as the case may be, such lesser) amount, if any, as may be necessary so that the amount paid in the judgment currency when converted at the rate of exchange prevailing on the date of receipt will produce the amount in the Base Currency originally due;

(ii) in the event of the winding-up of the Issuer or the Guarantors at any time while any amount or damages owing under the Notes, the Guarantees and this Indenture, or any judgment or order rendered in respect thereof, shall remain outstanding, the Issuer and the Guarantors shall, jointly and severally, indemnify and hold the Holders and the Trustee harmless against any deficiency arising or resulting from any variation in rates of exchange between (1) the date as of which the U.S. Dollar Equivalent of the amount due or contingently due under the Notes, the Guarantees and this Indenture (other than under this Subsection (b)(ii)) is calculated for the purposes of such winding-up and (2) the final date for the filing of proofs of claim in such winding-up. For the purpose of this subsection (b)(ii), the final date for the filing of proofs of claim in the winding-up of the Issuer or the Guarantors, as the case may be, shall be the date fixed by the liquidator or otherwise in accordance with the relevant provisions of applicable law as being the latest practicable date as at which liabilities of the Issuer or the Guarantors, as the case

may be, may be ascertained for such winding-up prior to payment by the liquidator or otherwise in respect thereto;

(iii) the obligations contained in Subsections (a), (b)(i)(B) and (b)(ii) of this Section 1.14 shall constitute separate and independent obligations from the other obligations of the Issuer and the Guarantors under the terms of this Indenture, shall give rise to separate and independent causes of action against the Issuer and the Guarantors, shall apply irrespective of any waiver or extension granted by any Holder or the Trustee or either of them from time to time and shall continue in full force and effect notwithstanding any judgment or order or the filing of any proof of claim in the winding-up of the Issuer or the Guarantors for a liquidated sum in respect of amounts due hereunder (other than under Subsection (b)(ii) above) or under any such judgment or order. Any such deficiency as aforesaid shall be deemed to constitute a loss suffered by the Holders or the Trustee, as the case may be, and no proof or evidence of any actual loss shall be required by the Issuer or the Guarantors or the liquidator or otherwise or any of them. In the case of subsection (b)(ii) above, the amount of such deficiency shall not be deemed to be reduced by any variation in rates of exchange occurring between the said final date and the date of any liquidating distribution; and

(iv) the term “rate(s) of exchange” shall mean the rate of exchange quoted by Reuters at 10:00 a.m. (New York time) for spot purchases of the Base Currency with the judgment currency other than the Base Currency referred to in Subsections (b)(i) and (b)(ii) above and includes any premiums and costs of exchange payable.

(c) In the event that on any Interest Payment Date, the Maturity Date or Redemption Date, as the case may be, in respect of the Guarantee provided by a Guarantor, any restrictions or prohibition of access to the foreign exchange market of the jurisdiction of incorporation of a Guarantor exists, such Guarantor agrees to pay all amounts payable under the Notes and such Guarantee in the currency of the Notes by means of any legal procedure existing in such jurisdiction of incorporation (except commencing legal proceedings against the relevant Central Bank), on any due date for payment under the Notes, for the purchase of the currency of such Notes. All costs and taxes payable in connection with the procedures referred to in this Section 1.14 shall be borne by the relevant Guarantor.

(d) Notwithstanding anything to the contrary contained herein, neither the Trustee nor the Principal Paying Agent shall have any liability for converting into U.S. Dollars any amount received by any Holder in a currency other than U.S. Dollars.

Section 1.15. Counterparts.

This Indenture may be executed in two or more counterparts, each of which shall be deemed to be an original, but all of which together shall constitute one and the same instrument. The words “execution,” signed,” “signature,” and words of like import in this Indenture or in any other certificate, agreement or document related to this Indenture shall include images of manually executed signatures transmitted by facsimile or other electronic format (including, without limitation, “pdf”, “tif” or “jpg”) and other electronic signatures (including, without

limitation, DocuSign and AdobeSign). The use of electronic signatures and electronic records (including, without limitation, any contract or other record created, generated, sent, communicated, received, or stored by electronic methods) shall be of the same legal effect, validity and enforceability as a manually executed signature or use of a paper-based recordkeeping system to the fullest extent permitted by applicable law, including, without limitation, the Federal Electronic Signatures in Global and National Commerce Act, the New York State Electronic Signatures and Records Act and any other applicable law, including, without limitation, any state law based on the Uniform Electronic Transactions Act or the Uniform Commercial Code.

Section 1.16. Force Majeure.

In no event shall the Trustee or any Agent be responsible or liable for any failure or delay in the performance of its obligations hereunder arising out of or caused by, directly or indirectly, forces beyond its control, including, without limitation, strikes, work stoppages, accidents, pandemics, epidemics, acts of war or terrorism, civil or military disturbances, nuclear or natural catastrophes or acts of God, and interruptions, loss or malfunctions of utilities, communications or computer (software and hardware) services; it being understood that the Trustee or such Agent shall use reasonable efforts which are consistent with accepted practices in the banking industry to resume performance as soon as practicable under the circumstances.

Section 1.17. U.S.A. PATRIOT Act.

In order to comply with the laws, rules, regulations and executive orders in effect from time to time applicable to banking institutions, including, without limitation, those relating to the funding of terrorist activities and money laundering, including Section 326 of the USA PATRIOT Act of the United States ("Applicable Law"), the Trustee and Agents are required to obtain, verify, record and update certain information relating to individuals and entities which maintain a business relationship with the Trustee and Agents. Accordingly, each of the parties agrees to provide to the Trustee and Agents, upon their request from time to time such identifying information and documentation as may be available for such party in order to enable the Trustee and Agents to comply with Applicable Law.

Section 1.18. Anti-Money Laundering, Terrorism and Economic Sanctions.

(a) The Trustee or any Agent may take and instruct any delegate to take any action which it in its sole discretion considers appropriate so as to comply with any applicable law, regulation, request of a public or regulatory authority or any internal group policy (including any "Know Your Client" and/or other compliance policy) which relates to the prevention of fraud, money laundering, terrorism or other criminal activities or the provision of financial and other services to sanctioned persons or entities. Such action may include but is not limited to the interception and investigation of transactions on the Issuer's or any Guarantor's accounts (particularly those involving the international transfer of funds) including the source of the intended recipient of funds paid into or out of the Issuer's or any Guarantor's accounts. None of the Trustee, any Agent or any delegate will be liable for any loss (whether direct or consequential and including, without limitation, loss of profit or interest) caused in whole or in

part by any actions which are taken by the Trustee, any Agent or any delegate pursuant to this Section 1.18.

(b) The Issuer and each Guarantor covenants and represents, jointly and severally, that neither it nor any of their respective subsidiaries or their respective directors or officers, and, to the knowledge of the Issuer or any Guarantor, any of their affiliates are the target or subject of any sanctions enforced by the US Government, (including, without limitation, the Office of Foreign Assets Control of the US Department of the Treasury or the US Department of State), the United Nations Security Council, the European Union, His Majesty's Treasury, or other relevant sanctions authority (collectively "Sanctions");

(c) The Issuer and each Guarantor covenants and represents, jointly and severally, that neither it nor any of their respective subsidiaries or their respective directors or officers will directly or indirectly use any repayments/reimbursements made pursuant to this Indenture, (i) to fund or facilitate any activities of or business with any person who, at the time of such funding or facilitation, is the subject or target of Sanctions, (ii) to fund or facilitate any activities of or business with any country or territory that is the target or subject of Sanctions, or (iii) in any other manner that will result in a violation of Sanctions by any Person.

Section 1.19. FATCA Reporting.

The Issuer and each Guarantor agrees that (a) if reasonably requested by the Trustee or any of the Agents and required by FATCA, in relation to a payment made under this Indenture and the Notes issued hereunder, the Issuer or the Guarantors will provide such information if and to the extent that (i) such information is reasonably necessary for each of the Trustee and the Agents to determine that it is in compliance with FATCA as relates to the payments made under this Indenture and the Notes issued hereunder and (ii) such information is reasonably available to the Issuer or the Guarantors, as applicable with regard to the Issuer or Guarantors in relation to the requirements of FATCA that are actually imposed upon such requesting Trustee or Agent, as applicable; provided, however, that neither the Issuer nor any Guarantor shall be required to provide information that it is prohibited legally from disclosing and (b) the Trustee and each applicable Agent shall be entitled to make any withholding or deduction from payments to the extent necessary to comply with FATCA, for which the Trustee and the Agents shall have no liability. The terms of this Section 1.19 shall survive the termination of this Indenture.

Section 1.20. Effective Date.

This Indenture shall become effective on the date hereof and shall be binding upon the Issuer, the Guarantors, the Trustee, the Registrar, the Paying Agent and the Principal Paying Agent.

ARTICLE II

NOTE FORMS

Section 2.1. Forms Generally.

The Notes, the Trustee's certificates of authentication thereof and the Guarantees endorsed thereon shall be substantially in the forms set forth in this Article, with such appropriate legends, insertions, omissions, substitutions and other variations as are required or permitted by this Indenture, and may have such letters, numbers or other marks of identification and such legends or endorsements placed thereon as may be required to comply with the rules of any securities exchange or as may, consistently herewith, be determined by the officers executing such Notes or Guarantees, as the case may be, as evidenced by their execution of the Notes.

The definitive Notes and the Guarantees to be endorsed thereon shall be printed, lithographed or engraved or produced by any combination of these methods on steel engraved borders or may be produced in any other manner all as determined by the officers executing such Notes, as evidenced by their execution of such Notes or Guarantees, as the case may be.

In certain cases described elsewhere herein, the legends set forth in the first three paragraphs of Section 2.2 may be omitted from Notes issued hereunder.

Notes offered and sold in their initial distribution in reliance on Regulation S will be initially issued in the form of one or more Global Notes in fully registered form without interest coupons, substantially in the form of Note set forth in Section 2.2 and 2.3 (the "Regulation S Global Note"), which shall be registered in the name of the Depositary or its nominee and deposited with the Trustee, at its Corporate Trust Office, as custodian for the Depositary, duly executed by the Issuer and the Guarantors and authenticated by the Trustee as hereinafter provided, for credit by the Depositary to the respective accounts of the beneficial owners of the Notes represented thereby (or such other accounts as they may direct).

Notes offered and sold in their initial distribution in reliance on Rule 144A shall be issued in the form of one or more Global Notes (collectively, and, together with their Successor Notes, the "Restricted Global Note") in fully registered form without interest coupons, substantially in the form of Note set forth in Section 2.2 and 2.3, with such applicable legends as are provided for in Section 2.2, except as otherwise permitted herein. Such Restricted Global Note shall be registered in the name of the Depositary or its nominee and deposited with the Trustee, at its Corporate Trust Office, as custodian for the Depositary, duly executed by the Issuer and the Guarantors and authenticated by the Trustee as hereinafter provided, for credit by the Depositary to the respective accounts of beneficial owners of the Notes represented thereby (or such other accounts as they may direct). The aggregate principal amount of the Restricted Global Note may be increased or decreased from time to time by adjustments made on the records of the Trustee, as custodian for the Depositary, in connection with a corresponding decrease or increase in the aggregate principal amount of the Regulation S Global Note, as hereinafter provided.

Section 2.2. Form of Face of Note.

[Include if Note is a Restricted Global Note — THIS NOTE (OR ITS PREDECESSOR) WAS ORIGINALLY ISSUED IN A TRANSACTION EXEMPT FROM REGISTRATION UNDER THE UNITED STATES SECURITIES ACT OF 1933, AS AMENDED, OR THE SECURITIES ACT, AND THIS NOTE MAY NOT BE REOFFERED, SOLD OR

OTHERWISE TRANSFERRED IN THE ABSENCE OF SUCH REGISTRATION OR AN APPLICABLE EXEMPTION THEREFROM. EACH PURCHASER OF THIS NOTE IS HEREBY NOTIFIED THAT THE SELLER OF THIS NOTE MAY BE RELYING ON THE EXEMPTION FROM THE PROVISIONS OF SECTION 5 OF THE SECURITIES ACT PROVIDED BY RULE 144A THEREUNDER. THE HOLDER OF THIS NOTE AGREES FOR THE BENEFIT OF THE ISSUER OR ANY SUBSIDIARY THAT (A) THIS NOTE MAY BE REOFFERED, RESOLD, PLEDGED OR OTHERWISE TRANSFERRED, ONLY (I) TO A PERSON WHOM THE SELLER REASONABLY BELIEVES IS A QUALIFIED INSTITUTIONAL BUYER (AS DEFINED IN RULE 144A UNDER THE SECURITIES ACT) IN A TRANSACTION MEETING THE REQUIREMENTS OF RULE 144A, (II) OUTSIDE THE UNITED STATES TO A PERSON THAT IS NOT A U.S. PERSON IN AN OFFSHORE TRANSACTION IN ACCORDANCE WITH RULE 904 UNDER THE SECURITIES ACT, (III) PURSUANT TO ANOTHER AVAILABLE EXEMPTION UNDER THE SECURITIES ACT, (IV) TO THE ISSUER OR ANY SUBSIDIARY OF THE ISSUER OR (V) PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT, IN EACH OF CASES (I) THROUGH (V) IN ACCORDANCE WITH ANY APPLICABLE SECURITIES LAWS OF ANY STATE OF THE UNITED STATES; AND (B) THE HOLDER WILL, AND EACH SUBSEQUENT HOLDER IS REQUIRED TO, NOTIFY ANY PURCHASER OF THIS NOTE FROM IT OF THE RESALE RESTRICTIONS REFERRED TO IN (A) ABOVE. THIS LEGEND MAY ONLY BE REMOVED AT THE OPTION OF THE ISSUER.]

[Include if Note is a Regulation S Global Note — THIS NOTE (OR ITS PREDECESSOR) WAS ORIGINALLY ISSUED IN A TRANSACTION EXEMPT FROM REGISTRATION UNDER THE UNITED STATES SECURITIES ACT OF 1933, AS AMENDED, OR THE SECURITIES ACT, AND MAY NOT BE TRANSFERRED IN THE UNITED STATES OR TO, OR FOR THE ACCOUNT OR BENEFIT OF, ANY U.S. PERSON EXCEPT PURSUANT TO AN AVAILABLE EXEMPTION FROM THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT AND ALL APPLICABLE STATE SECURITIES LAWS. TERMS USED ABOVE HAVE THE MEANINGS GIVEN TO THEM IN REGULATION S UNDER THE SECURITIES ACT.]

NEXA RESOURCES S.A.
(organized under the laws of the Grand Duchy of Luxembourg)

[REGULATION S GLOBAL NOTE/RESTRICTED GLOBAL NOTE] [Delete as appropriate for either Regulation S Global
Security or Restricted Global Security]
representing
U.S.\$[]

6.600% SENIOR UNSECURED NOTES DUE 2037
guaranteed by
NEXA RESOURCES CAJAMARQUILLA S.A.
and
NEXA RECURSOS MINERAIS S.A.

ISIN Number: [144A: US65290DAC74]
CUSIP Number: [144A: 65290D AC7]

[REG S: USL67359AC04]
[REG S: L67359 AC0]

[Delete as appropriate for either Regulation S Global Security or Restricted Global Security]

Nexa Resources S.A., a validly organized public limited liability company validly organized under the laws of the Grand Duchy of Luxembourg having its registered office at 37A Avenue J.F. Kennedy, L-1855, Luxembourg, Grand Duchy of Luxembourg and registered with the *Registre de Commerce et des Sociétés* in Luxembourg under number B 185.489 (herein called the “Issuer,” which term includes any successor Person under the Indenture hereinafter referred to), for value received, hereby promises to pay to Cede & Co. or its registered assigns, the principal sum of Dollars [include if Note is a Global Note — (or such other Principal Sum as is noted in the records of the Custodian for the Depositary as being the Principal Amount of this Regulation S Global Note/Restricted Global Note for the time being)] on April 8, 2037, and to pay interest thereon from April 8, 2025, or from the most recent Interest Payment Date to which interest has been paid or duly provided for, semi-annually on April 8 and October 8 in each year, commencing on October 8, 2025, at the rate of 6.600% per annum, until the principal hereof is paid or made available for payment. The interest so payable, and punctually paid or duly provided for, on any Interest Payment Date will, as provided in such Indenture, be paid to the Person in whose name this Note (or one or more Predecessor Notes) is registered at the close of business on the Record Date for such interest, which shall be two calendar days prior to payment (whether or not a Business Day), as the case may be, next preceding such Interest Payment Date. Any such interest not so punctually paid or duly provided for will forthwith cease to be payable to the Holder on such Record Date and may either be paid to the Person in whose name this Note (or one or more Predecessor Notes) is registered at the close of business on a Special Record Date for the payment of such Defaulted Interest to be fixed by the Trustee, notice whereof shall be given to Holders of Notes not less than 10 days prior to such Special Record Date, or be paid at any time in any other lawful manner not inconsistent with the requirements of any securities exchange on which the Notes may be listed, and upon such notice as may be required by such exchange, all as more fully provided in said Indenture. In addition, the Issuer will pay to the

Holder of this Note such Additional Amounts as may become payable under Section 11.9 of the Indenture.

In the case of a default in payment of principal and premium, if any, upon acceleration or repayment, interest shall be payable pursuant to the preceding paragraph on such overdue principal (and premium, if any), such interest shall be payable on demand and, if not so paid on demand, such interest shall itself bear interest at the rate per annum stated above plus 1% (to the extent that the payment of such interest shall be legally enforceable), and shall accrue from the date such principal and/or premium, as the case may be, was due and payable to the date payment of such interest has been made or duly provided for, and such interest on unpaid interest shall also be payable on demand.

Payment of the principal of (and premium, if any) and interest on this Note will be made at the Corporate Trust Office of the Trustee, at the offices of a Paying Agent, at the office or agency of the Issuer maintained for that purpose in The City of New York, New York, and at any other office or agency maintained by the Issuer for such purpose, in such coin or currency of the United States as at the time of payment is legal tender for payment of public and private debts; provided, however, that at the option of the Issuer payment of interest may be made by check mailed to the address of the Person entitled thereto as such address shall appear in the Note Register.

Reference is hereby made to the further provisions of this Note set forth on the reverse hereof, which further provisions shall for all purposes have the same effect as if set forth at this place.

Unless the certificate of authentication hereon has been executed by the Trustee referred to on the reverse hereof by manual or electronic signature, this Note shall not be entitled to any benefit under the Indenture or be valid or obligatory for any purpose.

IN WITNESS WHEREOF, the Issuer has caused this instrument to be duly executed.

NEXA RESOURCES S.A.

By: _____
Name:
Title:

By: _____
Name:
Title:

Section 2.3. Form of Reverse of Note.

This Note is one of a duly authorized issue of Notes of the Issuer designated as its 6.600% Senior Unsecured Notes due 2037 (the “Notes”) issued under an Indenture, dated as of April 8, 2025 (herein called the “Indenture”), among the Issuer, the Guarantors named therein, and The Bank of New York Mellon, a New York banking corporation, as trustee (the “Trustee”), as principal paying agent (the “Principal Paying Agent”) and any other paying agents to be appointed hereunder, the “Paying Agents”), as transfer agent (the “Transfer Agent”) and registrar (the “Registrar”). Reference is hereby made to the Indenture and all indentures supplemental thereto for a statement of the respective rights, limitations of rights, duties and immunities thereunder of the Issuer, the Guarantors, the Trustee, the Transfer Agent and the Notes are, and are to be, authenticated and delivered. Terms used but not defined in this Note are defined in the Indenture.

As provided in the Indenture and subject to certain limitations therein set forth, the obligations of the Issuer under the Indenture and this Note are guaranteed pursuant to the Guarantees set forth in the Indenture. Each Holder, by holding this Note, agrees to all of the terms and provisions of said Guarantees. Reference is hereby made to the Indenture for a statement of the respective rights, limitations of rights, duties and obligations thereunder of the Guarantors, the Trustee and the Holders.

The Issuer may from time to time, without the consent of the Holders of the Notes, create and issue Additional Notes having the same terms and conditions as the Initial Notes in all respects, except that the issue date, the issue price and the first payment of interest thereon may differ; provided, however, that unless the Additional Notes are treated as part of the same “issue” of debt instruments as the Initial Notes or are issued pursuant to a “qualified reopening” of the Initial Notes, or are issued with less than a *de minimis* amount of original issue discount, in each case for U.S. federal income tax purposes, the Additional Notes will have a separate CUSIP or ISIN number (as applicable). Additional Notes shall be consolidated with and shall form a single series and vote together with the previously issued Notes for all purposes under the Indenture.

If as a result of any Change of Law (as defined in the Indenture): (i) the Issuer or a Guarantor is or would be required on the next succeeding Interest Payment Date to pay any Additional Amounts referred to in Section 11.9 of the Indenture in excess of the Additional Amounts that the Issuer or such Guarantor, as the case may be, would pay if payments in respect of the Notes were subject to deduction or withholding for Taxes imposed by the applicable taxing jurisdiction at the rate applicable on the Issue Date; or (ii) the issuers/borrowers of certain intercompany debt are or would be required on the next succeeding interest payment date to pay Brazilian withholding taxes in excess of a general rate of 15%, or 25% in case of amounts paid to residents of countries or locations which do not impose any income tax or which impose it at a maximum rate lower than 17% or where the laws of that country or location impose restrictions on the disclosure (x) of shareholding composition; (y) of the ownership of the investment; or (z) to the identification of the beneficial owner of income attributed to non-resident persons, pursuant to article 8 of Brazilian Law No. 9,779, of January 19, 1999, and articles 24 and 24-A of Brazilian Law No. 9,430, of December 27, 1996; provided that, such requirement to pay such taxes in excess of such rate was not caused by, or otherwise the result of, whether directly or indirectly, wholly or in part, any amendment to the intercompany debt, and in either case, the

payment of such excess amounts cannot be avoided by the use of any reasonable measures available to the Issuer or a Guarantor, the Notes may be redeemed, by the Issuer at the option of the Issuer or a Guarantor, in whole but not in part, upon not less than 30 nor more than 90 days' notice to the Holders, which notice will be published, at any time following such Change of Law at a Redemption Price equal to the principal amount thereof, plus accrued and unpaid interest, if any, to the date fixed for redemption. The Issuer, any Guarantor or any of their respective Affiliates will also pay to Holders of the Notes on the Redemption Date any Additional Amounts which are payable.

Following such redemption, the Notes will be cancelled, or remain Outstanding, at the Issuer's or a Guarantor's election. Prior to the delivery of any notice of redemption in accordance with the foregoing, the Issuer or a Guarantor shall deliver to the Trustee and the Agents an Officer's Certificate stating that the Issuer or a Guarantor, as the case may be, is entitled to effect such redemption based on an Opinion of Counsel or written advice of a qualified tax expert, that the Issuer or a Guarantor has or will become obligated to pay such excess amounts with respect to Taxes as a result of such Change of Law. Such notice, once delivered by the Issuer or a Guarantor to the Trustee, will be irrevocable.

At any time before January 8, 2037 (which is the date that is three months prior to maturity of the notes (the "Par Call Date")), the Issuer or a Guarantor has the right to redeem the Notes, in whole or in part and from time to time, at a Redemption Price equal to the greater of (1) 100% of the principal amount of the Notes being redeemed and (2) the sum of the present values of the remaining scheduled payments of principal and interest on the Notes being redeemed that would be due if the Notes matured on the Par Call Date (inclusive of interest accrued to the redemption date), discounted to the Redemption Date on a semi-annual basis (assuming a 360-day year consisting of twelve 30-day months) at the Treasury Rate plus 40 basis points, less interest accrued to, but excluding, the Redemption Date; plus, in either case, accrued and unpaid interest on the principal amount of the Notes being redeemed and Additional Amounts, if any, to, but excluding, the Redemption Date (subject to the right of Holders of record on the relevant Record Date to receive interest due on the relevant Interest Payment Date).

At any time on or after the Par Call Date, the Issuer or a Guarantor has the right to redeem the Notes, in whole or in part and from time to time, at a Redemption Price equal to 100% of the principal amount of the Notes being redeemed plus accrued and unpaid interest on the principal amount of the Notes being redeemed to, but excluding, such Redemption Date (subject to the right of Holders of record on the relevant Record Date to receive interest due on the relevant Interest Payment Date).

The "Treasury Rate" shall be determined by the Issuer or a Guarantor after 4:15 p.m., New York City time (or after such time as yields on U.S. government securities are posted daily by the Board of Governors of the Federal Reserve System), on the third Business Day preceding the Redemption Date based upon the yield or yields for the most recent day that appear after such time on such day in the most recent statistical release published by the Board of Governors of the Federal Reserve System designated as "Selected Interest Rates (Daily) - H.15" (or any successor designation or publication) ("H.15") under the caption "U.S. government securities-Treasury constant maturities-Nominal" (or any successor caption or heading). In determining the Treasury Rate, the Issuer or a Guarantor shall select, as applicable: (i) the yield for the Treasury

constant maturity on H.15 exactly equal to the period from the redemption date to the Par Call Date (the “Remaining Life”); or (ii) if there is no such Treasury constant maturity on H.15 exactly equal to the Remaining Life, the two yields – one yield corresponding to the Treasury constant maturity on H.15 immediately shorter than and one yield corresponding to the Treasury constant maturity on H.15 immediately longer than the Remaining Life – and shall interpolate to the Par Call Date on a straight-line basis (using the actual number of days) using such yields and rounding the result to three decimal places; or (iii) if there is no such Treasury constant maturity on H.15 shorter than or longer than the Remaining Life, the yield for the single Treasury constant maturity on H.15 closest to the Remaining Life. For purposes of this paragraph, the applicable Treasury constant maturity or maturities on H.15 shall be deemed to have a maturity date equal to the relevant number of months or years, as applicable, of such Treasury constant maturity from the Redemption Date.

If on the third Business Day preceding the Redemption Date H.15 or any successor designation or publication is no longer published, the Issuer or a Guarantor shall calculate the Treasury Rate based on the rate per annum equal to the semi-annual equivalent yield to maturity at 11:00 a.m., New York City time, on the second Business Day preceding such redemption date of the United States Treasury security maturing on, or with a maturity that is closest to, the Par Call Date, as applicable. If there is no United States Treasury security maturing on the Par Call Date but there are two or more United States Treasury securities with a maturity date equally distant from the Par Call Date, one with a maturity date preceding the Par Call Date and one with a maturity date following the Par Call Date, the Issuer or a Guarantor shall select the United States Treasury security with a maturity date preceding the Par Call Date. If there are two or more United States Treasury securities maturing on the Par Call Date or two or more United States Treasury securities meeting the criteria of the preceding sentence, the Issuer or the Guarantor shall select from among these two or more United States Treasury securities the United States Treasury security that is trading closest to par based upon the average of the bid and asked prices for such United States Treasury securities at 11:00 a.m., New York City time. In determining the Treasury Rate in accordance with the terms of this paragraph, the semi-annual yield to maturity of the applicable United States Treasury security shall be based upon the average of the bid and asked prices (expressed as a percentage of principal amount) at 11:00 a.m., New York City time, of such United States Treasury security, and rounded to three decimal places.

The Issuer or a Guarantor’s actions and determinations in determining the Redemption Price shall be conclusive and binding for all purposes, absent manifest error.

The Issuer, any Guarantor or any of their respective Affiliates may at any time repurchase the Notes at any price in the open market or otherwise. The Issuer, any Guarantor or any of their respective Affiliates may hold or resell the Notes it purchases or may surrender them to the Trustee or an Agent for cancellation.

Optional Clean-up Redemption. Notwithstanding the foregoing, in connection with any tender offer for the notes (including an Offer to Purchase in connection with a Change of Control that results in a Rating Decline made in accordance with the terms of the Indenture), in the event that the Holders of not less than 85% of the aggregate principal amount of the outstanding Notes validly tender and do not validly withdraw Notes in such tender offer and the Issuer, or any other

Person making such offer in lieu of the Issuer, purchases all of the Notes validly tendered and not validly withdrawn by such Holders, then the Issuer or the Guarantor will have the right, on not less than 10 nor more than 60 days' prior notice to the Holders (with a copy to the Trustee), to redeem all of the Notes that remain outstanding at a Redemption Price equal to the purchase price paid to each other Holder in such tender offer plus, to the extent not included in the purchase price, accrued and unpaid interest and Additional Amounts, if any, on the Notes that remain outstanding, to, but excluding, the Redemption Date.

[Include if Note is a Regulation S Global Note — If the holder of a beneficial interest in this Regulation S Global Note at any time wishes to transfer such interest to a Person who wishes to take delivery thereof in the form of a beneficial interest in the Restricted Global Note, such transfer may be effected, subject to the rules and procedures of the Depositary, Euroclear and Clearstream, in each case to the extent applicable and as in effect from time to time, only in accordance with the terms of this paragraph. Upon receipt by the Trustee, as Registrar, of (A) written instructions given by or on behalf of the Depositary in accordance with the rules and procedures of the Depositary, Euroclear and Clearstream, in each case to the extent applicable and as in effect from time to time directing the Trustee to credit or cause to be credited to a specified Agent Member's account a beneficial interest in the Restricted Global Note in a specified principal amount and to cause to be debited from another specified Agent Member's account a beneficial interest in this Regulation S Global Note in an equal principal amount; and (B) a certificate in substantially the form set forth in Exhibit B to the Indenture signed by or on behalf of the Agent Member holding such beneficial interest in this Regulation S Global Note, the Trustee, as Registrar, shall reduce the principal amount of this Regulation S Global Note and increase the principal amount of the Restricted Global Note by such specified principal amount.]

[Include if Note is a Restricted Global Note — If the holder of a beneficial interest in this Restricted Global Note wishes at any time to transfer such interest to a Person who wishes to take delivery thereof in the form of a beneficial interest in the Regulation S Global Note, such transfer may be effected, subject to the rules and procedures of the Depositary, Euroclear and Clearstream, in each case to the extent applicable and as in effect from time to time, only in accordance with the terms of this paragraph. Upon receipt by the Trustee, as Registrar of:

(A) written instructions given by or on behalf of the Depositary in accordance with the rules and procedures of the Depositary, Euroclear and Clearstream, in each case to the extent applicable and as in effect from time to time directing the Trustee to credit or cause to be credited to a specified Agent Member's account a beneficial interest in the Regulation S Global Note in a specified principal amount and to cause to be debited from another specified Agent Member's account a beneficial interest in the Restricted Global Note in an equal principal amount; and

(B) a certificate in substantially the form set forth in Exhibit A of the Indenture signed by or on behalf of the Agent Member holding such beneficial interest in this Restricted Global Note,

the Trustee, as Registrar, shall reduce the principal amount of this Restricted Global Note, and increase the principal amount of the Regulation S Global Note by such specified principal amount.]

The Notes do not have the benefit of any sinking fund obligations.

In the event of redemption or purchase of this Note in part only, a new Note or Notes of like tenor for the unredeemed or unpurchased portion hereof will be issued in the name of the Holder hereof upon the cancellation hereof.

If an Event of Default shall occur and be continuing, the principal of all the Notes may be declared due and payable in the manner and with the effect provided in the Indenture.

The Indenture contains provisions for defeasance at any time of (i) the entire indebtedness of this Note, or (ii) certain restrictive covenants and Events of Default with respect to this Note, in each case upon compliance with certain conditions set forth therein.

Unless the context otherwise requires, the Notes shall constitute one series for all purposes under the Indenture, including without limitation, amendments, waivers or redemption.

The Indenture permits, with certain exceptions as therein provided, the amendment thereof and the modification of the rights and obligations of the Issuer and the Guarantors and the rights of the Holders of the Notes under the Indenture at any time by the Issuer and the Trustee with the consent of the Holders of a majority in aggregate principal amount of the Notes at the time Outstanding. The Indenture also contains provisions permitting the Holders of specified percentages in aggregate principal amount of the Notes at the time Outstanding, on behalf of the Holders of all the Notes, to waive compliance by the Issuer or the Guarantors with certain provisions of the Indenture and certain past defaults under the Indenture and their consequences.

Any such consent or waiver by the Holder of this Note shall be conclusive and binding upon such Holder and upon all future Holders of this Note and of any Note issued upon the registration of transfer hereof or in exchange herefor or in lieu hereof, whether or not notation of such consent or waiver is made upon this Note.

No reference herein to the Indenture and no provision of this Note or of the Indenture shall alter or impair the obligation of the Issuer, which is absolute and unconditional, to pay the principal of (and premium, if any) and interest on this Note at the times, place and rate, and in the coin or currency, herein prescribed.

As provided in the Indenture and subject to certain limitations therein set forth, the transfer of this Note is registrable in the Note Register, upon surrender of this Note for registration of transfer at the office or agency of the Issuer in the Borough of Manhattan, The City of New York, New York, or of any of the Transfer Agents duly endorsed by, or accompanied by a written instrument of transfer in form satisfactory to the Issuer duly executed by, the Holder hereof or his attorney duly authorized in writing, and thereupon one or more new Notes, of authorized denominations and like tenor and for the same aggregate principal amount, will be issued to the designated transferee or transferees.

The Notes are issuable only in registered form without coupons in minimum denominations of U.S.\$200,000 and integral multiples of U.S.\$1,000 in excess thereof. As provided in the Indenture and subject to certain limitations therein set forth, Notes are exchangeable for a like tenor and aggregate principal amount of Notes of a different authorized denomination, as requested by the Holder surrendering the same.

No service charge shall be made for any such registration of transfer or exchange, but the Issuer or the Trustee may require payment of a sum sufficient to cover any tax or other governmental charge payable in connection therewith, other than for any transfer or exchange pursuant to Section 3.4, 10.5 or 11.5 of the Indenture.

Prior to due presentment of this Note for registration of transfer, the Issuer, the Trustee, the Transfer Agents and any agent of the Issuer or the Trustee may treat the Person in whose name this Note is registered as the owner hereof for all purposes, whether or not this Note be overdue, and none of the Issuer, the Trustee or any such agent shall be affected by notice to the contrary.

Interest on this Note shall be computed on the basis of a 360-day year of twelve 30-day months each and, in the case of an incomplete month, on the number of days elapsed based on a 30-day month.

All terms used in this Note which are defined in the Indenture shall have the meanings assigned to them in the Indenture.

THE INDENTURE, THIS NOTE AND THE GUARANTEES SHALL BE GOVERNED BY, AND CONSTRUED IN ACCORDANCE WITH, THE LAWS OF THE STATE OF NEW YORK, without regard to conflicts of laws principles thereof. For the purposes of paragraph 2 of article 9 of the Brazilian Decree-Law No. 4,567, dated September 4, 1942, as amended, the Trustee shall be deemed the “proponent” of the transactions contemplated by the Indenture. Articles 84 through 94-8 of the Luxembourg law dated August 10, 1915 on commercial companies, as amended, which set the provisions related to the representation of the Holders of the Notes, are not applicable to the Notes or the Guarantees.

The Issuer and the Guarantors agree that any suit, action or proceeding against any of them brought by any Holder or the Trustee arising out of or based upon this Indenture, the Notes or the Guarantees may be instituted in any state or Federal court in The City of New York, New York, and waive any objection which any of them may now or hereafter have to the laying of venue of any such proceeding, and irrevocably submits to the non-exclusive jurisdiction of such courts in any suit, action or proceeding.

The Issuer may change any Paying Agent, the Registrar or Transfer Agent; provided that the Issuer will maintain an office or agency where the Notes may be presented or surrendered for payment and for registration of transfer in the Borough of Manhattan, The City of New York. Upon any such change, the Issuer shall give written notice thereof to the Trustee, the Principal Paying Agent and the Holders.

U.S. dollars are the sole currency of account and payment for all sums payable by the Issuer and the Guarantors under or in connection with the Notes, the Guarantees or the Indenture,

including damages. The Issuer and the Guarantors have agreed that the provisions of Section 1.14 of the Indenture shall apply to conversion of currency in the case of the Notes, the Guarantees and the Indenture. Among other things, Section 1.14 specifies that if there is a change in the rate of exchange prevailing between the Business Day before the day on which a judgment is given or an order of enforcement is made, as the case may be (or such other date as a court shall determine), and the date of receipt of the amount due, the Issuer or the relevant Guarantor, as the case may be, will pay such additional (or, as the case may be, such lesser) amount, if any, as may be necessary so that the amount paid in the judgment currency when converted at the rate of exchange prevailing on the date of receipt will produce the amount in the Base Currency originally due.

Each of the Issuer and the Guarantors has appointed Cogency Global Inc., currently located at 122 East 42nd Street, 18th Floor, New York, NY 10168, as its authorized agent upon which process may be served in any suit, or proceeding with respect to, arising out of, or relating to, this Note, the Indenture or the Guarantees, that may be instituted in any Federal or state court in the State of New York, The City of New York, the Borough of Manhattan, or brought under Federal or state securities laws and has agreed that there shall, at all times, be at least one agent for service of process for the Issuer and the Guarantors appointed and acting in accordance with the provisions of Section 1.13 of the Indenture relating to agent for service of process. To the extent that the Issuer or the Guarantors has or hereafter may acquire any immunity from jurisdiction of any court or from any legal process (whether through service of notice, attachment prior to judgment, attachment in aid of execution, execution or otherwise) with respect to itself or its property, each of the Issuer and the Guarantors has irrevocably waived such immunity in respect of its obligations under the Indenture, this Note and the Guarantees, to the fullest extent permitted by law.

Section 2.4. Form of Trustee's Certificate of Authentication.

This is one of the Notes with the Guarantees referred to in the within-mentioned Indenture.

THE BANK OF NEW YORK MELLON

as Trustee

By: _____

Authorized Signatory

Dated:

Each of the Guarantors, jointly and severally, guarantees the due and punctual payment of all sums from time to time payable in respect of the Notes as set forth in the Indenture.

NEXA RESOURCES CAJAMARQUILLA S.A.

By: _____
Name:
Title:

By: _____
Name:
Title:

NEXA RECURSOS MINERAIS S.A.

By: _____
Name:
Title:

By: _____
Name:
Title:

ARTICLE III

THE NOTES

Section 3.1. Title and Terms.

On the Issue Date, the Trustee shall authenticate and deliver U.S.\$500,000,000 aggregate principal amount of 6.600% Senior Unsecured Notes due 2037. The Issuer may from time to time, without the consent of the Holders of the Notes, create and issue Additional Notes having the same terms and conditions as the Initial Notes in all respects, except that the issue date, the issue price and the first payment of interest thereon may differ; provided, however, that unless the Additional Notes are treated as part of the same “issue” of debt instruments as the Initial Notes or are issued pursuant to a “qualified reopening” of the Initial Notes, or are issued with less than a *de minimis* amount of original issue discount, in each case for U.S. federal income tax purposes, the Additional Notes will have a separate CUSIP or ISIN number (as applicable). Any Additional Notes shall be consolidated with and shall form a single series and vote together with the previously issued Notes for all purposes under this Indenture.

The Notes shall be known and designated as the “6.600% Senior Unsecured Notes due 2037” of the Issuer. The Stated Maturity of the Notes shall be April 8, 2037. The Notes shall bear interest at the rate of 6.600% per annum, from April 9, 2024 or from the most recent Interest Payment Date thereafter to which interest has been paid or duly provided for, as the case may be, payable semi-annually in arrears on April 8 and October 8, commencing on October 8, 2025, until the principal thereof is paid or made available for payment.

In the case of a default in payment of principal and premium, if any, upon acceleration or redemption, interest (and Additional Amounts, if any) shall be payable pursuant to the second paragraph of this Section 3.1 on such overdue principal (and premium, if any), such interest shall be payable on demand and, if not so paid on demand, such interest shall itself bear interest at the rate per annum stated in the form of security contained herein plus 1% per annum (to the extent that the payment of such interest shall be legally enforceable), and shall accrue from the date such principal and/or premium, as the case may be, was due and payable to the date payment of such interest (and Additional Amounts, if any) has been made or duly provided for, and such interest on unpaid interest shall also be payable on demand.

The principal of and premium, if any, and interest on the Notes shall be payable at the Corporate Trust Office, the office of the Paying Agents and at any other office or agency maintained by the Issuer for such purpose; provided, however, that at the option of the Issuer upon five (5) Business Days’ notice to the applicable Paying Agent, payment of interest may be made by check mailed to the address of the Person entitled thereto as such address shall appear in the Note Register.

The Notes shall be redeemable or repurchasable as provided in Article XI. The Notes shall not have the benefit of any sinking fund obligations.

The Notes shall be subject to defeasance at the option of the Issuer as provided in Article XII.

Unless the context otherwise requires, the Notes shall constitute one series for all purposes under this Indenture, including, without limitation, amendments, waivers or redemptions

Section 3.2. Denominations.

The Notes are issuable only in fully registered form, without coupons, in a minimum denomination of U.S.\$200,000 and integral multiples of U.S.\$1,000 in excess thereof.

Section 3.3. Execution, Authentication, Delivery and Dating.

The Notes shall be executed on behalf of the Issuer by an authorized signatory or authorized signatories of the Issuer. The signature of any signatory on the Notes may be manual, electronic or facsimile.

Notes bearing the manual, electronic or facsimile signatures of individuals who were at any time the proper officers of the Issuer shall bind the Issuer, notwithstanding that such individuals or any of them have ceased to hold such offices prior to the authentication and delivery of such Notes or did not hold such offices at the date of such Notes.

At any time and from time to time after the execution and delivery of this Indenture, the Issuer may deliver Notes executed by the Issuer and having endorsed (by attachment or imprint) thereon the Guarantees executed as provided in Section 14.2 by the Guarantors, to the Trustee for authentication, together with an Issuer Order for the authentication and delivery of such Notes; and the Trustee in accordance with such Issuer Order shall authenticate and deliver such Notes as in this Indenture provided and not otherwise.

Each Note shall be dated the date of its authentication.

No Note or Guarantee shall be entitled to any benefit under this Indenture or be valid or obligatory for any purpose unless there appears on such Note a certificate of authentication substantially in the form provided for herein executed by the Trustee by manual or electronic signature, and such certificate upon any Note shall be conclusive evidence, and the only evidence, that such Note has been duly authenticated and delivered hereunder and that the Guarantees referred to therein have been duly executed and delivered hereunder.

Section 3.4. Global Notes; Registration, Registration of Transfer and Exchange.

(a) *Global Notes.* The provisions of clauses (1) through (7) below shall apply only to Global Notes:

(1) each Global Note authenticated under this Indenture shall be registered in the name of the Depositary or a nominee thereof and delivered to the Depositary or a nominee thereof or custodian therefor, and each such Global Note shall constitute a single Note for all purposes of this Indenture;

(2) notwithstanding any other provision in this Indenture, no Global Note may be exchanged in whole or in part for Notes registered, and no transfer of a Global Note in

whole or in part may be registered, in the name of any Person other than the Depositary or a nominee thereof unless (A) the Depositary (i) has notified the Issuer that it is unwilling or unable to continue as Depositary for such Global Note and the Issuer thereupon fails to appoint a successor Depositary or (ii) has ceased to be a clearing agency registered under the Exchange Act, (B) the Issuer, at its option, notifies the Trustee in writing that it elects to cause the issuance of the Notes in definitive registered certificated form, or (C) an Event of Default has occurred and is continuing and the Registrar has received a written request from a beneficial owner of the Notes through an Agent Member to issue its proportionate interest in the Global Note in certificated form;

(3) if any Global Note is to be exchanged for other Notes or cancelled in whole, it shall be surrendered by or on behalf of the Depositary or its nominee to the Trustee, as Registrar, for exchange or cancellation as provided in this Article III. If any Global Note is to be exchanged for other Notes or cancelled in part, or if another Note is to be exchanged in whole or in part for a beneficial interest in any Global Note, such Global Note shall be so surrendered for exchange or cancellation as provided in this Article III or, if the Trustee is acting as custodian for the Depositary or its nominee (or is party to a similar arrangement) with respect to such Global Note, the principal amount thereof shall be reduced or increased by an amount equal to the portion thereof to be so exchanged or cancelled, or the principal amount of such other Note to be so exchanged for a beneficial interest therein, as the case may be, in each case by means of an appropriate adjustment made on the records of the Trustee, whereupon the Trustee, in accordance with the Applicable Procedures, shall instruct the Depositary or its authorized representatives to make a corresponding adjustment to its records (including by crediting or debiting any Agent Member's account as necessary to reflect any transfer or exchange of a beneficial interest pursuant to Section 3.4(c)). Upon any such surrender or adjustment of a Global Note, the Trustee shall, subject to Section 3.4(a)(2) and as otherwise provided in this Article III, authenticate and deliver any Notes issuable in exchange for such Global Note (or any portion thereof) to or upon the order of, and registered in such names as may be directed by, the Depositary or its authorized representative. Upon the request of the Trustee in connection with the occurrence of any of the events specified in the preceding paragraph, the Issuer shall promptly make available to the Trustee a reasonable supply of Notes that are not in the form of Global Notes. The Trustee shall be entitled to conclusively rely upon any order, direction or request of the Depositary or its authorized representative which is given or made pursuant to this Article III if such order, direction or request is given or made in accordance with the Applicable Procedures;

(4) every Note authenticated and delivered upon registration of transfer of, or in exchange for or in lieu of, a Global Note or any portion thereof, whether pursuant to this Article III or Section 10.5 or otherwise, shall be authenticated and delivered in the form of, and shall be, a Global Note, unless such Note is registered in the name of a Person other than the Depositary or a nominee thereof;

(5) none of the Issuer, the Guarantors, the Trustee, any agent of the Trustee, any Paying Agent or the Registrar will have any responsibility or liability for any aspect of the Depositary's records (or the records of the participant of such Depositary) relating

to or payments made on account of beneficial ownership interests of a Global Note or for maintaining, supervising or reviewing any records of the Depositary relating to such beneficial ownership interests;

(6) subject to the provisions in the legends required by Section 2.2 above, the registered Holder may grant proxies and otherwise authorize any Person, including Agent Members and Persons who may hold interests in Agent Members, to take any action that such Holder is entitled to take under this Indenture;

(7) except as provided in Section 3.4(a)(2) herein, neither Agent Members nor any other Person on whose behalf Agent Members may act shall have any rights under this Indenture with respect to any Global Note held on their behalf by the Depositary or under the Global Note, and the Depositary may be treated by the Issuer, the Trustee and any agent of the Issuer or the Trustee as the absolute owner of such Global Note for all purposes whatsoever. Notwithstanding the foregoing, nothing herein shall prevent the Issuer, the Guarantors, the Trustee or any agent of the Issuer or the Trustee from giving effect to any written certification, proxy or other authorization furnished by the Depositary or impair, as between the Depositary and its Agent Members, the operation of customary practices governing the exercise of the rights of a Holder of any Note.

(b) *Registration, Registration of Transfer and Exchange and Legends.* The Issuer shall cause to be kept at the Corporate Trust Office of the Trustee a register (the register maintained in such office and in any other office or agency designated pursuant to Section 11.2 being herein sometimes collectively referred to as the “Note Register”) in which, subject to such reasonable regulations as they may prescribe, the Issuer shall provide for the registration of Notes and of transfers and exchanges of Notes. The Trustee is hereby appointed “Registrar” for the purpose of registering Notes and transfers and exchanges of Notes as herein provided.

Upon surrender for registration of transfer of any Note at an office or agency of the Issuer designated pursuant to Section 11.2 for such purpose in accordance with the terms hereof, the Issuer shall, subject to the other provisions of this Section 3.4, execute, and the Trustee shall, upon receipt of an Issuer Order, authenticate and deliver, in the name of the designated transferee or transferees, one or more new Notes of any authorized denominations and of a like tenor and aggregate principal amount and bearing the applicable legends set forth in Section 2.2.

Subject to Section 3.4(c), at the option of the Holder, Notes may be exchanged for other Notes of any authorized denominations and of a like tenor and aggregate principal amount and bearing the applicable legend set forth in Section 2.2, if any, each such new Note having the benefit of the Guarantees executed by the Guarantors, upon surrender of the Note to be exchanged at such office or agency. Whenever any Note is so surrendered for exchange, the Issuer shall execute, and the Trustee shall, upon receipt of an Issuer Order, authenticate and deliver, the Note which the Holder making the exchange is entitled to receive.

The Trustee shall have no obligation or duty to monitor, determine or inquire as to compliance with U.S. securities laws, including but not limited to any restrictions on transfer imposed under this Indenture or under applicable law with respect to any transfer of any interest in any Note (including any transfers between or among Agent Members or beneficial owners of

interests in any Global Note) other than to require delivery of such certificates and other documentation or evidence as are expressly required by, and to do so if and when expressly required by the terms of, this Indenture, and to examine the same to determine substantial compliance solely as to form with the express requirements hereof. Neither the Trustee nor any Agent shall have any responsibility or liability for any actions taken or not taken by the Depositary.

All Notes and the Guarantees issued upon any registration of transfer or exchange of Notes shall be the valid obligations of the Issuer and the Guarantors, evidencing the same debt, and entitled to the same benefits under this Indenture, as the Notes and the Guarantees endorsed thereon, respectively, surrendered upon such registration of transfer or exchange.

Every Note presented or surrendered for registration of transfer or for exchange shall (if so required by the Issuer or the Trustee) be duly endorsed, or be accompanied by a written instrument of transfer in form satisfactory to the Issuer and the Registrar duly executed, by the Holder thereof or his attorney duly authorized in writing.

No service charge shall be made to the Holder for any registration of transfer or exchange of Notes, but the Issuer or the Trustee may require payment of a sum sufficient to cover any tax or other governmental charge that may be imposed in connection with any registration of transfer or exchange of Notes, other than any transfer or exchange pursuant to Section 3.4, Section 10.5 or Section 11.5.

The Issuer and the Registrar shall not be required (i) to issue, register the transfer of or exchange any Note during a period beginning at the opening of business 15 days before the due date for any payment of principal in respect of the Notes selected for redemption under Section 4.6 and ending at the close of business on the day of such mailing, or (ii) to register the transfer of or exchange any Note so selected for redemption in whole or in part, except the unredeemed portion of any Note being redeemed in part.

All Notes, initially issued hereunder shall, upon issuance, bear the relevant legends specified in Section 2.2, if any, to be applied to such a Note and, in the case of the legend specifically required for the Restricted Global Note, such required legend shall not be removed unless the Issuer shall have delivered to the Trustee (and the Notes Registrar, if other than the Trustee) an Issuer Order which states that such Note may be issued without such legend thereon. If such legend has been removed from a Note as provided above, no other Note issued in exchange for all or any part of such Note shall bear such legend, unless the Issuer has reasonable cause to believe that such other Note is a “restricted security” within the meaning of Rule 144 of the Notes Act and instructs the Trustee to cause a legend to appear thereon:

(c) *Certain Transfers and Exchanges.* Upon presentation for transfer or exchange of any Note at the office of the Trustee, as Registrar, located in The City of New York, accompanied by a written instrument of transfer or exchange in the form approved by the Issuer (it being understood that, until notice to the contrary is given to Holders of Notes, the Issuer shall be deemed to have approved the form of instrument of transfer or exchange, if any, printed on any Note), executed by the registered Holder, in person or by such Holder’s attorney thereunto duly authorized in writing, and upon compliance with this Section 3.4, such Note shall be

transferred upon the Note Register, and a new Note shall be authenticated and issued in the name of the transferee. Notwithstanding any provision to the contrary herein or in the Notes, transfers of a Global Note, in whole or in part, and transfers of interests therein of the kind described in this Section 3.4 (c), shall only be made in accordance with this Section 3.4(c). Transfers and exchanges subject to this Section 3.4(c) shall also be subject to the other provisions of this Indenture that are not inconsistent with this Section 3.4(c).

(1) *General.* A Global Note may not be transferred, in whole or in part, to any Person other than the Depositary or a nominee thereof, and no such transfer to any such other Person may be registered; provided, however, that this clause (1) shall not prohibit any transfer of a Note that is issued in exchange for a Global Note but is not itself a Global Note. No transfer of a Note to any Person shall be effective under this Indenture or the Notes unless and until such Note has been registered in the name of such Person. Nothing in this clause (1) shall prohibit or render ineffective any transfer of a beneficial interest in a Global Note effected in accordance with the other provisions of this Section 3.4(c).

(2) *Restricted Global Note to Regulation S Global Note.* If the holder of a beneficial interest in the Restricted Global Note wishes at any time to transfer such interest to a Person who wishes to take delivery thereof in the form of a beneficial interest in the Regulation S Global Note, such transfer may be effected, subject to the rules and procedures of the Depositary, Euroclear and Clearstream, in each case to the extent applicable and as in effect from time to time (the "Applicable Procedures"), only in accordance with this clause (2). Upon receipt by the Trustee, as Registrar, of (A) written instructions given by or on behalf of the Depositary in accordance with the Applicable Procedures directing the Trustee to credit or cause to be credited to a specified Agent Member's account a beneficial interest in the Regulation S Global Note in a specified principal amount and to cause to be debited from another specified Agent Member's account a beneficial interest in the Restricted Global Note in an equal principal amount and (B) a certificate in substantially the form set forth in Exhibit A signed by or on behalf of the Agent Member holding such beneficial interest in the Restricted Global Note, the Trustee, as Registrar, shall reduce the principal amount of a Restricted Global Note, and increase the principal amount of the Regulation S Global Note by such specified principal amount as provided in Section 3.4(a)(3).

(3) *Regulation S Global Note to Restricted Global Note.* If the holder of a beneficial interest in the Regulation S Global Note at any time wishes to transfer such interest to a Person who wishes to take delivery thereof in the form of a beneficial interest in the Restricted Global Note, such transfer may be effected, subject to the Applicable Procedures, only in accordance with this clause (3). Upon receipt by the Trustee, as Registrar, of (A) written instructions given by or on behalf of the Depositary in accordance with the Applicable Procedures directing the Trustee to credit or cause to be credited to a specified Agent Member's account a beneficial interest in the Restricted Global Note in a specified principal amount and to cause to be debited from another specified Agent Member's account a beneficial interest in the Regulation S Global Note and (B) a certificate in substantially the form set forth in Exhibit B signed by or on behalf of the Agent Member holding such beneficial interest in the Regulation S Global Note,

the Trustee, as Registrar, shall reduce the principal amount of such Regulation S Global Note and increase the principal amount of the Restricted Global Note by such specified principal amount as provided in Section 3.4(a)(3).

(4) *Non-Global Restricted Note to Global Note.* If the holder of a Restricted Note (other than a Global Note) wishes at any time to transfer all or any portion of such Note to a Person who wishes to take delivery thereof in the form of a beneficial interest in the Restricted Global Note or the Regulation S Global Note, such transfer may be effected, subject to the Applicable Procedures, only in accordance with this clause (4). Upon receipt by the Trustee, as Registrar, of (A) such Note and written instructions given by or on behalf of such Holder as provided in Section 3.4(b) directing the Trustee to credit or cause to be credited to a specified Agent Member's account a beneficial interest in the Restricted Global Note or the Regulation S Global Note, as the case may be, in a specified principal amount equal to the principal amount of the Restricted Note (or portion thereof) to be so transferred, and (B) an appropriately completed certificate substantially in the form set forth in Exhibit C-1 hereto, if the specified account is to be credited with a beneficial interest in the Restricted Global Note, or Exhibit C-2 hereto, if the specified account is to be credited with a beneficial interest in the Regulation S Global Note, signed by or on behalf of such Holder, then the Trustee, as Registrar, shall cancel such Restricted Note (and issue a new Note in respect of any untransferred portion thereof) as provided in Section 3.4(b) and increase the principal amount of the Restricted Global Note or Regulation S Global Note, as the case may be, by the specified principal amount as provided in Section 3.4(a)(3).

(5) *Non-Global Regulation S Note to Restricted Global Note or Regulation S Global Note.* If the Holder of a Regulation S Note (other than a Global Note) wishes at any time to transfer all or any portion of such Note to a Person who wishes to take delivery thereof in the form of a beneficial interest in the Restricted Global Note or the Regulation S Global Note, as the case may be, such transfer may be effected only in accordance with this clause (5) and subject to the Applicable Procedures. Upon receipt by the Trustee, as Registrar, of (A) such Note and written instructions given by or on behalf of such Holder as provided in Section 3.4(b) directing the Trustee to credit or cause to be credited to a specified Agent Member's account a beneficial interest in the Restricted Global Note or the Regulation S Global Note, as the case may be, in a principal amount equal to the principal amount of the Note (or portion thereof) to be so transferred, and (B)(i) with respect to a transfer which is to be delivered in the form of a beneficial interest in the Restricted Global Note, a certificate in substantially the form set forth in Exhibit D-1, signed by or on behalf of such Holder, and (ii) with respect to a transfer which is to be delivered in the form of a beneficial interest in the Regulation S Global Note, a certificate in substantially the form set forth in Exhibit D-2, signed by or on behalf of such Holder, then the Trustee, as Registrar, shall cancel such Note (and issue a new Note in respect of any untransferred portion thereof) as provided in Section 3.4(b) and increase the principal amount of the Restricted Global Note or the Regulation S Global Note, as the case may be, by the specified principal as provided in Section 3.4(a)(3).

Section 3.5.

Mutilated, Destroyed, Lost and Stolen Notes.

If any mutilated or defaced Note is surrendered to the Trustee, the Issuer shall execute and the Trustee shall, upon receipt of an Issuer Order, authenticate or cause to be authenticated and deliver in exchange therefor a new Note of like tenor and principal amount, having endorsed thereon the Guarantees executed by the Guarantors and bearing a number not contemporaneously outstanding.

If there shall be delivered to the Issuer and the Trustee (i) evidence to their satisfaction of the destruction, loss or theft of any Note and (ii) such security or indemnity as may be required by them to save each of them, the Guarantors and any agent of either of them harmless, then, in the absence of notice to the Issuer or the Trustee that such Note has been acquired by a bona fide purchaser, the Issuer shall execute and the Trustee shall, upon receipt of an Issuer Order, authenticate and deliver, in lieu of any such destroyed, lost or stolen Note, a new Note of like tenor and principal amount, having endorsed thereon the Guarantees executed by the Guarantors and bearing a number not contemporaneously outstanding.

In case any such mutilated, defaced, destroyed, lost or stolen Note has become or is about to become due and payable, the Issuer may in its discretion, instead of issuing a new Note, pay such Note.

Upon the issuance of any new Note under this Section, the Issuer may require the payment of a sum sufficient to cover any tax or other governmental charge that may be imposed in relation thereto and any other expenses (including the fees and expenses of the Trustee, its counsel, the Registrar and the Paying Agents) connected therewith.

Every new Note issued pursuant to this Section in lieu of any destroyed, defaced, lost or stolen Note, and the Guarantees endorsed thereon, shall constitute an original additional contractual obligation of the Issuer and the Guarantors, respectively, whether or not the destroyed, lost or stolen Note shall be at any time enforceable by anyone, and shall be entitled to all the benefits of this Indenture equally and proportionately with any and all other Notes and Guarantees, respectively duly issued hereunder.

The provisions of this Section are exclusive and shall preclude (to the extent lawful) all other rights and remedies with respect to the replacement or payment of mutilated, destroyed, lost or stolen Notes.

Section 3.6. Payment of Interest; Interest Rights Preserved.

Interest on any Note which is payable, and is punctually paid or duly provided for, on any Interest Payment Date shall be paid to the Person in whose name that Note (or one or more Predecessor Notes) is registered at the close of business on the Record Date for such interest.

Any interest on any Note which is payable, but is not punctually paid or duly provided for, on any Interest Payment Date (herein called "Defaulted Interest") shall (a) bear interest at the rate per annum stated in the form of Note included herein, (to the extent that the payment of such interest shall be legally enforceable), and (b) forthwith cease to be payable to the Holder on the

relevant Record Date by virtue of having been such Holder, and such Defaulted Interest may be paid by the Issuer, at its election in each case, as provided in clause (1) or (2) below:

(1) the Issuer may elect to make payment of any Defaulted Interest to the Persons in whose names the Notes (or their respective Predecessor Notes) are registered at the close of business on a Special Record Date for the payment of such Defaulted Interest, which shall be fixed in the following manner. The Issuer shall notify the Trustee in writing of the amount of Defaulted Interest proposed to be paid on each Note and the date of the proposed payment, and at the same time the Issuer shall deposit with the Trustee an amount of money equal to the aggregate amount proposed to be paid in respect of such Defaulted Interest or shall make arrangements satisfactory to the Trustee for such deposit prior to the date of the proposed payment, such money when deposited to be held in trust for the benefit of the Persons entitled to such Defaulted Interest as in this clause provided.

Thereupon the Trustee shall fix a Special Record Date for the payment of such Defaulted Interest which shall be not more than 15 days and not less than 10 days prior to the date of the proposed payment and not less than 10 days after the receipt by the Trustee of the notice of the proposed payment. The Trustee shall promptly notify the Issuer of such Special Record Date and, in the name and at the expense of the Issuer, shall cause notice of the proposed payment of such Defaulted Interest and the Special Record Date therefor to be mailed, first-class postage prepaid, to each Holder at his address as it appears in the Note Register, not less than 10 days prior to such Special Record Date. Notice of the proposed payment of such Defaulted Interest and the Special Record Date therefor having been so mailed, such Defaulted Interest shall be paid to the Persons in whose names the Notes (or their respective Predecessor Notes) are registered at the close of business on such Special Record Date and shall no longer be payable pursuant to the following clause (2); and

(b) the Issuer may make payment of any Defaulted Interest in any other lawful manner not inconsistent with the requirements of any securities exchange on which the Notes may be listed, and upon such notice as may be required by such exchange, if, after notice given by the Issuer to the Trustee of the proposed payment pursuant to this clause, such manner of payment shall be deemed practicable by the Trustee.

Subject to the foregoing provisions of this Section, each Note delivered under this Indenture upon registration of transfer of or in exchange for or in lieu of any other Note shall carry the rights to interest accrued and unpaid, and to accrue, which were carried by such other Note.

Section 3.7. Persons Deemed Owners.

Prior to due presentment of a Note for registration of transfer and the effective registration of such transfer by the Registrar, the Issuer, the Guarantors, the Trustee and any agent of the Issuer, the Guarantors or the Trustee may treat the Person in whose name such Note is registered as the owner of such Note for the purpose of receiving payment of principal of and premium, if any, and (subject to Section 3.6) interest on such Note and for all other purposes

whatsoever, whether or not such Note be overdue, and none of the Issuer, the Guarantors, the Trustee or any agent of the Issuer, the Guarantors or the Trustee shall be liable for so treating such Holder.

Section 3.8. Cancellation.

Except as provided for in Section 4.2 and 4.3, Notes surrendered for payment, redemption, registration of transfer or exchange shall, if surrendered to any Person other than the Trustee, be delivered to the Trustee and shall be promptly cancelled by it. The Issuer may at any time deliver to the Trustee for cancellation, accompanied by an Issuer Order, any Notes previously authenticated and delivered hereunder which the Issuer may have acquired in any manner whatsoever, and all Notes so delivered shall be promptly cancelled by the Trustee. No Notes shall be authenticated in lieu of or in exchange for any Notes cancelled as provided in this Section, except as expressly permitted by this Indenture. All cancelled Notes held by the Trustee shall be disposed of in accordance with its standard procedures or as directed by an Issuer Order; provided, however, that the Trustee shall not be required to destroy such Notes.

Section 3.9. Computation of Interest.

The amount of interest payable on the Notes for any interest period will be calculated by applying the rate of interest to the principal amount of such Note, on the basis of a year of 360 days consisting of 12 months of 30 days each and, in the case of an incomplete month, on the number of days elapsed based on a 30 day month provided, however, that Defaulted Interest shall be computed on the basis of a 365 or 366-day year, as the case may be, and the number of days actually elapsed.

Section 3.10. CUSIP Numbers.

The Issuer shall in issuing the Notes use CUSIP numbers, and the Trustee shall use the applicable CUSIP number in notices of redemption or exchange as a convenience to the Holders; provided, that any such notice may state that no representation is made as to the accuracy or correctness of the CUSIP number or numbers printed in the notice or on the certificates representing the Notes and that reliance may be placed only on the other identification numbers printed on the certificates representing the Notes. The Issuer shall promptly notify the Trustee in writing of any change in CUSIP numbers.

Section 3.11. Paying Agents; Discharge of Payment Obligations; Indemnity of Holders.

(a) The Issuer may from time to time appoint one or more paying agents under this Indenture and the Notes. By its execution and delivery of this Indenture, the Issuer hereby initially designates and appoints The Bank of New York Mellon, as Principal Paying Agent. Subject to Section 11.3, the Issuer or a Guarantor may act as paying agent.

(b) Unless the Issuer or a Guarantor shall be acting as paying agent as provided in Section 11.3, the Issuer shall, by 11:00 a.m. New York City time, no later than one Business Day prior to each Interest Payment Date, Redemption Date or Maturity Date on any Notes (whether on maturity, redemption or otherwise) (each, a "Payment Date"), deposit with the Principal Paying Agent in immediately available funds a sum sufficient to pay such principal, any

premium, and interest when so becoming due (including any Additional Amounts). The Issuer shall request that the bank through which such payment is to be made agree to supply to the Principal Paying Agent in New York City by 11:00 a.m. (New York City time) two Business Days prior to the due date for any such payment an irrevocable confirmation (by authenticated SWIFT MT 100 Message) of its intention to make such payment. The Principal Paying Agent shall arrange with all other Paying Agents for the payment, from funds furnished by the Issuer or the Guarantors to the Principal Paying Agent pursuant to this Indenture, of the principal, and premium, if any, and interest (including Additional Amounts, if any) on the Notes and of the compensation of such Paying Agents for their services as such.

All Paying Agents will hold in trust, for the benefit of Holders or the Trustee, all money held by such Paying Agent for the payment of principal, or premium if any, of or interest on the Notes and shall notify the Trustee in writing of any default by the Issuer in making any such payment. The Issuer at any time may require a Paying Agent to pay all money held by it to the Trustee and to account for any funds disbursed by it. Upon complying with this Section 3.11 and the applicable provisions of Section 11.3, the Paying Agents shall have no further liability for the money delivered to the Trustee.

(c) Any payment to be made in respect of the Notes or the Guarantees by the Issuer or the Guarantors, as the case may be, to or to the order of any Paying Agent shall be in satisfaction *pro tanto* of the obligations of the Issuer under the Notes.

(d) Each payment in full of principal, redemption amount, Additional Amounts and/or interest payable under this Indenture in respect of any Note made by or on behalf of the Issuer to or to the order of any Paying Agent in the manner specified in this Indenture on the date due shall be valid and effective to satisfy and discharge the obligation of the Issuer to make payment of principal, redemption amount, Additional Amounts and/or interest payable under this Indenture on such date, provided, however, that the liability of any Paying Agent hereunder shall not exceed any amounts paid to it by the Issuer, or held by it, on behalf of the Holders under this Indenture; and provided further that, in the event that there is a default by the Paying Agent or the Principal Paying Agent in any payment of principal, redemption amount, Additional Amounts and/or interest in respect of any Note in accordance with this Indenture, the Issuer and the Guarantors shall pay on demand such further amounts as will result in receipt by the Holder of such amounts as would have been received by it had no such default. This obligation constitutes a separate and independent obligation from the other obligations of the Issuer under the Notes and the Guarantors under the Guarantees, shall give rise to a separate and independent cause of action, will apply irrespective of any waiver granted by the Trustee and/or any Holder of Notes and shall continue in full force and effect despite any judgment, order, claim, or proof for a liquidated amount in respect of any sum due under this Indenture, the Notes or any judgment or order.

ARTICLE IV

REDEMPTION OF NOTES

Section 4.1. Redemption for Tax Reasons.

If as a result of any Change of Law (as defined below):

- (1) the Issuer or a Guarantor is or would be required on the next succeeding Interest Payment Date to pay any Additional Amounts in excess of the Additional Amounts that the Issuer or such Guarantor, as the case may be, would pay if payments in respect of the Notes were subject to deduction or withholding for Taxes imposed by the applicable taxing jurisdiction at the rate applicable on the Issue Date; or
- (2) the issuers/borrowers of certain intercompany debt are or would be required on the next succeeding interest payment date to pay Brazilian withholding taxes in excess of a general rate of 15%, or 25% in case of amounts paid to residents of countries or locations which do not impose any income tax or which impose it at a maximum rate lower than 17% or where the laws of that country or location impose restrictions on the disclosure (x) of shareholding composition; (y) of the ownership of the investment; or (z) to the identification of the beneficial owner of income attributed to non-resident persons, pursuant to article 8 of Brazilian Law No. 9,779, of January 19, 1999, and articles 24 and 24-A of Brazilian Law No. 9,430, of December 27, 1996; provided that, such requirement to pay such taxes in excess of such rate was not caused by, or otherwise the result of, whether directly or indirectly, wholly or in part, any amendment to the intercompany debt,

and in either case, the payment of such excess amounts cannot be avoided by the use of any reasonable measures available to the Issuer or a Guarantor, the Notes may be redeemed, by the Issuer at the option of the Issuer or a Guarantor, in whole but not in part, upon not less than 30 nor more than 90 days' notice to the Holders, which notice will be published, at any time following such Change of Law at a Redemption Price equal to the principal amount thereof, plus accrued and unpaid interest, if any, to the date fixed for redemption. The Issuer, any Guarantor or any of their respective Affiliates will also pay to the Holders of the Notes on the Redemption Date any Additional Amounts which are payable. Following such redemption, the Notes will be cancelled, or remain Outstanding, at the Issuer's or a Guarantor's election.

"Change of Law" means any change in or amendment to the laws or regulations of Luxembourg, Brazil or Peru (or of any political subdivision thereof or therein) or the adoption, amendment or modification of any resolution of the Central Bank of Luxembourg, the Central Bank of Brazil or the Central Reserve Bank of Peru (or any successor authority thereto) which becomes effective on or after the date of this Indenture (or with respect to a successor, on or after the date such successor assumes the obligations under the Notes), resulting in the Issuer or a Guarantor on a consolidated basis being required to pay amounts with respect to Taxes as described above in a total aggregate amount in excess of that payable immediately prior to such change or amendment.

Prior to the delivery of any notice of redemption in accordance with the foregoing, the Issuer or a Guarantor shall deliver to the Trustee and the Agents an Officer's Certificate stating that the Issuer or a Guarantor, as the case may be, is entitled to effect such redemption based on an Opinion of Counsel or written advice of a qualified tax expert, that the Issuer or a Guarantor has or will become obligated to pay such excess amounts with respect to Taxes as a result of such Change of Law. Such notice, once delivered by the Issuer or a Guarantor to the Trustee, will be irrevocable.

If the Issuer or a Guarantor becomes subject at any time to any taxing jurisdiction other than Luxembourg, Brazil or Peru, references herein to Luxembourg, Brazil or Peru, as applicable, shall be construed to include such other jurisdiction.

Section 4.2. Optional Redemption.

At any time before January 8, 2037 (which is the date that is three months prior to maturity of the notes (the "Par Call Date")), the Issuer or a Guarantor has the right to redeem the Notes, in whole or in part and from time to time, at a Redemption Price equal to the greater of (1) 100% of the principal amount of the Notes being redeemed and (2) the sum of the present values of the remaining scheduled payments of principal and interest on the Notes being redeemed that would be due if the Notes matured on the Par Call Date (inclusive of interest accrued to the redemption date), discounted to the Redemption Date on a semi-annual basis (assuming a 360-day year consisting of twelve 30-day months) at the Treasury Rate plus 40 basis points, less interest accrued to, but excluding, the Redemption Date; plus, in either case, accrued and unpaid interest on the principal amount of the Notes being redeemed and Additional Amounts, if any, to, but excluding, the Redemption Date (subject to the right of Holders of record on the relevant Record Date to receive interest due on the relevant Interest Payment Date).

At any time on or after the Par Call Date, the Issuer or a Guarantor has the right to redeem the Notes, in whole or in part and from time to time, at a Redemption Price equal to 100% of the principal amount of the Notes being redeemed plus accrued and unpaid interest on the principal amount of the Notes being redeemed to, but excluding, such Redemption Date (subject to the right of Holders of record on the relevant Record Date to receive interest due on the relevant Interest Payment Date).

The "Treasury Rate" shall be determined by the Issuer or a Guarantor after 4:15 p.m., New York City time (or after such time as yields on U.S. government securities are posted daily by the Board of Governors of the Federal Reserve System), on the third Business Day preceding the Redemption Date based upon the yield or yields for the most recent day that appear after such time on such day in the most recent statistical release published by the Board of Governors of the Federal Reserve System designated as "Selected Interest Rates (Daily) - H.15" (or any successor designation or publication) ("H.15") under the caption "U.S. government securities-Treasury constant maturities-Nominal" (or any successor caption or heading). In determining the Treasury Rate, the Issuer or a Guarantor shall select, as applicable: (i) the yield for the Treasury constant maturity on H.15 exactly equal to the period from the redemption date to the Par Call Date (the "Remaining Life"); or (ii) if there is no such Treasury constant maturity on H.15 exactly equal to the Remaining Life, the two yields - one yield corresponding to the Treasury constant maturity on H.15 immediately shorter than and one yield corresponding to the Treasury

constant maturity on H.15 immediately longer than the Remaining Life - and shall interpolate to the Par Call Date on a straight-line basis (using the actual number of days) using such yields and rounding the result to three decimal places; or (iii) if there is no such Treasury constant maturity on H.15 shorter than or longer than the Remaining Life, the yield for the single Treasury constant maturity on H.15 closest to the Remaining Life. For purposes of this paragraph, the applicable Treasury constant maturity or maturities on H.15 shall be deemed to have a maturity date equal to the relevant number of months or years, as applicable, of such Treasury constant maturity from the Redemption Date.

If on the third Business Day preceding the Redemption Date H.15 or any successor designation or publication is no longer published, the Issuer or a Guarantor shall calculate the Treasury Rate based on the rate per annum equal to the semi-annual equivalent yield to maturity at 11:00 a.m., New York City time, on the second Business Day preceding such redemption date of the United States Treasury security maturing on, or with a maturity that is closest to, the Par Call Date, as applicable. If there is no United States Treasury security maturing on the Par Call Date but there are two or more United States Treasury securities with a maturity date equally distant from the Par Call Date, one with a maturity date preceding the Par Call Date and one with a maturity date following the Par Call Date, the Issuer or a Guarantor shall select the United States Treasury security with a maturity date preceding the Par Call Date. If there are two or more United States Treasury securities maturing on the Par Call Date or two or more United States Treasury securities meeting the criteria of the preceding sentence, the Issuer or the Guarantor shall select from among these two or more United States Treasury securities the United States Treasury security that is trading closest to par based upon the average of the bid and asked prices for such United States Treasury securities at 11:00 a.m., New York City time. In determining the Treasury Rate in accordance with the terms of this paragraph, the semi-annual yield to maturity of the applicable United States Treasury security shall be based upon the average of the bid and asked prices (expressed as a percentage of principal amount) at 11:00 a.m., New York City time, of such United States Treasury security, and rounded to three decimal places.

The Issuer or a Guarantor's actions and determinations in determining the Redemption Price shall be conclusive and binding for all purposes, absent manifest error.

The Issuer, any Guarantor or any of their respective Affiliates may at any time repurchase the Notes at any price in the open market or otherwise. The Issuer, any Guarantor or any of their respective Affiliates may hold or resell the Notes it purchases or may surrender them to the Trustee or an Agent for cancellation.

Optional Clean-up Redemption. Notwithstanding the foregoing, in connection with any tender offer for the notes (including an Offer to Purchase in connection with a Change of Control that results in a Rating Decline made in accordance with the terms of the Indenture), in the event that the Holders of not less than 85% of the aggregate principal amount of the outstanding Notes validly tender and do not validly withdraw Notes in such tender offer and the Issuer, or any other Person making such offer in lieu of the Issuer, purchases all of the Notes validly tendered and not validly withdrawn by such Holders, then the Issuer or the Guarantor will have the right, on not less than 10 nor more than 60 days' prior notice to the Holders (with a copy to the Trustee), to redeem all of the Notes that remain outstanding at a Redemption Price equal to the purchase

price paid to each other Holder in such tender offer plus, to the extent not included in the purchase price, accrued and unpaid interest and Additional Amounts, if any, on the Notes that remain outstanding, to, but excluding, the Redemption Date.

Section 4.3. Applicability of Article.

Redemption of Notes at the election of the Issuer, as permitted or required by any provision of this Indenture, shall be made in accordance with such provision and this Article.

Section 4.4. Election to Redeem; Notice to Trustee, Registrar and Paying Agent.

In the case of any redemption of Notes prior to the expiration of any restriction on such redemption provided in the terms of such Notes or elsewhere in this Indenture, the Issuer shall furnish the Trustee with an Officer's Certificate evidencing compliance with such restriction.

The Issuer shall provide notice of redemption to the Trustee, Registrar and Paying Agents at least 15 days (or such shorter period as agreed to by the Trustee) prior to when such notice of redemption shall be provided to the Holders.

Section 4.5. Notice of Redemption.

Notice of redemption pursuant to Section 4.1 and 4.2 hereof shall be given in the manner provided for in Section 1.6 hereof. The Trustee, Registrar and Paying Agent will notify the Holders at such Holder's address appearing in the Note register at least 10 but not more than 60 days prior to the Redemption Date. A notice of any redemption may, at the Issuer's or a Guarantor's discretion, be subject to one or more conditions precedent.

All notices of redemption shall state:

- (1) the Redemption Date;
- (2) the Redemption Price;
- (3) that on the Redemption Date, the Redemption Price will become due and payable upon each such Note to be redeemed and that interest thereon will cease to accrue on and after said date;
- (4) the place or places where such Notes are to be surrendered for payment of the Redemption Price;
- (5) the aggregate principal amount of Notes being redeemed;
- (6) the CUSIP number or numbers of the Notes being redeemed;
- (7) if fewer than all the outstanding Notes are to be redeemed, or if a Note is to be redeemed in part only, the identification and principal amounts at maturity of the particular Notes (or portion thereof) to be redeemed; and

(8) that no representation is made as to the correctness or accuracy of the CUSIP numbers, if any, listed in such notice or printed on the Notes.

Section 4.6. Deposit of Redemption Price.

By 11:00 a.m. (New York City time) on the Business Day prior to any Redemption Date, the Issuer or a Guarantor shall deposit with the Principal Paying Agent (or, if the Issuer is acting as its own Paying Agent, segregate and hold in trust as provided in Section 11.3) an amount of money sufficient to pay the Redemption Price on all of the Notes which are to be repurchased on that date. In the case of a partial redemption of Notes that are represented by a Global Note, the relevant Notes will be redeemed in accordance with the rules of DTC.

Section 4.7. Notes Payable on Redemption Date.

Notice of redemption having been given as aforesaid, the Notes so to be redeemed shall, on the Redemption Date, become due and payable at the Redemption Price therein specified, and from and after such date (unless the Issuer shall default in the payment of the Redemption Price and accrued and unpaid interest) such Notes shall cease to bear interest. Upon surrender of any such Note for redemption in accordance with said notice, such Note shall be paid by the Issuer at the Redemption Price, together with accrued and unpaid interest to the Redemption Date; provided, however, that installments of interest whose Maturity Date is on or prior to the Redemption Date shall be payable to the Holders of such Notes, or one or more Predecessor Notes, registered as such at the close of business on the relevant Record Dates according to their terms and the provisions of Section 3.7.

If any Note called for redemption shall not be so paid upon surrender thereof for redemption, the principal (and premium, if any) shall, until paid, bear interest from the Redemption Date at the rate provided by the Note.

ARTICLE V

SATISFACTION AND DISCHARGE

Section 5.1. Satisfaction and Discharge of Indenture.

This Indenture shall cease to be of further effect as to all Outstanding Notes, and the Trustee, on demand of and at the expense of the Issuer, shall execute proper instruments acknowledging satisfaction and discharge of this Indenture, when

(1) (A) all Outstanding Notes (except lost, stolen or destroyed Notes which have been replaced or paid) have been delivered to the Trustee for cancellation; or

(B) all Outstanding Notes that have not been delivered to the Trustee for cancellation (i) have become due and payable, (ii) will become due and payable at their Stated Maturity within one year, or (iii) are to be called for redemption within one year under arrangements satisfactory to the Trustee for the giving of notice of a redemption by the Issuer or a Guarantor; and, in each case, the Issuer or a Guarantor irrevocably deposits or causes to be deposited with the Trustee or its designee as funds in

trust solely for the benefit of the Holders, cash, Cash Equivalents or U.S. Government Obligations in an amount as will be sufficient without consideration of any reinvestment of interest, to pay and discharge all principal, premium and Additional Amounts, if any, and accrued and unpaid interest to the date of maturity or redemption on the Notes not delivered to the Trustee for cancellation and delivers irrevocable Instructions to the Trustee to apply the deposited money toward the payment of the Notes at maturity or the redemption date, as the case may be;

(2) the Issuer or a Guarantor has paid or caused to be paid all other sums payable hereunder;

(3) the Issuer or a Guarantor has delivered to the Trustee an Officer's Certificate and an Opinion of Counsel, each stating that all conditions precedent herein provided for relating to the satisfaction and discharge of this Indenture have been complied with; and

(4) the Trustee shall have received such other documents and assurances as the Trustee shall have reasonably requested.

Notwithstanding the satisfaction and discharge of this Indenture, (i) the obligations of the Issuer to the Trustee under Section 7.7 hereof, (ii) substitution of apparently mutilated, defaced, destroyed, lost or stolen Notes, (iii) rights of Holders of Notes to receive payment of principal of and premium, if any, and interest (including Additional Amounts, if any) on the Notes, (iv) rights, obligations and immunities of the Trustee under this Indenture (including, if money shall have been deposited with the Trustee pursuant to subclause (B) of clause (1) of this Section, the obligations of the Trustee under Section 5.2 hereof and the last paragraph of Section 11.3 hereof), and (v) rights of Holders of the Notes as beneficiaries of this Indenture with respect to any property deposited with the Trustee payable to all or any of them, shall survive.

Section 5.2. Application of Trust Money.

Subject to the provisions of the last paragraph of Section 11.3, all money deposited with the Trustee pursuant to Section 5.1 hereof shall be held in trust and applied by it, in accordance with the provisions of the Notes and this Indenture, to the payment, either directly or through any Paying Agent (including the Issuer or a Guarantor acting as its own Paying Agent) as the Trustee may determine, to the Persons entitled thereto, of the principal (and premium, if any) and interest for whose payment such money has been deposited with the Trustee.

ARTICLE VI

REMEDIES

Section 6.1. Events of Default.

"Event of Default," wherever used herein, means any one of the following events (whatever the reason for such Event of Default and whether it shall be voluntary or involuntary or be effected by operation of law or pursuant to any judgment, decree or order of any court or any order, rule or regulation of any administrative or governmental body):

- (1) failure to pay any amount of principal of (or premium, if any) any Note when due and such failure shall continue for a period of three days;
- (2) failure to pay any interest, including Additional Amounts, if any, on any Note when due and such failure shall continue for a period of 30 days;
- (3) failure to perform any covenant or agreement of the Issuer or any Guarantor under this Indenture or the Notes and such failure remains unremedied for 60 days after the Trustee has given written notice thereof to the Issuer or any Guarantor;
- (4) failure to pay when due or, as the case may be, within any originally applicable grace period, any amount of principal and premium, if any, or interest (including Additional Amounts, if any), due under the terms of any instrument evidencing Indebtedness of the Issuer or any of its Designated Subsidiaries, or any such Indebtedness of the Issuer or any of its Designated Subsidiaries that becomes due and payable prior to its stated maturity otherwise than at the option of the issuer thereof by reason of the occurrence of an event of default howsoever described; provided that the aggregate amount of any such Indebtedness equals with respect to such Person, on a consolidated basis U.S.\$125.0 million or more (or its equivalent in other currency or currencies);
- (5) the rendering of a final judgment (not subject to appeal) for the payment of money against the Issuer or any of its Designated Subsidiaries which remains undischarged, unbonded or unstayed (and otherwise not covered by enforceable insurance policies issued by reputable and creditworthy insurance companies) for a period of 60 consecutive days after the date on which the right to appeal all such judgments has expired or, if later, the date therein specified for payment; provided that the aggregate amount of any such final judgment equals or exceeds with respect to such Person, on a consolidated basis U.S.\$125.0 million (or its equivalent in other currency or currencies);
- (6) all or substantially all of the assets of the Issuer (on a consolidated basis) shall be condemned, seized or otherwise appropriated, or custody of such property shall be assumed by any governmental authority or court or other person purporting to act under the authority of the federal government of any jurisdiction, or the Issuer shall be prevented from exercising normal control over all or substantially all of its property or revenues (on a consolidated basis), if the whole or part of such property or revenues is material to the Issuer (on a consolidated basis);
- (7) (a) a secured party takes possession of all or substantially all the assets or revenues of the Issuer (on a consolidated basis) or (b) a receiver or similar officer is appointed, of all or substantially all the assets or revenues of the Issuer (on a consolidated basis);
- (8) the Issuer or any Guarantor pursuant to or under or within the meaning of any Bankruptcy Law (a) commences a voluntary case or proceeding; (b) consents to the making of a Bankruptcy Order in an involuntary case or proceeding or the

commencement of any case against it; (c) consents to the appointment of a custodian of it or for substantially all its property; (d) makes a general assignment for the benefit of its creditors; (e) files an answer or consent seeking reorganization or relief; (f) shall admit in writing its inability to pay its debts generally; or (g) consents to the filing of a petition in bankruptcy;

(9) a court of competent jurisdiction in any involuntary case or proceeding enters a Bankruptcy Order against the Issuer or any Guarantor, and such Bankruptcy Order remains unstayed and in effect for 60 consecutive days; and

(10) any of the Guarantees is not (or is claimed by any Guarantor not to be) in full force and effect.

If any Event of Default shall occur and be continuing, either (i) the Trustee or (ii) the Holders, with written notice to the Trustee, of at least 25% in aggregate principal amount of the Outstanding Notes may accelerate the maturity of all Notes; provided that, after such acceleration, but before a judgment or decree based on acceleration, the Holders of a majority in aggregate principal amount of Outstanding Notes may, as provided in Section 6.12, rescind and annul such acceleration if all Events of Default, other than the nonpayment of accelerated principal, have been cured or waived as provided in this Indenture. The Trustee shall not be deemed to have notice of any Default or Event of Default (other than a payment default) unless a Responsible Officer of the Trustee has actual knowledge thereof or unless written notice of any event which is in fact such a default is received by a Responsible Officer of the Trustee at the Corporate Trust Office of the Trustee, and such notice references the Notes and this Indenture. If an Event of Default specified in clause (8) above occurs with respect to the Issuer, the Outstanding Notes will ipso facto become immediately due and payable without any declaration or other act on the part of the Trustee or any Holder.

Section 6.2. Collection of Indebtedness and Suits for Enforcement by Trustee. The Issuer and the Guarantors covenant that if

(1) default is made in the payment of any interest on any Note, (including Additional Amounts, if any), when such amounts become due and payable and such default continues for a period of 30 days; or

(2) default is made in the payment of the principal of (or premium, if any, on) any Note at the Maturity thereof or, with respect to any Note to be redeemed, at the Redemption Date thereof,

the Issuer and the Guarantors (subject to the limitations provided in this Indenture) will, jointly and severally, upon demand of the Trustee, pay to it, for the benefit of the Holders of such Notes, the whole amount then due and payable on such Notes for principal (and premium, if any) and interest (including Additional Amounts, if any), and, to the extent that payment of interest on overdue amounts shall be legally enforceable, interest on any overdue principal (and premium, if any) and on any overdue interest, at the rate provided by the Notes, and, in addition thereto, such further amount as shall be sufficient to cover the costs and expenses incurred by the Trustee

under this Indenture, including the reasonable compensation, expenses, disbursements and advances of the Trustee, its agents and counsel.

If the Issuer and the Guarantors fail to pay such amounts forthwith upon such demand, the Trustee, in its own name and as trustee of an express trust, may institute a judicial proceeding for the collection of the sums so due and unpaid, may prosecute such proceeding to judgment or final decree, and may enforce the same against the Issuer, the Guarantors or any other obligor upon the Notes and collect the moneys adjudged or decreed to be payable in the manner provided by law out of the property of the Issuer, the Guarantors or any other obligor upon the Notes, wherever situated.

If an Event of Default occurs and is continuing, the Trustee may in its discretion proceed to protect and enforce its rights and the rights under this Indenture of the Holders by such appropriate judicial proceedings as the Trustee shall deem most effective to protect and enforce any such rights, whether for the specific enforcement of any covenant or agreement in this Indenture or in aid of the exercise of any power granted herein including, without limitation, seeking recourse against the Issuer or the Guarantors or proceeding to enforce any other proper remedy.

Section 6.3. Trustee May File Proofs of Claim.

The Trustee may file such proofs of claim and other papers or documents as may be necessary or advisable in order to have the claims of the Trustee and the Holders allowed in any judicial proceedings relative to the Issuer, the Guarantors, their respective creditors or its property and, unless prohibited by law or applicable regulations, may vote on behalf of the Holders at their direction in any election of a trustee in bankruptcy or other Person performing similar functions, and any custodian in any such judicial proceeding is hereby authorized by each Holder to make payments to the Trustee and, in the event that the Trustee shall consent to the making of such payments directly to the Holders, to pay to the Trustee any amount due it for the reasonable compensation, expenses, disbursements and advances of the Trustee, its agents and its counsel, and any other amounts due the Trustee under Section 7.7.

Section 6.4. Trustee May Enforce Claims Without Possession of Notes.

All rights of action and claims under this Indenture or the Notes may be prosecuted and enforced by the Trustee without the possession of any of the Notes or the production thereof in any proceeding relating thereto, and any such proceeding instituted by the Trustee shall be brought in its own name as trustee of an express trust, and any recovery of judgment shall, after provision for the payment of the reasonable compensation, expenses, disbursements and advances of the Trustee, its agents and counsel, be for the ratable benefit of the Holders of the Notes in respect of which such judgment has been recovered.

Section 6.5. Application of Money Collected.

Any money collected by the Trustee pursuant to this Article shall be applied in the following order, at the date or dates fixed by the Trustee and, in case of the distribution of such money on account of principal (or premium, if any) or interest, upon presentation of the Notes

and the notation thereon of the payment if only partially paid and upon surrender thereof if fully paid;

FIRST: To the payment of all amounts due to the Trustee and the Agents under this Indenture; and

SECOND: To the payment of the amounts then due and unpaid for principal of (and premium, if any) and interest on the Notes in respect of which or for the benefit of which such money has been collected, ratably, without preference or priority of any kind, according to the amounts due and payable on such Notes for principal (and premium, if any) and interest, respectively.

The Trustee, upon prior written notice to the Issuer, may fix a Record Date and payment date for any payment to the Holders pursuant to this Section 6.5.

Section 6.6. Limitation on Suits.

No Holder of any Note shall have any right to institute any proceeding, judicial or otherwise, with respect to this Indenture, or for the appointment of a receiver or trustee, or for any other remedy hereunder, unless:

(1) such Holder shall have previously given written notice to the Trustee of a continuing Event of Default;

(2) the Holders of at least 25% in aggregate principal amount of the Outstanding Notes shall have made written request to the Trustee to institute proceedings in respect of such Event of Default in its own name as Trustee hereunder and shall have offered to the Trustee indemnity and/or security reasonably satisfactory to the Trustee against the costs, expenses and liabilities to be incurred in compliance with such request;

(3) the Trustee for 60 days after its receipt of such notice, request and offer shall have failed to institute any such proceeding; and

(4) no direction inconsistent with such written request shall have been given to the Trustee during such 60-day period by the Holders of a majority in principal amount of the Outstanding Notes;

it being understood and intended that no one or more Holders shall have any right in any manner whatever by virtue of, or by availing of, any provision of this Indenture or any Note or the Guarantees to affect, disturb or prejudice the rights of any other Holders, or to obtain or to seek to obtain priority or preference over any other Holders or to enforce any right under this Indenture (it being understood that the Trustee does not have an affirmative duty to ascertain whether or not such actions or forbearances are unduly prejudicial to such Holders), any Note or the Guarantees, except in the manner herein provided and for the equal and ratable benefit of all the Holders.

Section 6.7.

Unconditional Right of Holders to Receive Principal, Premium and Interest.

Notwithstanding any other provision in this Indenture, the Notes or the Guarantees, the Holder of any Note shall have the right, which is absolute and unconditional, to receive payment of the principal of (and premium, if any) and (subject to Section 3.6) interest on such Note on the respective Stated Maturities expressed in such Note (or earlier Redemption Date) and to institute suit for the enforcement of any such payment, and such rights shall not be impaired without the consent of such Holder.

Section 6.8. Restoration of Rights and Remedies.

If the Trustee or any Holder has instituted any proceeding to enforce any right or remedy under this Indenture, any Note or the Guarantees, and such proceeding has been discontinued or abandoned for any reason, or has been determined adversely to the Trustee or to such Holder, then and in every such case, subject to any determination in such proceeding, the Issuer, the Guarantor, the Trustee and the Holders shall be restored severally and respectively to their former positions hereunder and thereafter all rights and remedies of the Trustee and the Holders shall continue as though no such proceeding had been instituted.

Section 6.9. Rights and Remedies Cumulative.

Except as otherwise provided with respect to the replacement or payment of mutilated, destroyed, lost or stolen Notes in the last paragraph of Section 3.5 hereof, no right or remedy herein conferred upon or reserved to the Trustee or to the Holders is intended to be exclusive of any other right or remedy, and every right and remedy shall, to the extent permitted by law, be cumulative and in addition to every other right and remedy given hereunder or now or hereafter existing at law or in equity or otherwise. The assertion or employment of any right or remedy hereunder, or otherwise, shall not prevent the concurrent assertion or employment of any other appropriate right or remedy.

Section 6.10. Delay or Omission Not Waiver.

No delay or omission of the Trustee or of any Holder of any Note to exercise any right or remedy accruing upon any Event of Default shall impair any such right or remedy or constitute a waiver of any such Event of Default or an acquiescence therein. Every right and remedy given by this Article or by law to the Trustee or to the Holders may be exercised from time to time, and as often as may be deemed expedient, by the Trustee or by the Holders, as the case may be.

Section 6.11. Control by Holders.

The Holders of a majority of the aggregate principal amount of the Outstanding Notes shall have the right to direct the time, method and place of conducting any proceeding for any remedy available to the Trustee or exercising any trust or power conferred on the Trustee, provided that:

(1) such direction shall not be in conflict with any rule of law or with this Indenture or expose the Trustee to personal liability (as determined in the sole discretion of the Trustee); and

(2) the Trustee may take any other action deemed proper by the Trustee which is not inconsistent with such direction.

The Trustee may refuse, however, to follow any direction that the Trustee, in its sole discretion, determines may be unduly prejudicial to the rights of the Holders or that may subject the Trustee to any liability, loss or expense if the Trustee determines, in its sole discretion, that it lacks satisfactory indemnification and/or security against such liability, loss or expense.

Section 6.12. Waiver of Past Defaults.

The Holders of not less than a majority in aggregate principal amount of the Outstanding Notes may by written notice to the Issuer and the Trustee waive any past default hereunder and rescind and annul any declaration of acceleration and its consequences, except a default:

(1) in the payment of the principal of (or premium, if any) or interest on any Note; or

(2) in respect of a covenant or provision hereof which under Article X cannot be modified or amended without the consent of the Holder of each Outstanding Note affected.

Upon any such waiver, such default shall cease to exist, and any Event of Default arising therefrom shall be deemed to have been cured, for every purpose of this Indenture; but no such waiver shall extend to any subsequent or other default or impair any right consequent thereon.

Section 6.13. Undertaking for Costs.

In any suit for the enforcement of any right or remedy under this Indenture or in any suit against the Trustee for any action taken or omitted by it as a Trustee, a court in its discretion may require the filing by any party litigant in the suit of an undertaking to pay the costs of the suit, and the court in its discretion may assess reasonable costs, including reasonable attorney's fees and expenses, against any party litigant in the suit, having due regard to the merits and good faith of the claims or defenses made by the party litigant. This Section 6.13 does not apply to a suit by the Trustee, a suit by a Holder pursuant to Section 6.7 hereof, or a suit by Holders of more than 10% in principal amount of the then Outstanding Notes.

ARTICLE VII

THE TRUSTEE

Section 7.1. Certain Duties and Responsibilities.

(a) Except during the continuance of an Event of Default,

(1) the Trustee undertakes to perform solely such duties and only such duties as are specifically set forth in this Indenture, and Trustee shall not be liable except for the performance of such duties; and no implied covenants or obligations shall be read into this Indenture against the Trustee; and

(2) in the absence of gross negligence on its part, the Trustee may conclusively rely, as to the truth of the statements and the correctness of the opinions expressed therein, upon certificates or opinions furnished to the Trustee and conforming to the requirements of this Indenture; but in the case of any such certificates or opinions which by any provision hereof are specifically required to be furnished to the Trustee, the Trustee shall be under a duty to examine the same to determine whether or not they conform to the form requirements of this Indenture (but need not confirm or investigate the accuracy of mathematical calculations or other facts stated therein).

(b) In case an Event of Default has occurred and is continuing, the Trustee shall exercise such of the rights and powers vested in it by this Indenture, and use the same degree of care and skill in their exercise, as a prudent person would exercise or use under the circumstances in the conduct of such person's own affairs.

(c) No provision of this Indenture shall be construed to relieve the Trustee from liability for its own grossly negligent action or its own willful misconduct, *except* that:

(1) this Subsection shall not be construed to limit the effect of Subsection (a) of this Section;

(2) the Trustee shall not be liable for any error of judgment made in good faith by a Responsible Officer or Officers of the Trustee, unless it shall be proved that the Trustee was grossly negligent in ascertaining the pertinent facts;

(3) the Trustee shall not be liable with respect to any action taken or omitted to be taken by it in good faith in accordance with the direction of the Holders of a majority in principal amount of the Outstanding Note of any series, determined as provided in Section 6.2, relating to the time, method and place of conducting any proceeding for any remedy available to the Trustee, or exercising any trust or power conferred upon the Trustee, under this Indenture with respect to the Note;

(4) no provision of this Indenture shall require the Trustee to expend or risk its own funds or otherwise incur any financial liability in the performance of any of its duties hereunder, or in the exercise of any of its rights or powers, if it shall have reasonable grounds for believing that repayment of such funds or adequate indemnity and/or security against such risk or liability is not reasonably assured to it;

(5) the Trustee shall not be liable in respect of any payment (as to the correctness of amount, entitlement to receive or any other matters relating to payment) or notice effected by the Issuer or any Paying Agent or any records maintained by any co-Note Registrar with respect to the Notes;

(6) if any party fails to deliver a notice relating to an event the fact of which, pursuant to this Indenture, requires notice to be sent to the Trustee, the Trustee may conclusively rely on its failure to receive such notice as reason to act as if no such event occurred, unless a Responsible Officer of the Trustee had actual knowledge of such event;

(7) the delivery of any information to the Trustee under this Indenture, including but not limited to any Rule 144A information, or reports to the Trustee is for informational purposes only and the receipt of such information or reports by the Trustee shall not constitute constructive notice of any information contained therein;

(8) in the absence of written investment direction from the Issuer, all cash received by the Trustee shall be placed in a non-interest bearing trust account, and in no event shall the Trustee be liable for the selection of investments or for investment losses incurred thereon or for losses incurred as a result of the liquidation of any such investment prior to its maturity date or the failure of the party directing such investments prior to its maturity date or the failure of the party directing such investment to provide timely written investment direction, and the Trustee shall have no obligation to invest or reinvest any amounts held hereunder in the absence of such written investment direction from the Issuer;

(9) in the event that the Trustee is also acting as custodian, Registrar, Paying Agent, exchange agent, bid solicitation agent or transfer agent hereunder, the rights and protections afforded to the Trustee pursuant to this Article VII shall also be afforded to such custodian, Registrar, Paying Agent, exchange agent, bid solicitation agent or transfer agent;

(10) any application by the Trustee for written instructions from the Issuer (other than with regard to any action proposed to be taken or omitted to be taken by the Trustee that affects the rights of the Holders of the Notes under this Indenture) may, at the option of the Trustee, set forth in writing any action proposed to be taken or omitted by the Trustee under this Indenture and the date on and/or after which such action shall be taken or such omission shall be effective. The Trustee shall not be liable to the Issuer for any action taken by, or omission of, the Trustee in accordance with a proposal included in such application on or after the date specified in such application (which date shall not be less than three Business Days after the date any officer that the Issuer has indicated to the Trustee should receive such application actually receives such application, unless any such officer shall have consented in writing to any earlier date), unless, prior to taking any such action (or the effective date in the case of any omission), the Trustee shall have received written instructions in accordance with this Indenture in response to such application specifying the action to be taken or omitted.

(d) Whether or not therein expressly so provided, every provision of this Indenture relating to the conduct or affecting the liability of or affording protection to the Trustee shall be subject to the provisions of this Section.

Section 7.2.

Notice of Defaults.

The Trustee shall give the Holders notice of any Default ("Notice of Default") that has occurred and is continuing and of which a Responsible Officer of the Trustee has actual knowledge, within 90 days after the occurrence of such Default (but not less than 15 days after knowledge thereof). The Trustee may withhold from Holders notice of any continuing Default or Event of Default (except a Default or Event of Default relating to the payment of principal, premium, if any, or interest on, the Notes) if it determines that withholding such notice is in their interest; provided that, in the case of a default of a character specified in Section 6.1(4), no such notice to Holders shall be given until at least 30 days after the occurrence thereof.

Section 7.3. Certain Rights of Trustee and the Agents.

Subject to the provisions of Section 7.1:

(a) the Trustee and the Agents may rely conclusively and shall be protected in acting or refraining from acting upon any resolution, certificate, statement, instrument, opinion, report, notice, request, direction, consent, order, bond, debenture, note, other evidence of indebtedness or other paper or document believed by it to be genuine and to have been signed or presented by the proper party or parties;

(b) any request or direction of the Issuer mentioned herein shall be sufficiently evidenced by an Issuer Request or an Issuer Order and any resolution of the Board of Directors of the Issuer may be sufficiently evidenced by a Board Resolution;

(c) whenever in the administration of this Indenture the Trustee or an Agent shall deem it desirable that a matter be proved or established prior to taking, suffering or omitting any action hereunder, the Trustee or such Agent, as the case may be, (unless other evidence be herein specifically prescribed) may, in the absence of gross negligence on its part, rely upon an Officer's Certificate or an Opinion of Counsel;

(d) the Trustee or the Agents may consult with counsel of its selection, at the expense of the Issuer, and the advice of such counsel or any Opinion of Counsel shall be full and complete authorization and protection in respect of any action taken, suffered or omitted by it hereunder in good faith and in reliance thereon;

(e) the Trustee and each Agent shall be under no obligation to exercise any of the rights or powers vested in it by this Indenture at the request or direction of any of the Holders pursuant to this Indenture, unless such Holders shall have offered to the Trustee or such Agent, as applicable, security and/or indemnity satisfactory to it against the costs, expenses and liabilities which might be incurred by it in compliance with such request or direction satisfactory to the Trustee or such Agent, as applicable;

(f) neither the Trustee nor any Agent shall be bound to make any investigation into the facts or matters stated in any resolution, certificate, statement, instrument, report, opinion, notice, request, direction, consent, order, bond, debenture, note, other evidence of indebtedness or other paper or document, but the Trustee and each Agent, in its discretion, may make such further inquiry or investigation into such facts or matters as it may see fit, and, if the Trustee or

an Agent shall determine to make such further inquiry or investigation, it shall be entitled to examine the books, records and premises of the Issuer and the Guarantor, personally or by agent or attorney at the sole cost of the Issuer and shall incur no liability or additional liability of any kind by reason of such inquiry or investigation;

(g) the Trustee and each Agent may execute any of the trusts or powers hereunder or perform any duties hereunder either directly or by or through agents or attorneys and the Trustee and each Agent shall not be responsible for any misconduct or negligence on the part, or for the supervision of, any agent or attorney appointed with due care by it hereunder;

(h) neither the Trustee nor any Agent shall be liable for any action taken, suffered or omitted by it in good faith which the Trustee or such Agent, as applicable, believed to have been authorized or within its rights or powers;

(i) neither the Trustee nor any Agent shall be charged with knowledge of any default or Event of Default with respect to the Notes, unless either (1) a Responsible Officer shall have actual knowledge of such default or Event of Default, or (2) written notice of such default or Event of Default shall have been received by a Responsible Officer of the Trustee by the Issuer, the Guarantor or by any Holder of the Notes;

(j) in no event shall the Trustee or any Agent be responsible or liable for special, indirect, punitive or consequential loss or damage of any kind whatsoever (including, but not limited to, loss of profit) irrespective of whether the Trustee or such Agent has been advised of the likelihood of such loss or damage and regardless of the form of action;

(k) the rights, privileges, protections, immunities and benefits given to the Trustee and the Agents, including, without limitation, its right to be indemnified, are extended to, and shall be enforceable by, the Trustee and the Agents in each of their capacities hereunder, and each agent, custodian and other Person employed to act hereunder;

(l) neither the Trustee nor the Agents shall be required to give any bond or surety in respect of the performance of its powers and duties hereunder;

(m) the Trustee and the Agents may request that the Issuer deliver a certificate setting forth the names of individuals and/or titles of officers authorized at such time to take specified actions pursuant to this Indenture; and

(n) the permissive rights of the Trustee enumerated herein shall not be construed as duties.

Section 7.4. Not Responsible for Recitals or Issuance of Notes.

The recitals contained herein, in the Notes and in the Guarantees endorsed thereon, except the Trustee's certificates of authentication, shall be taken as the statements of the Issuer or the Guarantors, as the case may be, and the Trustee assumes no responsibility for their correctness. The Trustee makes no representations as to the validity or sufficiency of this Indenture or the Notes. The Trustee shall not be accountable for the use or application by the Issuer of Notes or the proceeds thereof.

Section 7.5.

May Hold Notes.

The Trustee, any Paying Agent or Transfer Agent, any Registrar (if other than the Trustee) or any other agent of the Issuer or the Guarantors, in its individual or any other capacity, may become the owner or pledgee of Notes and, subject to Section 7.8 and 7.12, may otherwise deal with the Issuer and the Guarantors with the same rights it would have if it were not Trustee, Paying Agent, Transfer Agent, Registrar or such other agent.

Section 7.6. Money Held in Trust.

All moneys received by the Trustee or any Paying Agent shall, until used or applied as herein provided, be held in trust for the purposes for which they were received, and need not be segregated from other funds of the Trustee or Paying Agent, except as otherwise required by law. Neither the Trustee nor any Paying Agent shall be under any liability for interest on any moneys received by it hereunder except such as it may agree in writing with the Issuer to pay thereon.

Section 7.7. Compensation and Reimbursement.

The Issuer and the Guarantors agree:

(1) to, jointly and severally, pay to the Trustee and the Agents from time to time upon demand such compensation for all services rendered by it hereunder as shall be agreed upon in writing (which compensation shall not be limited by any provision of law in regard to the compensation of a trustee of an express trust), as such fees may be adjusted from time to time;

(2) except as otherwise expressly provided herein, to, jointly and severally, reimburse each of the Trustee and the Agents upon its request for all reasonable expenses and disbursements incurred or made by it in accordance with any provision of this Indenture (including the reasonable compensation and the expenses and disbursements of their agents and counsel), except any such expense, disbursement or advance as may be attributable to its gross negligence or willful misconduct; and

(3) to, jointly and severally, indemnify each the Trustee and the Agents for, and to hold each harmless against, any loss, liability, cost, damage, claim or expense (including taxes, other than taxes based on or measured by income, and the reasonable compensation, expenses and disbursements of its agents, accountants, experts and counsel) incurred without gross negligence or willful misconduct on its part as determined in a final judgment of a court with competent jurisdiction, arising out of or in connection with the acceptance or administration of this trust or the performance by it of its duties and obligations or the exercise of its rights hereunder, including the costs and expenses of enforcing this Indenture against the Issuer or the Guarantors, as the case may be (including, without limitation, this Section 7.7), and of defending against any claim (whether asserted by any Holder or the Issuer or the Guarantors or any other Person, as the case may be) or liability in connection with the exercise or performance of any of its powers or duties hereunder. The provisions of this Section 7.7 shall survive any termination of this Indenture and the resignation or removal of the Trustee, the Principal Paying Agent or other Paying Agent.

As security for the performance of the obligations of the Issuer or the Guarantors, as the case may be, under this Section 7.7, the Trustee shall have a lien prior to the Notes upon all property and funds held or collected by the Trustee, except funds held in trust for the payment of principal of (and premium, if any) or interest on particular Notes. The Trustee's right to receive payment of any amounts due under this Section 7.7 shall not be subordinate to any other liability or indebtedness of the Issuer or the Guarantors, as the case may be (even though the Notes may be so subordinated).

The obligation of the Issuer under this Section 7.7 shall survive the satisfaction and discharge of this Indenture and the earlier resignation or removal of the Trustee. The indemnification provided in this Section 7.7 shall extend to the officers, directors, agents and employees of the Trustee.

When the Trustee incurs expenses or renders services after an Event of Default specified in Section 6.1 occurs, the expenses and the compensation for such services are intended to constitute expenses of administration under Title 11, U.S. Code, or any similar Federal, State or analogous foreign law for the relief of debtors.

Section 7.8. Corporate Trustee Required; Eligibility.

There shall at all times be a Trustee hereunder which shall be a Person that is eligible pursuant to the Trust Indenture Act to act as such and has a combined capital and surplus of at least U.S.\$50,000,000 and its Corporate Trust Office in The City of New York, New York. If such Person publishes reports of condition at least annually, pursuant to law or to the requirements of a Federal, State, Territorial or District of Columbia supervising or examining authority, then for the purposes of this Section, the combined capital and surplus of such Person shall be deemed to be its combined capital and surplus as set forth in its most recent report of condition so published. If at any time the Trustee shall cease to be eligible in accordance with the provisions of this Section, it shall resign immediately in the manner and with the effect hereinafter specified in this Article.

Section 7.9. Resignation and Removal; Appointment of Successor.

(a) No resignation or removal of the Trustee and no appointment of a successor Trustee pursuant to this Article shall become effective until the acceptance of appointment by the successor Trustee under Section 7.10, at which time the retiring Trustee shall be fully discharged from its obligations hereunder.

(b) The Trustee and the Principal Paying Agent may resign at any time by giving written notice thereof to the Issuer. If an instrument of acceptance by a successor Trustee or Principal Paying Agent shall not have been delivered to the Trustee or Principal Paying Agent, as the case may be, within 30 days after the giving of such notice of resignation, the resigning Trustee or Principal Paying Agent may petition, at the expense of the Issuer, any court of competent jurisdiction for the appointment of a successor Trustee or Principal Paying Agent, as the case may be.

(c) The Trustee may be removed at any time by Act of the Holders of a majority in principal amount of the Outstanding Notes, delivered to the Trustee and to the Issuer. If an

instrument of acceptance by a successor Trustee shall not have been delivered to the Trustee within 30 days after the giving of such notice of removal, the Issuer may petition, at its expense, any court of competent jurisdiction for the appointment of a successor Trustee.

(d) The Agents (other than the Principal Paying Agent) may resign at any time by giving written notice thereof to the Issuer. The Agents may appoint a successor Agent if the Issuer does not.

(e) So long as no Event of Default has occurred and is continuing, the Issuer may remove the Trustee or any Agent and appoint a new Trustee or Agent, as applicable, provided that such Trustee meets the eligibility requirements of Section 7.8.

(f) If at any time:

(1) the Trustee shall fail to comply with Section 7.8 after written request therefor by the Issuer or by any Holder who has been a bona fide Holder of a Note for at least six months; or

(2) the Trustee shall cease to be eligible under Section 7.8 and shall fail to resign after written request therefor by the Issuer or by any such Holder; or

(3) the Trustee shall become incapable of acting or shall be adjudged a bankrupt or insolvent or a receiver of the Trustee or of its property shall be appointed or any public officer shall take charge or control of the Trustee or of its property or affairs for the purpose of rehabilitation, conservation or liquidation, then, in any such case, (i) the Issuer by a Board Resolution may remove the Trustee, or (ii) any Holder who has been a bona fide Holder of a Note for at least six months may, on behalf of himself or herself and all others similarly situated, petition any court of competent jurisdiction for the removal of the Trustee and the appointment of a successor Trustee.

(g) If the Trustee shall resign, be removed or become incapable of acting, or if a vacancy shall occur in the office of Trustee for any cause, the Issuer, by a Board Resolution, shall promptly appoint a successor Trustee. If, within one year after such resignation, removal or incapability, or the occurrence of such vacancy, a successor Trustee shall be appointed by Act of the Holders of a majority in principal amount of the Outstanding Notes delivered to the Issuer and the retiring Trustee, the successor Trustee so appointed shall, forthwith upon its acceptance of such appointment, become the successor Trustee and supersede the successor Trustee appointed by the Issuer. If no successor Trustee shall have been so appointed by the Issuer or the Holders and accepted appointment in the manner hereinafter provided, any Holder who has been a bona fide Holder of a Note for at least six months may, on behalf of himself or herself and all others similarly situated, petition any court of competent jurisdiction at the expense of the Issuer for the appointment of a successor Trustee.

(h) The Issuer shall give notice of each resignation and each removal of the Trustee and each appointment of a successor Trustee to all Holders in the manner provided in Section 1.6. Each notice shall include the name of the successor Trustee and the address of its Corporate Trust Office at the expense of the Issuer.

Section 7.10.

Acceptance of Appointment by Successor.

Every successor Trustee appointed hereunder shall execute, acknowledge and deliver to the Issuer, the Guarantors and to the retiring Trustee an instrument accepting such appointment, and thereupon the resignation or removal of the retiring Trustee shall become effective and such successor Trustee, without any further act, deed or conveyance, shall become vested with all the rights, powers, trusts and duties of the retiring Trustee; but, on request of the Issuer or the successor Trustee, such retiring Trustee shall, upon payment of its charges, execute and deliver an instrument transferring to such successor Trustee all the rights, powers and trusts of the retiring Trustee and shall duly assign, transfer and deliver to such successor Trustee all property and money held by such retiring Trustee hereunder, subject nevertheless to its Lien, if any, provided for in Section 7.7. Upon request of any such successor Trustee, the Issuer and the Guarantors shall execute any and all instruments for more fully and certainly vesting in and confirming to such successor Trustee all such rights, powers and trusts. No successor Trustee shall accept its appointment unless at the time of such acceptance such successor Trustee shall be qualified and eligible under this Article.

Section 7.11. Merger, Conversion, Consolidation or Succession to Business.

Any corporation or other entity into which the Trustee may be merged or convened or with which it may be consolidated, or any corporation or other entity resulting from any merger, conversion or consolidation to which the Trustee shall be a party, or any corporation or other entity succeeding to all or substantially all the corporate trust business of the Trustee, shall be the successor of the Trustee hereunder, provided that such corporation or other entity shall be otherwise qualified and eligible under this Article, without the execution or filing of any paper or any further act on the part of any of the parties hereto. In case any Notes shall have been authenticated, but not delivered, by the Trustee then in office, any successor by merger, conversion or consolidation to such authenticating Trustee may adopt such authentication and deliver the Notes so authenticated with the same effect as if such successor Trustee had itself authenticated such Notes.

Section 7.12. Appointment of Authenticating Agent.

The Trustee may appoint an Authenticating Agent or Agents with respect to the Notes which shall be authorized to act on behalf of the Trustee to authenticate Notes issued upon original issue and upon exchange, registration of transfer or partial redemption thereof or pursuant to Section 3.5, and Notes so authenticated shall be entitled to the benefits of this Indenture and shall be valid and obligatory for all purposes as if authenticated by the Trustee hereunder. Wherever reference is made in this Indenture to the authentication and delivery of Notes by the Trustee or the Trustee's certificate of authentication, such reference shall be deemed to include authentication and delivery on behalf of the Trustee by an Authenticating Agent and a certificate of authentication executed on behalf of the Trustee by an Authenticating Agent. Each Authenticating Agent shall be acceptable to the Issuer and shall at all times be a corporation organized and doing business under the laws of the United States, any State thereof or the District of Columbia, authorized under such laws to act as Authenticating Agent, having a combined capital and surplus of not less than U.S.\$50,000,000 and subject to supervision or examination by Federal or State authority. If such Authenticating Agent publishes reports of

condition at least annually, pursuant to law or to the requirements of said supervising or examining authority, then for the purposes of this Section, the combined capital and surplus of such Authenticating Agent shall be deemed to be its combined capital and surplus as set forth in its most recent report of condition so published. If at any time an Authenticating Agent shall cease to be eligible in accordance with the provisions of this Section, such Authenticating Agent shall resign immediately in the manner and with the effect specified in this Section.

Any corporation or other entity into which an Authenticating Agent may be merged or converted or with which it may be consolidated, or any corporation or other entity resulting from any merger, conversion or consolidation to which such Authenticating Agent shall be a party, or any corporation or other entity succeeding to all or substantially all the corporate agency or corporate trust business of an Authenticating Agent, shall continue to be an Authenticating Agent, provided such corporation or other entity shall be otherwise eligible under this Section, without the execution or filing of any paper or any further act on the part of the Trustee or the Authenticating Agent.

An Authenticating Agent may resign at any time by giving written notice thereof to the Trustee and to the Issuer. The Trustee may at any time terminate the agency of an

Authenticating Agent by giving written notice thereof to such Authenticating Agent and to the Issuer. Upon receiving such a notice of resignation or upon such a termination, or in case at any time such Authenticating Agent shall cease to be eligible in accordance with the provisions of this Section, the Trustee may appoint a successor Authenticating Agent which shall be acceptable to the Issuer and shall give notice of such appointment in the manner provided in Section 1.6 to all Holders of Notes. Any successor Authenticating Agent upon acceptance of its appointment hereunder shall become vested with all the rights, powers and duties of its predecessor hereunder, with like effect as if originally named as an Authenticating Agent. No successor Authenticating Agent shall be appointed unless eligible under the provisions of this Section.

The Issuer agrees to pay to each Authenticating Agent from time to time reasonable compensation for its services under this Section.

If an appointment is made pursuant to this Section, the Notes may have endorsed thereon, in lieu of the Trustee's certificate of authentication, an alternative certificate of authentication in the following form:

"This is one of the Notes referred to in the within-mentioned Indenture.

THE BANK OF NEW YORK MELLON

as Trustee

By:

as Authenticating Agent

ARTICLE VIII

HOLDERS LISTS AND COMMUNICATIONS BY TRUSTEE AND ISSUER

Section 8.1. Issuer to Furnish Trustee; Names and Addresses of Holders.

The Issuer will furnish or cause to be furnished to the Trustee

(a) semi-annually, not more than 15 days after each Record Date, a list, in such form as the Trustee may reasonably require, of the names and addresses of the Holders as of such Record Date; and

(b) at such other times as the Trustee may request in writing, within 30 days after the receipt by the Issuer of any such request, a list of similar form and content as of a date not more than 15 days prior to the time such list is furnished;

excluding from any such list names and addresses received by the Trustee in its capacity as Registrar.

Section 8.2. Preservation of Information; Communications to Holders.

(a) The Trustee shall preserve, in as current a form as is reasonably practicable, the names and addresses of Holders contained in the most recent list furnished to the Trustee as provided in Section 8.1 and the names and addresses of Holders received by the Trustee in its capacity as Registrar. The Trustee may destroy any list furnished to it as provided in Section 8.1 upon receipt of a new list so furnished.

(b) If a Holder (herein referred to as an “applicant”) applies in writing to the Trustee, and furnishes to the Trustee reasonable proof that each such applicant has owned a Note for a period of at least six months preceding the date of such application, and such application states that such applicant desires to communicate with other Holders with respect to their rights under this Indenture or under the Notes and is accompanied by a copy of the form of proxy or other communication which such applicant proposes to transmit, then the Trustee shall, within five Business Days after the receipt of such application, at its election, either

(1) afford such applicant access to the information preserved at the time by the Trustee in accordance with Section 8.2(a); or

(2) inform such applications as to the approximate number of Holders whose names and addresses appear in the information preserved at the time by the Trustee in accordance with Section 8.2(a), as to the approximate cost of mailing to such Holders the form of proxy or other communication, if any, specified in such application.

(c) Every Holder of Notes, by receiving and holding the same, agrees with the Issuer and the Trustee that neither the Issuer nor the Trustee nor any agent of either of them shall be held accountable by reason of the disclosure of any such information as to the names and addresses of the Holders in accordance with Section 8.2(b), regardless of the source from which

such information was derived, and that the Trustee shall not be held accountable by reason of mailing any material pursuant to a request made under Section 8.2(b).

ARTICLE IX

CONSOLIDATION, MERGER, CONVEYANCE, TRANSFER OR LEASE

Section 9.1. Mergers, Consolidations and Certain Sales of Assets.

So long as any of the Notes are Outstanding, neither the Issuer nor any Guarantor may, in a single transaction or a series of related transactions:

(1) unless the Issuer or such Guarantor, as applicable, is the surviving Person, consolidate with or merge into any other Person or permit any other Person to consolidate with or merge into the Issuer or such Guarantor, as applicable (other than a consolidation or merger of a Wholly Owned Subsidiary organized under the laws of Luxembourg, Brazil, Peru, the United States or any OECD country, in each case, with or into the Issuer or such Guarantor, as applicable); or

(2) directly or indirectly, transfer, sell, lease or otherwise dispose of all or substantially all of its assets (determined on a consolidated basis of the Issuer and its Subsidiaries or the relevant Guarantor and its Subsidiaries, as applicable) to any Person (other than the Issuer or a Guarantor) (provided that the creation of a Lien on or in any of its assets shall not in and of itself constitute the transfer, sale, lease or disposition of the assets subject to the Lien),

unless the following conditions, to the extent applicable, are met:

(i) in the case of a transaction in which the Issuer or a Guarantor does not survive or in which the Issuer or a Guarantor sells, leases or otherwise disposes of all or substantially all of its assets to any other Person, the successor entity to the Issuer or such Guarantor (1) shall expressly assume, by a supplemental indenture executed and delivered to the Trustee, all of the Issuer's or such Guarantor's obligations under this Indenture and (2) shall be organized under the laws of (x) Luxembourg, Brazil, Peru or any state or political subdivision thereof, (y) the United States or any state thereof or the District of Columbia or (z) any other country if such successor entity undertakes, in such supplemental indenture, to pay such additional amounts in respect of principal (and premium, if any) and interest as may be necessary in order that the net amounts paid pursuant to the Notes after deduction or withholding of any present or future withholding taxes, duties, assessments, levies, imposts or charges whatsoever imposed by or for the account of such country or any political subdivision or taxing authority thereof or therein shall equal the respective amounts of principal (and premium, if any) and interest specified in the Notes, subject to the same exceptions set forth under clauses (1) through (7) of Section 11.9, but replacing existing references in such clauses to the jurisdiction of incorporation of the Issuer or such Guarantor, as applicable, with references to such other country and references to the jurisdiction of incorporation of the Issuer or such

Guarantor, as applicable, under Section 4.1 shall automatically be deemed to be references to such other country;

(ii) if, as a result of any such transaction, property or assets of the Issuer or such Guarantor would become subject to a Lien prohibited by Section 12.10, the Issuer or such Guarantor, as applicable, or the successor entity to the Issuer or such Guarantor, as applicable, shall have secured the Notes as described thereunder; and

(iii) the Issuer or such Guarantor, as applicable, has delivered to the Trustee an Officer's Certificate and an Opinion of Counsel, each stating that such consolidation, merger, conveyance, transfer, lease or acquisition and, if a supplemental indenture is required in connection with such transaction, such supplemental indenture complies with this covenant and that all conditions precedent provided for in this Indenture relating to such transaction have been complied with.

In the event of any transaction (other than a lease) described in and complying with the provisions of this Section 9.1 in which the Issuer or a Guarantor, as applicable, is not the surviving Person and the surviving Person assumes all the obligations of the Issuer or such Guarantor, as applicable, under this Indenture and the Notes or the Guarantee, as applicable, pursuant to a supplemental Indenture, such surviving Person shall succeed to, and be substituted for, and may exercise every right and power of, the Issuer or such Guarantor, as applicable, and the Issuer or such Guarantor, as applicable, will be discharged from its obligations under this Indenture and the Notes or the Guarantee, as applicable.

ARTICLE X

SUPPLEMENTAL INDENTURES

Section 10.1. Supplemental Indentures Without Consent of Holders.

Without the consent of any Holders, the Issuer and the Trustee, at any time and from time to time, may enter into one or more supplemental indentures hereto in form satisfactory to the Trustee, for any of the following purposes:

- (1) to evidence the succession of another Person to the Issuer or any Guarantor and the assumption by any such successor of the covenants of the Issuer or any Guarantor, as applicable, herein and in the Notes or the Guarantees, as applicable;
- (2) to add to the covenants of the Issuer for the benefit of the Holders, or to surrender any right or power herein conferred upon the Issuer;
- (3) to cure any ambiguity, defect or inconsistency or to correct a manifest error;
- (4) to provide for uncertificated Notes in addition to or in place of certificated Notes;
- (5) to comply with Section 9.1 of this Indenture;

- (6) to evidence and provide for the acceptance of an appointment by a successor trustee;
- (7) to provide for any additional guarantee of the Notes;
- (8) to secure the Notes or to confirm and evidence the release, termination or discharge of any guarantee of or Lien securing the Notes when such release, termination or discharge is permitted by this Indenture;
- (9) to provide for or confirm the issuance of Additional Notes;
- (10) to conform the provisions of this Indenture to the caption entitled "Description of the Notes" in the offering memorandum relating to the Notes; or
- (11) to make any other modification and any waiver or authorization of any breach or proposed breach of any provision of this Indenture or the Notes which is not materially prejudicial to the Holders.

Section 10.2. Supplemental Indentures with Consent of Holders.

With the consent of the Holders of not less than a majority in aggregate principal amount of the Outstanding Notes, by Act of said Holders delivered to the Issuer and the Trustee, and consistent with Section 6.13, the Issuer and the Trustee may enter into an indenture or supplemental indentures hereto for the purpose of adding any provisions to or changing in any manner or eliminating any of the provisions of this Indenture or of modifying in any manner the rights of the Holders under this Indenture; provided, however, that no such supplemental indenture shall, without the consent of the Holder of each outstanding Note affected thereby:

- (1) change the Stated Maturity of the principal of, or any installment of interest on, any Note, or reduce the principal amount thereof or the rate of interest thereon or any premium payable thereon, or change the place of payment where, or the coin or currency in which, any Note or any premium or interest thereon is payable, or impair the right to institute suit for the enforcement of any such payment on or with respect to any Note on or after the Stated Maturity thereof (or, in the case of redemption, on or after the Redemption Date),
- (2) reduce the percentage in principal amount of the Outstanding Notes, the consent of whose Holders is required for any such supplemental indenture, or the consent of whose Holders is required for any waiver (of compliance with certain provisions of this Indenture or certain defaults hereunder and their consequences) provided for in this Indenture;
- (3) modify any of the provisions of this Section 10.2 or Section 6.12 or Section 11.9, except to increase any such percentage described in clause (2) above or to provide that certain other provisions of this Indenture cannot be modified or waived without the consent of the Holder of each Outstanding Note affected thereby;

(4) release any Guarantors from its obligations under its Guarantee or this Indenture, except in compliance with the terms of this Indenture.

It shall not be necessary for any Act of Holders under this Section to approve the particular form of any proposed supplemental indenture, but it shall be sufficient if such Act shall approve the substance thereof.

Section 10.3. Execution of Supplemental Indentures.

In executing, or accepting the additional trusts created by, any supplemental indenture permitted by this Article or the modifications thereby of the trusts created by this Indenture, the Trustee shall receive, and (subject to Section 7.1) shall be fully protected in conclusively relying upon, in addition to the documents required by Section 1.2, an Officer's Certificate and Opinion of Counsel stating that the execution of such supplemental indenture is authorized or permitted by this Indenture. The Trustee may, but shall not be obligated to, enter into any such supplemental indenture which affects the trustee's own rights, duties or immunities under this Indenture.

Section 10.4. Effect of Supplemental Indentures.

Upon the execution of any supplemental indenture under this Article, this Indenture shall be modified in accordance therewith, and such supplemental indenture shall form a part of this Indenture for all purposes; and every Holder of Notes theretofore or thereafter authenticated and delivered hereunder shall be bound thereby.

Section 10.5. Reference in Notes to Supplemental Indentures.

Notes authenticated and delivered after the execution of any supplemental indenture pursuant to this Article may, and shall if required by the Trustee, bear a notation in form approved by the Trustee as to any matter provided for in such supplemental indenture. If the Issuer shall so determine, new Notes so modified as to conform, in the opinion of the Issuer, to any such supplemental indenture may be prepared and executed by the Issuer and authenticated and delivered by the Trustee in exchange for Outstanding Notes.

Section 10.6. Notice to Holders.

After a supplemental indenture under this Article becomes effective, the Issuer will send to the Holders affected thereby a notice briefly describing the terms of the supplement. The Issuer will send supplemental indentures to Holders upon request. Any failure of the Issuer to send such notice, or any defect therein, will not, however, in any way impair or affect the validity of any such supplemental indenture.

ARTICLE XI
COVENANTS

Section 11.1. Payment Under the Notes.

Each of the Issuer and the Guarantors shall duly and punctually pay all amounts owed by it, and comply with all its other obligations, under the terms of the Notes, the Guarantees and this Indenture (collectively, the “Transaction Documents”).

Section 11.2. Maintenance of Office or Agency.

The Issuer and the Guarantors will maintain in the Borough of Manhattan, The City of New York, New York, an office or agency where Notes may be presented or surrendered for payment, where Notes may be surrendered for registration of transfer or exchange and where notices and demands to or upon the Issuer or the Guarantors in respect of the Notes, the Guarantees and this Indenture may be served. Initially, this office will be at the Corporate Trust Office of the Trustee, unless the Issuer shall designate and maintain any other office or agency for one or more such purposes, and the Issuer and the Guarantors shall agree not to change the designation of such office without prior written notice to the Trustee and designation of a replacement office in the same general location. The Issuer will give prompt written notice to the Trustee of the location, and any change in the location, of such offices or agencies. If at any time the Issuer or the Guarantors shall fail to maintain any such required offices or agencies or shall fail to furnish the Trustee with the address thereof, such presentations, surrenders, notices and demands may be made or served at the Corporate Trust Office of the Trustee. The Issuer and the Guarantors hereby appoint the Trustee as their agent to receive all such presentations, surrenders, notices and demands.

The Issuer may also from time to time designate one or more other offices or agencies (in or outside the Borough of Manhattan, The City of New York, New York) where the Notes may be presented or surrendered for any or all such purposes and may from time to time rescind such designations (each, a “Transfer Agent”); provided, however, that no such designation or rescission shall in any manner relieve the Issuer of its obligation to maintain an office or agency in the Borough of Manhattan, The City of New York, New York. The Issuer has initially designated the offices of The Bank of New York Mellon to act as Transfer Agent. The Issuer will give prompt written notice to the Trustee of any such designation or rescission and of any change in the location of any such other office or agency.

Section 11.3. Money for Note Payments to Be Held in Trust.

If the Issuer shall at any time act as its own Paying Agent, it will, on or before each due date of the principal of (and premium, if any) or interest on any of the Notes, segregate and hold in trust for the benefit of the Persons entitled thereto a sum sufficient to pay the principal (and premium, if any) or interest so becoming due until such sums shall be paid to such Persons or otherwise disposed of as herein provided and will promptly notify the Trustee in writing of its action or failure so to act.

Whenever the Issuer shall have one or more Paying Agents, it will, prior to each due date of the principal of (and premium, if any) or interest on any Notes, deposit with the Principal Paying Agent a sum sufficient to pay the principal (and premium, if any) or interest (including Additional Amounts, if any) so becoming due, such sum to be held in trust for the benefit of the Persons entitled to such principal, premium or interest, and (unless such Paying Agent is the Trustee) the Issuer will promptly notify the Trustee in writing of its action or failure so to act.

The Issuer will cause each Paying Agent other than the Trustee and the Principal Paying Agent to execute and deliver to the Trustee an instrument in which such Paying Agent shall agree with the Trustee, subject to the provisions of this Section 11.3, that such Paying Agent will:

- (1) hold all sums held by it for the payment of the principal of (and premium, if any) or interest on Notes in trust for the benefit of the Persons entitled thereto until such sums shall be paid to such Persons or otherwise disclosed of as herein provided;
- (2) give the Trustee written notice of any default by the Issuer (or any other obligor upon the Notes) in the making of any payment of principal (and premium, if any) or interest;
- (3) at any time during the continuance of any such default, upon the written request of the Trustee, forthwith pay to the Trustee all sums so held in trust by such Paying Agent; and
- (4) acknowledge, accept and agree to comply in all respects with the provisions of this Indenture relating to the duties, rights and obligations of such Paying Agent.

The Issuer may at any time, for the purpose of obtaining the satisfaction and discharge of this Indenture or for any other purpose, pay, or by Issuer Order direct any Paying Agent to pay, to the Trustee all sums held in trust by the Issuer or such Paying Agent, such sums to be held by the Trustee upon the same trusts as those upon which such sums were held by the Issuer or such Paying Agent; and, upon such payment by any Paying Agent to the Trustee, such Paying Agent shall be released from all further liability with respect to such money.

Any money deposited with the Trustee or any Paying Agent, or then held by the Issuer, in trust for the payment of the principal of (and premium, if any) or interest on any Note and remaining unclaimed for two years after such principal (and premium, if any) or interest has become due and payable shall be paid to the Issuer on the Issuer's Request, or (if then held by the Issuer) shall be discharged from such trust; and the Holder of such Note shall thereafter, as an unsecured general creditor, look only to the Issuer for payment thereof, and all liability of the Trustee or such Paying Agent with respect to such trust money, and all liability of the Issuer as trustee thereof, shall thereupon cease.

Section 11.4. Maintenance of Corporate Existence.

The Issuer and the Guarantors shall, and shall cause each of their respective Subsidiaries to, maintain in effect its corporate existence and all registrations necessary therefor and take all

actions to maintain all rights, privileges, titles to property, franchises and the like necessary or desirable in the normal conduct of its business, activities or operations provided that this covenant shall not require (i) the Issuer, the Guarantors or any of their respective Subsidiaries to maintain any such registration, right, privilege, title to property, franchise or the like or require the Issuer or the Guarantors to preserve the corporate existence of any of their respective Subsidiaries (other than a Subsidiary that is a Guarantor), if the failure to do so would not have a material adverse effect on the Issuer and its Subsidiaries taken as a whole or have a material adverse effect on the rights of the Holders or (ii) the Guarantors or the Issuer to preserve its corporate existence if it complies with the provisions of Section 9.1.

Section 11.5. Repurchases at the Option of the Holders upon Change of Control.

If a Change of Control occurs that results in a Rating Decline, each Holder will have the right to require the repurchase of all or any part (equal to U.S.\$200,000 and integral multiples of U.S.\$1,000 in excess thereof) of the Notes of that Holder pursuant to a Change of Control Offer by the Issuer or the Guarantors. No such purchase in part shall reduce the principal amount of the Notes held by any Holder to below U.S.\$200,000. In the Change of Control Offer, the Issuer or a Guarantor will offer a "Change of Control Payment" in U.S. dollars equal to 101% of the aggregate principal amount of Notes repurchased plus accrued and unpaid interest and Additional Amounts, if any, on the Notes repurchased, to the date of purchase (subject to the right of the Holders of record on the relevant Record Date to receive interest and Additional Amounts, if any, on the relevant Interest Payment Date).

Within 30 days following any Change of Control that results in a Rating Decline the Issuer or the Guarantor will make a "Change of Control Offer" by notice to each Holder of Notes in accordance with the provision set out under Section 1.6, describing the transaction or transactions that constitute the Change of Control and offering to repurchase Notes on the date specified in the notice (the "Change of Control Payment Date"), which date will be no earlier than 30 days and no later than 60 days from the date such notice is mailed, pursuant to the procedures required by this Indenture and described in such notice.

The Issuer or the applicable Guarantor will comply, to the extent applicable, with the requirements of Section 14(e)-1 of the Exchange Act and any other applicable securities laws or regulations in connection with the repurchase of Notes pursuant to this covenant. To the extent that the provisions of any applicable securities laws or regulations conflict with provisions of this covenant, the Issuer or the applicable Guarantor will comply with the applicable securities laws and regulations and will not be deemed to have breached its obligations under this covenant by virtue of its compliance with such securities laws or regulations.

On the Change of Control Payment Date, the Issuer or the applicable Guarantor will, to the extent lawful:

- (1) accept for payment all Notes or portions of Notes properly tendered pursuant to the Change of Control Offer; and
- (2) procure that the Change of Control Payment is made in respect of all Notes or portions of Notes properly tendered.

The Paying Agents will promptly mail to each Holder who properly tendered Notes the Change of Control Payment for such Notes, and the Trustee will promptly authenticate and mail (or cause to be transferred by book entry) to each Holder a new Note equal in principal amount to any unpurchased portion of the Notes surrendered, if any; provided that each new Note will be in minimum denominations of U.S.\$200,000 and integral multiples of U.S.\$1,000 in excess thereof.

The provisions described above that require the Issuer or a Guarantor to make a Change of Control Offer following a Change of Control will be applicable whether or not any other provisions of this Indenture are applicable. However, a Change of Control Offer is only required to be made in the event that a Change of Control results in a Rating Decline. Consequently, if a Change of Control were to occur which does not result in a Rating Decline, none of the Issuer and the Guarantors would be required to launch a Change of Control Offer. Except as described above with respect to a Change of Control, this Indenture does not contain provisions that permit the Holders to require that the Issuer or a Guarantor repurchase or redeem the Notes in the event of a takeover, recapitalization or similar transaction.

None of the Issuer or the Guarantors will be required to make a Change of Control Offer upon a Change of Control if (1) a third party makes the Change of Control Offer in the manner, at the times and otherwise in compliance with the requirements, set forth in this Indenture, that are applicable to a Change of Control Offer made by the Issuer or a Guarantor and such third party purchases all Notes properly tendered and not withdrawn under the Change of Control Offer or (2) a notice of redemption has been given for all outstanding Notes pursuant to this Indenture as described under Section 4.2 unless and until there is a default in payment of the applicable Redemption Price.

Notwithstanding anything to the contrary contained herein and subject to applicable law, a Change of Control Offer may be made in advance of a Change of Control and conditioned upon the occurrence of such Change of Control and Rating Decline if a definitive agreement is in place for the Change of Control at the time of making of the Change of Control Offer.

In the event that the Holders of not less than 85% of the aggregate principal amount of Outstanding Notes accept a Change of Control Offer and the Issuer or a Guarantor or a third party purchases all the Notes held by such holders, the Issuer or a Guarantor will have the right, on not less than 10 nor more than 60 days' prior notice to the Holders, given not more than 30 days following the purchase date pursuant to the Change of Control Offer, to redeem all of the Notes that remain outstanding following such purchase at the purchase price equal to that in the Change of Control Offer plus, to the extent not included in the purchase price, accrued and unpaid interest and Additional Amounts, if any, on the Notes that remain Outstanding, to, but excluding, the date of redemption.

Section 11.6. Payment of Taxes and Other Claims.

The Issuer and the Guarantors shall, and shall cause each of their respective Subsidiaries to, pay or discharge or cause to be paid or discharged before the same shall become delinquent, (i) all taxes, assessments and governmental charges levied or imposed upon the Issuer and the Guarantors or any of their respective Subsidiaries, as the case may be, and (ii) all lawful claims

for labor, materials and supplies which, if unpaid, might by law become a Lien upon the property of the Issuer or a Guarantor or any of their respective Subsidiaries, as the case may be; provided, however, that neither the Issuer nor any Guarantor nor any of their respective Subsidiaries shall be required to pay or discharge or cause to be paid or discharged any such tax, assessment, charge or claim whose amount, applicability or validity is being contested in good faith and, if appropriate, by appropriate legal proceedings, or where the failure to do so would not have a material adverse effect on the Issuer, the Guarantors and their Subsidiaries taken as a whole or have a material adverse effect on the rights of the Holders.

Section 11.7. Provision of Financial Information.

The Issuer has agreed that it will furnish to the Trustee and the Holders and to any prospective purchasers of such Notes, to the extent permitted by applicable law or contractual restrictions, upon their request, the information required to be delivered pursuant to Rule 144A(d)(4) under the Securities Act; provided that the foregoing obligation will only apply to the Issuer if it ceases to be subject to and in compliance with the reporting requirements of Section 13 or 15(d) of the Exchange Act or exempt from reporting pursuant to Rule 12g3-2(b) under the Exchange Act.

Additionally, the Issuer shall provide the Trustee and the Holders, within 120 days of the end of each fiscal year and within 60 days of the end of each of the first three fiscal quarters, annual or quarterly financial statements, as applicable, in accordance with applicable GAAP and audited in the case of annual financial statements.

Notwithstanding the foregoing, if the Issuer makes available the information described above on the Issuer's or an Affiliate's website or on the Electronic Data Gathering, Analysis, and Retrieval (EDGAR) website of the SEC, the Issuer will be deemed to have satisfied the reporting requirement set forth in such applicable clause. It is understood that the Trustee shall have no responsibility to determine whether any information has been posted on such websites.

Delivery of such reports, information and documents to the Trustee is for informational purposes only and the Trustee's receipt of such reports shall not constitute constructive notice of any information contained therein or determinable from information contained therein, including the Issuer's compliance with any of its covenants hereunder (as to which the Trustee is entitled to rely exclusively on an Officer's Certificate or notice). The Trustee shall have no obligation to determine if and when the Issuer's statements or reports are publicly available and accessible electronically.

Section 11.8. Statement by Officers as to Default.

(a) The Issuer will be required to furnish to the Trustee together with the delivery (or the posting on the Issuer's or an Affiliate's website) of its annual financial statements and in any event within 120 days after the end of each such fiscal period, an Officer's Certificate stating whether or not to the best knowledge of the signer thereof none of the Issuer or any Guarantor is in default in the performance and observance of any of the terms, provisions and conditions of this Indenture and if the Issuer or any Guarantor is in default, specifying all such defaults and the nature and status thereof of which they may have knowledge.

(b) The Issuer shall deliver to the Trustee, as soon as is practicable and in any event within ten calendar days after the Issuer becomes aware of the occurrence of a Default or an Event of Default, an Officer's Certificate of the Issuer, setting forth the details of such Default or Event of Default and stating what action the Issuer, proposes to take with respect thereto. None of the Agents shall have notice of any Default or Event of Default unless a Responsible Officer of such Agent has actual knowledge thereof.

Section 11.9. Payment of Additional Amounts.

Any and all payments to a Holder of principal (and premium, if any) and interest in respect of the Notes will be made free and clear of, and without withholding or deduction for, any and all present and future withholding taxes, duties, assessments, levies, imposts or charges ("Taxes") whatsoever imposed by or on behalf of, Luxembourg, Brazil, Peru or any political subdivision or taxing authority thereof or therein or any other jurisdiction from or through which payment on the Notes is made, unless such withholding or deduction is required by law. In that event, the Issuer or a Guarantor, as the case may be, shall pay such additional amounts (the "Additional Amounts") as will result in the receipt by the Holders of such amounts as would have been received by them if no such withholding or deduction had been required, except that no such Additional Amounts shall be payable in respect of any Note:

(1) held by, or by a third party on behalf of, a Holder or beneficial owner which is liable for such taxes, duties, assessments, levies, imposts or charges in respect of such Note by reason of its (or a fiduciary, settlor, member, shareholder or beneficiary of, or possessor of a power over, such Holder, if such Holder is an estate, trust, partnership or corporation) having some present or former connection with Luxembourg, Brazil or Peru (including being or having been a citizen or resident of Luxembourg, Brazil or Peru or being or having been engaged in trade or business therein) other than the mere holding of such Note or the enforcement of rights in respect of such Note; or

(2) where (in the case of a payment of principal, premium, if any, or interest on the Maturity Date or date of earlier redemption) the relevant Note is surrendered for payment more than 30 days after the Relevant Date except to the extent that the relevant Holder would have been entitled to such Additional Amounts if it had surrendered the relevant Note on the last day of such period of 30 days; or

(3) if such tax is an estate, inheritance, gift, sales, transfer or personal property tax or any similar tax, assessment, levy, impost or charge; or

(4) if such tax, duty, assessment, levy, impost or charge is (a) payable other than by withholding or deduction from a payment on such Note, or (b) required to be withheld or deducted by a Paying Agent and such Holder of a Note would have been able to avoid such withholding or deduction by presenting the relevant Note to another Paying Agent; or

(5) if such tax, duty, assessment, levy, impost or charge would not have been imposed but for the failure of a Holder or beneficial owner of the Note to comply with applicable certification, information, documentation or other reporting requirements

concerning the nationality, residence, identity or connection with Luxembourg, Brazil or Peru of such Holder or beneficial owner if (i) such compliance is required as a precondition to relief or exemption from withholding or deduction of all or part of such tax, duty, assessment, levy, impost or charge and (ii) at least 30 days prior to the date on which the Issuer or a Guarantor, as the case may be, applies this clause (5), it will have notified such Holder or beneficial owner that it will be required to comply with such requirement;

(6) if such tax, duty, assessment, levy, impost or charge is payable pursuant to the Luxembourg law dated December 23, 2005, as amended, introducing a domestic withholding tax on interest income for Luxembourg resident individuals (*Relibi law*); or

(7) on account of a payment on such Note that is paid to a Holder that is a fiduciary or partnership or other than the sole beneficial owner of such payment to the extent a beneficiary or settlor with respect to such fiduciary or a member of such partnership or a beneficial owner would not have been entitled to the Additional Amounts had such beneficiary, settlor, member or beneficial owner been the Holder of such note; or

(8) in the case of any combination of items (1) through (7).

"Relevant Date" means whichever is the later of (a) the date on which the payment in question first becomes due and (b) if the full amount payable has not been received by the Paying Agent on or prior to such due date, the date on which (the full amount having been so received) notice to that effect has been given to the Holders.

Notwithstanding anything to the contrary above, none of the Issuer, a Guarantor, any Paying Agent or any other Person shall be required to pay any Additional Amounts with respect to any withholding or deduction imposed on or in respect of any Note pursuant to FATCA, any treaty, law, regulation or other official guidance enacted by any jurisdiction implementing FATCA, or any agreement between the Issuer and the United States or any authority thereof implementing FATCA.

The Issuer or the relevant Guarantor, as applicable, shall pay any present or future stamp, court or documentary taxes, or any other excise or property taxes, charges or similar levies which arise in any jurisdiction from the execution, delivery or registration of the Notes, this Indenture or any other document or instrument referred to therein, excluding any such taxes, charges or similar levies imposed by any jurisdiction outside of Luxembourg, Brazil or Peru, as applicable, except those resulting from, or required to be paid in connection with, (i) the execution in or bringing to such jurisdiction of the Notes or any document or instrument; (ii) the production before a court of such jurisdiction of the Notes or any document or instrument or (iii) the enforcement of the Notes or any other such document or instrument following the occurrence of any Event of Default with respect to the Notes.

References to principal, premium, if any, or interest in this Indenture or the Notes shall be deemed to include any Additional Amounts in respect of principal, premium, if any, or interest (as the case may be) which may be payable under the Notes.

If the Issuer or a Guarantor becomes subject at any time to any taxing jurisdiction other than Luxembourg, Brazil or Peru, references herein to Luxembourg, Brazil or Peru, as applicable, shall be construed to include such other jurisdiction.

The Trustee shall have no obligation to determine whether any Additional Amounts are owed or for the calculation thereof.

Section 11.10. Limitation on Liens.

The Issuer shall not, and shall not permit any of its Designated Subsidiaries to, Incur or suffer to exist any Lien on any of its Restricted Property to secure any Indebtedness of the Issuer or such Designated Subsidiary without making, or causing such Designated Subsidiary to make, effective provision for securing the Notes (x) equally and ratably with (or prior to) such Indebtedness as to such Restricted Property for so long as such Indebtedness will be so secured or (y) in the event such Indebtedness is Indebtedness of the Issuer or such Designated Subsidiary which is subordinate in right of payment to the Notes, prior to such Indebtedness as to any such Restricted Property for so long as such Indebtedness will be so secured.

The foregoing restrictions shall not apply to:

(1) any Lien on the inventory or receivables and related assets (other than those described in clause (3) below) securing obligations:

- (i) under any short term lines of credit, entered into in the normal course of business; or
- (ii) under any working capital facility;

(2) Liens created solely for the purpose of securing the payment of all or a part of the purchase price (or the cost of construction or improvement, and any related transaction fee and expenses) of assets or property (including Capital Stock of any Person) acquired, constructed or improved after the Issue Date; provided that (a) the aggregate principal amount of Indebtedness secured by such Liens shall not exceed the purchase price of the assets or property so acquired, constructed or improved, (b) such Liens shall not encumber any assets or property other than the assets or property so acquired, constructed or improved and other than any unimproved real property on which the property so constructed, or the improvement, is located and (c) such Lien shall attach to such assets or property within 365 days of the construction, acquisition or improvement of such assets or property; provided, further, that to the extent that the property or asset acquired is Capital Stock, and subject to the limitations in clause (c) above, the Lien also may encumber other property or assets of the Person so acquired, provided, further, that any Lien is permitted to be incurred on the Capital Stock of any Person securing any Indebtedness of that Person that is (a) non-recourse to the Issuer or the Designated Subsidiary, and (b) incurred solely for purposes of financing the acquisition, construction or improvement of any property or assets of such Person;

(3) Liens on accounts receivable and related assets in connection with any credit facility, including export or import financings and other trade transactions, or in

connection with any Securitization Transaction provided that the aggregate amount of any Receivables sold or transferred in such Securitization Transaction securing Indebtedness shall not exceed (a) with respect to transactions related to revenues from exports, 80% of such Person's consolidated net sales from exports; or (b) with respect to transactions related to revenues from domestic sales, 80% of such Person's consolidated net sales in the jurisdiction in which such Person is located;

(4) Liens granted to secure borrowings from (i) *Banco Nacional de Desenvolvimento Econômico e Social-BNDES*, or any other federal, regional or state governmental development bank or credit agency, or (ii) any international or multilateral development bank, government-sponsored agency, export-import bank or official export-import credit insurer;

(5) Liens existing on the Issue Date;

(6) Liens on property or shares of Capital Stock of another Person at the time such other Person becomes a Subsidiary; provided, however, that the Liens may not extend to any other property owned by such Person;

(7) Liens on property at the time such Person or any of its Subsidiaries acquires the property, including any acquisition by means of a merger or consolidation with or into such Person or a Subsidiary of such Person; provided, however, that the Liens may not extend to any other property owned by such Person;

(8) Liens securing Indebtedness or other obligations of a Subsidiary of such Person owing to such Person or a Subsidiary of such Person;

(9) Liens in favor of surety bonds or letters of credit issued pursuant to the request of, and for the account of, such Person in the ordinary course of its business;

(10) any Lien securing obligations owed under applicable Peruvian laws to the Peruvian Ministry of Energy and Mines or other governmental authorities incurred in the ordinary course of business, including but not limited to, mine closure plans;

(11) Liens securing obligations under hedging agreements not for speculative purposes;

(12) any Lien extending, renewing or replacing (or successive extensions, renewals or replacements of), in whole or in part, any Lien referred to in clauses (2), (4), (5), (6) or (7) above; provided that the principal amount of Indebtedness secured thereby shall not exceed the principal amount of Indebtedness so secured at the time of such extension, renewal or replacement except for any increase reflecting premiums, fees and expenses in connection with such extension, renewal or replacement, and that such extension, renewal or replacement shall be limited to all or a part of the property which secured the Lien so extended, renewed or replaced (plus improvements on such property); and

(13) Lien that do not fall within clauses (1) through (12) above and that secure Indebtedness which, exclusive of Indebtedness secured by other Liens permitted under this covenant, does not exceed an aggregate principal amount equal to 20% of Consolidated Total Assets.

For the avoidance of doubt, a Lien permitted by this Section 11.10 need not be permitted solely by reference to a single clause permitting such Lien, but may be permitted in part by such clause and in part by one or more other clauses of this covenant otherwise permitting such Lien.

Section 11.11. [Intentionally Omitted].

Section 11.12. Performance Obligations Under Other Documents.

The Issuer shall duly and punctually perform, comply with and observe all obligations and agreements to be performed by it set forth in the Transaction Documents.

Section 11.13. Compliance with Laws.

Each of the Issuer and the Guarantors shall comply, and shall cause their respective Subsidiaries to comply, at all times with all applicable laws, rules, regulations, orders and directives of any government or government agency or authority having jurisdiction over the Issuer or any Guarantors, any of their respective Subsidiaries or the business of any of them or any of the transactions contemplated herein, except where the failure to do so would not have a material adverse effect on the Issuer and its Subsidiaries taken as a whole or have a material adverse effect on the rights of the Holders.

Section 11.14. Maintenance of Government Approvals.

Each of the Issuer and the Guarantors shall, and shall cause their respective Subsidiaries to, duly obtain and maintain in full force and effect all governmental approvals, consents or licenses of any government or governmental agency or authority under the laws of Luxembourg, Brazil, Peru (including any Central Bank) or any other government or government agency having jurisdiction over the Issuer or necessary in all cases for the Guarantors and the Issuer to perform their respective obligations under the Transaction Documents or for the validity or enforceability thereof, except where the failure to do so would not have a material adverse effect on the Issuer and its Subsidiaries taken as a whole or have a material adverse effect on the rights of the Holders.

Section 11.15. [Intentionally Omitted].

Section 11.16. Maintenance of Books and Records.

Each of the Issuer and the Guarantors shall, and shall cause each of their respective Subsidiaries to, maintain books, accounts and records in all material respects in accordance with applicable GAAP, and in any case in the manner necessary to facilitate consolidation into the Guarantors' consolidated financial statements.

Section 11.17. Ranking.

The Issuer shall ensure that the Notes will constitute senior unsecured and unsubordinated obligations of the Issuer, and will rank at least equally to all other present and future senior unsecured and unsubordinated obligations of the Issuer (other than obligations preferred by statute or by operation of law). Each of the Guarantors shall ensure that its Guarantee will constitute senior unsecured and unsubordinated obligations of such Guarantor, and will rank at least equally to all other present and future senior unsecured and unsubordinated obligations of the Guarantors (other than obligations preferred by statute or by operation of law). No obligation will be considered to be senior to the Notes or the Guarantees by virtue of being secured on a first or junior priority basis.

ARTICLE XII

LEGAL DEFEASANCE AND COVENANT DEFEASANCE

Section 12.1. Option to Effect Defeasance or Covenant Defeasance.

The Issuer or a Guarantor may at its option, at any time elect to have either Section 12.2 or Section 12.3 applied to the Outstanding Notes upon compliance with the conditions set forth below in this Article XII.

Section 12.2. Defeasance and Discharge.

Upon the Issuer's or a Guarantor's exercise of the option provided in Section 12.1 applicable to this Section, the Issuer and a Guarantor shall be deemed to have been discharged from their obligations with respect to the Outstanding Notes on the date the conditions set forth below are satisfied (hereinafter, "defeasance"). For this purpose, such defeasance means that the Issuer and a Guarantor shall be deemed to have paid and discharged the entire indebtedness represented by the Outstanding Notes and to have satisfied all their other obligations under such Notes and this Indenture insofar as such Notes are concerned (and the Trustee, at the expense of the Issuer and a Guarantor, shall execute proper instruments acknowledging the same), except for the following which shall survive until otherwise terminated or discharged hereunder: (A) the rights of Holders of Outstanding Notes to receive, solely from the trust fund described in Section 12.4 and as more fully set forth in such Section, payments in respect of the principal of (and premium, if any) and interest (and Additional Amounts, if any) on such Notes when such payments are due, (B) the Issuer's and the Guarantors' obligations with respect to such Notes under Sections 3.3, 3.4, 3.5, 11.2 and 11.3, (C) the rights, powers, trusts, duties and immunities of the Trustee hereunder and (D) this Article XII. Subject to compliance with this Article XII, the Issuer and the Guarantors may exercise their option under this Section 12.2 notwithstanding the prior exercise of their option under Section 12.3.

Section 12.3. Covenant Defeasance.

Upon the Issuer or a Guarantor's exercise of the option provided in Section 12.1 applicable to this Section, (i) the Issuer and the Guarantors shall be released from their obligations under Sections Section 9.1 and 11.15 through 11.17, inclusive and the Guarantors shall be released from all of its obligations under the Guarantees and under Article XIII of this Indenture, and (ii) the occurrence of an event specified in Section 6.1(3) (with respect to Section 9.1 and Sections 11.15 through 11.17, inclusive) shall not be deemed to be or result in an Event of Default, on and after the date the conditions set forth below are satisfied (hereinafter, "covenant defeasance"). For this purpose, such covenant defeasance means that the Issuer and the Guarantors may omit to comply with and shall have no liability in respect of any term, condition or limitation set forth in any such Section or Article, whether directly or indirectly by reason of any reference elsewhere herein to any such Section or Article or by reason of any reference in any such Section or Article to any other provision herein or in any other document, but the remainder of this Indenture and such Notes shall be unaffected thereby.

Section 12.4. Conditions to Defeasance or Covenant Defeasance.

The following shall be the conditions to application of either Section 12.2 or Section 12.3 to the Outstanding Notes:

(1) the Issuer or a Guarantor shall irrevocably have deposited or caused to be deposited with the Trustee or its designee, in trust, for the benefit of the Holders (A) cash, (B) Cash Equivalents, (C) U.S. Government Obligations, or (D) a combination thereof, sufficient, in the written opinion of an internationally recognized firm of independent certified public accountants, investment bank or consulting firm to pay and discharge, the principal of, premium, if any, and each installment of interest (including Additional Amounts, if any) on the Notes on the Stated Maturity of such principal or installment of interest on the day on which such payments are due and payable in accordance with the terms of this Indenture and of such Notes. For this purpose, "U.S. Government Obligations" means securities that are (x) direct obligations of the United States for the payment of which its full faith and credit is pledged or (y) obligations of a Person controlled or supervised by and acting as an agency or instrumentality of the United States the payment of which is unconditionally guaranteed as a full faith and credit obligation by the United States, which, in either case, are not callable or redeemable at the option of the issuer thereof, and shall also include a depositary receipt issued by a bank (as defined in Section 3(a)(2) of the Securities Act) as custodian with respect to any such U.S. Government Obligation or a specific payment of principal of or interest on any such U.S. Government Obligation held by such custodian for the account of the Holder of such depositary receipt, provided that (except as required by law) such custodian is not authorized to make any deduction from the amount payable to the Holder of such depositary receipt from any amount received by the custodian in respect of the U.S. Government Obligation or the specific payment of principal of or interest on the U.S. Government Obligation evidenced by such depositary receipt;

(2) no Default or Event of Default shall have occurred and be continuing on the date of such deposit;

(3) the Issuer or a Guarantor shall have delivered to the Trustee an Officer's Certificate and an Opinion

of Counsel, each stating that all conditions precedent provided for relating to either the defeasance under Section 12.2 or the covenant defeasance under Section 12.3 (as the case may be) have been complied with;

(4) in the case of an election under Section 12.2, the Issuer or a Guarantor shall have delivered to the Trustee an Opinion of Counsel from counsel in the United States stating that (x) the Issuer or a Guarantor has received from, or there has been published by, the Internal Revenue Service a ruling, or (y) since the date of this Indenture there has been a change in the applicable United States Federal income tax law, in either case to the effect that, and based thereon such Opinion of Counsel shall confirm that, the beneficial owners of the Outstanding Notes will not recognize income, gain or loss for United States Federal income tax purposes as a result of such deposit, defeasance and discharge and will be subject to United States Federal income tax on the same amounts, in the same manner and at the same times as would have been the case if such deposit, defeasance and discharge had not occurred; and

(5) in the case of an election under Section 12.3, the Issuer or a Guarantor shall have delivered to the Trustee an Opinion of Counsel from counsel in the United States to the effect that the beneficial owners of the Outstanding Notes will not recognize income, gain or loss for United States Federal income tax purposes as a result of such deposit and covenant defeasance and will be subject to United States Federal income tax on the same amounts, in the same manner and at the same times as would have been the case if such covenant defeasance had not occurred.

Section 12.5. Deposited Money and U.S. Government Obligations to Be Held in Trust; Other Miscellaneous Provisions.

Subject to the provisions of the last paragraph of Section 11.3, all money and U.S. Government Obligations (including the proceeds thereof) deposited with the Trustee (or other qualifying trustee—collectively, for purposes of this Section 12.5, the “Defeasance Trustee”) pursuant to Section 12.4 in respect of the Notes shall be held in trust and applied by the Defeasance Trustee, in accordance with the provisions of such Notes and this Indenture, to the payment, either directly or through any Paying Agent (including the Issuer or a Guarantor acting as their own Paying Agent) as the Defeasance Trustee may determine, to the Holders of such Notes, of all sums due and to become due thereon in respect of principal (and premium, if any) and interest, but such money need not be segregated from other funds except to the extent required by law.

The Issuer and the Guarantors shall, jointly and severally, pay and indemnify the Defeasance Trustee against any tax, fee or other charge imposed on or assessed against the U.S. Government Obligations deposited pursuant to Section 12.4 or the principal and interest received in respect thereof other than any such tax, fee or other charge which by law is for the account of the Holders of the Outstanding Notes.

Anything in this Article to the contrary notwithstanding, the Defeasance Trustee shall deliver or pay to the Issuer from time to time upon Issuer Request any money or U.S. Government Obligations held by it as provided in Section 12.4 which, in the opinion of an internationally recognized accounting firm expressed in a written certification thereof delivered to the Defeasance Trustee, are in excess of the amount thereof which would then be required to be deposited to effect an equivalent defeasance or covenant defeasance.

Section 12.6.

Reinstatement.

If the Defeasance Trustee or the Paying Agent is unable to apply any money in accordance with Section 12.2 or 12.3 by reason of any order or judgment of any court or governmental authority enjoining, restraining or otherwise prohibiting such application, then the obligations of the Issuer and the Guarantors under this Indenture, the Guarantees and the Notes, if any, shall be revived and reinstated as though no deposit had occurred pursuant to this Article until such time as the Defeasance Trustee or Paying Agent is permitted to apply all such money in accordance with Section 12.2 or 12.3; provided, however, that if the Issuer or the Guarantors makes any payment of principal of (and premium, if any) any Note following the reinstatement of such obligations, the Issuer or the Guarantors shall be subrogated to the rights of the Holders of such Notes to receive such payment from the money held by the Defeasance Trustee or the Paying Agent.

Section 12.7. Repayment to Issuer or the Guarantors.

Any money deposited with the Defeasance Trustee or any Paying Agent, or then held by the Issuer or a Guarantor, in trust for the payment of the principal of, premium, if any, or interest on any Note and remaining unclaimed for two years after such principal, and premium, if any, or interest has become due and payable shall be paid to the Issuer or the Guarantors on its written request or (if then held by the Issuer or the Guarantors) shall be discharged from such trust; and the Holder of such security shall thereafter, as a creditor, look only to the Issuer or the Guarantors for payment thereof, and all liability of the Defeasance Trustee or such Paying Agent with respect to such trust money, and all liability of the Issuer or the Guarantor as trustee thereof, shall thereupon cease; provided, however, that the Defeasance Trustee or such Paying Agent, before being required to make any such repayment, shall at the expense of the Issuer and the Guarantors cause to be published once, in *The New York Times* and *The Wall Street Journal* (national edition), notice that such money remains unclaimed and that, after a date specified therein, which shall not be less than 30 days from the date of such notification or publication, any unclaimed balance of such money then remaining will be repaid to the Issuer or the Guarantors.

ARTICLE XIII

SUBSTITUTION OF THE ISSUER

Section 13.1. Substitution of the Issuer.

Notwithstanding any other provision contained in this Indenture,

(a) the Issuer may, without the consent of the Holders of the Notes (and by subscribing for any Notes, each Holder of the Notes expressly consents to it), be replaced and substituted by (i) any Wholly Owned Subsidiary of the Issuer or (ii) any Permitted Holding Company as principal debtor (in such capacity, the “Substituted Issuer”) in respect of the Notes provided that:

(1) such documents (together, the “Issuer Substitution Documents”) shall be executed by the Substituted Issuer, the Issuer and the Trustee as may be necessary to give

full effect to the substitution, including a supplemental indenture whereby (i) the Substituted Issuer assumes all of the Issuer's obligations under this Indenture and the Notes and (ii) the Issuer (the "Additional Guarantor") guarantees on an unsecured and unsubordinated basis the due and punctual payment of all amounts under this Indenture and with respect to the Notes (without limiting the generality of the foregoing) pursuant to which the Substituted Issuer shall undertake in favor of each Holder of the Notes to be bound by the terms and conditions of the Notes and the provisions of this Indenture as fully as if the Substituted Issuer had been named in the Notes and this Indenture as the principal debtor in respect of the Notes in place of the Issuer (or any previous substitute) and pursuant to which the Additional Guarantor will guarantee on an unsecured and unsubordinated basis the due and punctual payment of all amounts under this Indenture and with respect to the Notes (together, the "Substitution");

(2) if the Substituted Issuer is organized in a jurisdiction other than Luxembourg, the Issuer Substitution Documents shall contain a covenant by the Substituted Issuer and/or such other provisions as may be necessary to ensure that each Holder of the Notes has the benefit of a covenant in terms corresponding to the obligations of the Issuer in respect of the payment of Additional Amounts set forth in Section 11.9, and the Substituted Issuer will have a corresponding right of tax redemption set forth in Section 4.1, with the substitution in each case for the references to Luxembourg for references to the jurisdiction in which the Substituted Issuer is organized;

(3) if the Substituted Issuer is organized in a jurisdiction other than Luxembourg, the Issuer Substitution Documents shall contain a covenant by the Additional Guarantor and/or such other provisions as may be necessary to ensure that each Holder of the Notes has the benefit of a covenant in terms corresponding to the obligations of the Additional Guarantor as a guarantor of the Notes in respect of the payment of Additional Amounts set forth in Section 11.9 (but with references to Luxembourg as the jurisdiction of incorporation of the Additional Guarantor);

(4) if the Substituted Issuer is organized in a jurisdiction other than Luxembourg, the Issuer Substitution Documents shall also contain a covenant by the Substituted Issuer to indemnify each Holder and beneficial owner of the Notes, the Trustee and the Agents against all taxes or duties which arise by reason of a law or regulation in effect or contemplated on the effective date of the Substitution, which may be incurred or levied against such Holder or beneficial owner of the Notes or Trustee or Agent as a result of the Substitution and which would not have been so incurred or levied had the Substitution not been made, subject to similar exceptions set forth under clauses (1) through (7) of Section 11.9, *mutatis mutandis*; provided, that any Holder or beneficial owner of the Notes making a claim with respect to such tax indemnity shall provide the Issuer and the Substituted Issuer with notice of such claim, along with supporting documentation, within four weeks of the announcement of the Substitution of the Substituted Issuer as issuer; provided, further, that none of the Issuer (including the Substituted Issuer), the Guarantors (including the Additional Guarantor), any Paying Agent or any other Person shall be required to indemnify any Holder or beneficial owner of the Notes for any taxes imposed pursuant to FATCA, any treaty, law, regulation or

other official guidance enacted by any jurisdiction implementing FATCA, or any agreement between the Issuer or the Substituted Issuer and the United States or any authority thereof implementing FATCA;

(5) the Substituted Issuer shall have delivered, or procured the delivery to the Trustee of, an Opinion of Counsel addressed to the Substituted Issuer from a leading firm of lawyers in the country of incorporation of the Substituted Issuer, to the effect that the Issuer Substitution Documents constitute legal, valid and binding obligations of the Substituted Issuer and the Additional Guarantor;

(6) the Issuer shall have delivered, or procured the delivery to the Trustee of, an Opinion of Counsel addressed to the Issuer and the Substituted Issuer from a leading firm of New York lawyers to the effect that the Issuer Substitution Documents constitute legal, valid and binding obligations of the Substituted Issuer and the Additional Guarantor under New York law;

(7) the Issuer and the Substituted Issuer shall have appointed a process agent in the Borough of Manhattan, the City of New York to receive service of process on its behalf in relation to any legal action or proceedings arising out of or in connection with the Issuer Substitution Documents;

(8) there is no continuing Event of Default in respect of the Notes.

(b) Upon effectiveness of the substitution, the Substituted Issuer and the Issuer shall deliver to the Trustee an Officer's Certificate, executed by an Authorized Officer, certifying that the terms of this section have been complied with and attaching copies of all documents contemplated herein.

(c) Upon the execution of the Issuer Substitution Documents as referred to in paragraph (a)(1) above and compliance with the other conditions in paragraph (a), (1) the Substituted Issuer shall be deemed to be named in the Notes as the principal debtor in place of the Issuer (or of any previous substitute under these provisions), (2) the Additional Guarantor shall be deemed to be named as a guarantor of the Notes and (3) the Notes shall thereupon be deemed to be amended to give effect to the transactions referred to in (1) and (2). Except as set forth above, the execution of the Issuer Substitution Documents shall operate to release the Issuer (or such previous substitute as aforesaid) from all its obligations as issuer of the Notes.

(d) Not later than 10 Business Days after the execution of the Issuer Substitution Documents, the Substituted Issuer shall give notice thereof to the Holders of the Notes in accordance with the provisions described under Section 1.6.

ARTICLE XIV

GUARANTEES

Section 14.1. Guarantees.

Nexa CJM and Nexa Brazil hereby, jointly, severally, fully, absolutely and unconditionally guarantee on an unsecured basis to each Holder of a Note authenticated and delivered by the Trustee, and to the Trustee on behalf of such Holder, and for itself and the Paying Agents, the due and punctual payment of the principal of (and premium, if any) and interest (including any Additional Amounts) on such Note and all other obligations of the Issuer under this Indenture, when and as the same shall become due and payable, whether at the Stated Maturity or by acceleration, redemption, purchase or otherwise, in accordance with the terms of such Note and of this Indenture. In case of the failure of the Issuer punctually to make any such payment, each of the Guarantors hereby agrees to cause such payment to be made punctually when and as the same shall become due and payable, whether at the Stated Maturity or by acceleration, call for redemption, purchase or otherwise, and as if such payment were made by the Issuer.

The Guarantees constitute unconditional and unsubordinated obligations of each of the Guarantors that will at all times rank at least equally with all other present and future unsecured senior obligations of each such Guarantor, except for any obligations that may be preferred by provisions of law that are both mandatory and of general application.

Each of the Guarantors hereby agrees that its obligations hereunder shall be unconditional, irrespective of the validity, regularity or enforceability of any Note or this Indenture, the absence of any action to enforce the same, any release or amendment or waiver of any term of any other guarantee of, or any consent to depart from any requirement of any other guarantee, of all or any of the Notes, any waiver or consent by the Holder of any Note or by the Trustee with respect to any provisions thereof or of this Indenture, the obtaining of any judgment against the Issuer or any action to enforce the same or any other circumstances which might otherwise constitute a legal or equitable discharge or defense of a guarantor. Each of the Guarantors hereby waives notice of the acceptance of its Guarantee and of any of the obligations under this Indenture or the Notes (the “Obligations”) or of the accrual thereof, and further waives presentment, protest, notice or demand. This is a continuing guarantee and is a guarantee of payment and not of collection, and each of the Guarantors waives any right to require the Holders to initiate collection proceeds or otherwise enforce payment of the Obligations or any security or other guarantee therefor before obtaining payment hereunder.

The Guarantees shall continue to be in effect or be reinstated, as the case may be, if at any time (i) any payment in respect of any of the Obligations is rescinded or must otherwise be returned by the Holders, whether by reason of the insolvency, bankruptcy, receivership, reorganization or liquidation of the Issuer or any Guarantor or any other obligor or otherwise, all as though such payment had not been made or (ii) a Substituted Issuer, as defined in Section 13.1, assumes the Issuer’s obligations under the Notes pursuant to Article XIII hereof.

Each of the Guarantors hereby waives the benefits of diligence, presentment, demand of payment, any requirement that the Trustee or any of the Holders protect, secure, perfect or insure any security interest in or other Lien on any property subject thereto or exhaust any right or take any action against the Issuer or any other Person or any collateral, filing of claims with a court in the event of insolvency or bankruptcy of the Issuer, any right to require a proceeding first against the Issuer, protest or notice with respect to any Note or the indebtedness evidenced thereby and all demands whatsoever, and covenants, that these Guarantees will be discharged in respect of

any Note except by complete performance of the obligations contained in such Note and in the Guarantees. Each of the Guarantors hereby agrees that, in the event of a default in payment of principal (or premium, if any) or interest on any Note, whether at its Stated Maturity or by acceleration, redemption, purchase or otherwise, legal proceedings may be instituted by the Trustee on behalf of, or by, the Holder of such Note, subject to the terms and conditions set forth in this indenture, directly against any or all of the Guarantors to enforce the Guarantees without first proceeding against the Issuer. Each of the Guarantors agrees that if, after the occurrence and during the continuance of an Event of Default, the Trustee or any of the Holders are prevented by applicable law from exercising their respective rights to accelerate the maturity of the Notes, to collect interest on the Notes or to enforce or exercise any other right or remedy with respect to the Notes, or the Trustee or the Holders are prevented from taking any action to realize on any collateral, each of the Guarantors agrees to pay to the Trustee for the account of the Holders, upon demand therefor, the amount that would otherwise have been due and payable had such rights and remedies been permitted to be exercised by the Trustee or any of the Holders.

No provision of the Guarantees, Notes or of this Indenture shall alter or impair the Guarantees of the Guarantors, of which the Guarantees are absolute and unconditional, of the due and punctual payment of the principal (and premium, if any) and interest (and Additional Amounts, if any) on the Note and the obligation under this Indenture upon which each Guarantee is endorsed.

Each of the Guarantors shall be subrogated to all rights of the Holders of the Notes upon which its Guarantee is endorsed against the Issuer in respect of any amounts paid by each of the Guarantors on account of such Note pursuant to the provisions of the Guarantees or this Indenture; provided, however, that none of the Guarantors shall be entitled to enforce or to receive any payments arising out of, or based upon, such right of subrogation until the principal of (and premium, if any) and interest (and Additional Amounts, if any) on all Notes issued hereunder shall have been paid in full.

The Guarantees shall remain in full force and effect and continue to be effective should any petition be filed by or against the Issuer for liquidation or reorganization, should the Issuer become insolvent or make an assignment for the benefit of creditors or should a receiver or trustee be appointed for all or any significant part of the Issuer's assets, and shall, to the fullest extent permitted by law, continue to be effective or be reinstated, as the case may be, if at any time payment and performance of the obligations under the Notes is, pursuant to applicable law, rescinded or reduced in amount, or must otherwise be restored or returned by any obligee on the Notes, whether as a "voidable preference," "fraudulent transfer" or otherwise, all as though such payment or performance had not been made. In the event that any payment, or any part thereof, is rescinded, reduced, restored or returned, the Notes shall, to the fullest extent permitted by law, be reinstated and deemed reduced only by such amount paid and not so rescinded, reduced, restored or returned.

Each of the Guarantors, as applicable, hereby irrevocably waives all benefits set forth in the following provisions of the Brazilian law: articles 333, sole paragraph, 366, 368, 827, 829, sole paragraph, 830, 834, 835, 837 and 838 of the Brazilian Civil Code and articles 130 and 794 of the Brazilian Civil Procedure Code.

No stockholder, officer, director, employer or incorporator, past, present or future, of any Guarantor, as such, shall have any personal liability under the Guarantee by reason of his, her or its status as such stockholder, officer, director, employer or incorporator.

Section 14.2. Delivery of the Guarantee.

The delivery of any Note by the Trustee, after the authentication thereof hereunder, shall constitute due delivery of the Guarantees set forth herein on behalf of the Guarantors.

Section 14.3. Release of Guarantor.

(a) Concurrently with any consolidation or merger of any of the Guarantors or any sale or conveyance of the property of any of the Guarantors as an entirety or substantially as an entirety, in each case as permitted by Section 9.1(a) hereof, and upon delivery by such Guarantor to the Trustee of an Officer's Certificate and an Opinion of Counsel to the effect that such consolidation, merger, sale or conveyance was made in accordance with Section 9.1(a) hereof, the Trustee shall execute any documents reasonably required in order to evidence the release of such Guarantor from its obligations under its Guarantee endorsed on the Notes and under this Article XIV.

(b) Concurrently with the defeasance of the Notes under Section 12.2 hereof or the covenant defeasance of the Notes under Section 12.3 hereof, each of the Guarantors shall be released from all of its obligations under its Guarantee endorsed on the Notes and under this Article XIV.

ARTICLE XV

MEETINGS OF HOLDERS OF SECURITIES

Section 15.1. Purposes for Which Meetings May Be Called.

A meeting of Holders of Notes may be called at any time and from time to time pursuant to this Article to consider any matter affecting their interests, including, if proposed by the Issuer, the modification of the terms and conditions of the Notes; provided that any modification postponing the date for payment of any interest, reducing or canceling any amount of principal or the rate of interest payable or altering the currency of payment in respect of the Notes will only be binding if passed at a meeting of Holders at which a special quorum (as set forth in Section 15.4) is present.

Section 15.2. Call, Notice and Place of Meetings.

(1) The Trustee may at any time call a meeting of Holders of Notes of any series for any purpose specified in Section 15.1, to be held at such time and at such place in the Borough of Manhattan, The City of New York as the Trustee shall determine. Notice of every meeting of Holders of Notes, setting forth the time and the place of such meeting and in general terms the action proposed to be taken at such meeting, shall be given, in the manner provided in Section 1.6, not less than 21 nor more than 180 days prior to the date fixed for the meeting.

(2) In case at any time the Issuer, pursuant to a Board Resolution, or the Holders of at least 10% in principal amount of the Outstanding Notes shall have requested the Trustee to call a meeting of the Holders of Notes for any purpose specified in Section 15.1, by written request setting forth in reasonable detail the action proposed to be taken at the meeting, and the Trustee shall not have made the first publication of the notice of such meeting within 21 days after receipt of such request or shall not thereafter proceed to cause the meeting to be held as provided herein, then the Issuer or the Holders of Notes in the amount specified above, as the case may be, may determine the time and the place in the Borough of Manhattan, The City of New York for such meeting and may call such meeting for such purposes by giving notice thereof as provided in subsection (1) of this Section.

Section 15.3. Persons Entitled to Vote at Meetings.

To be entitled to vote at any meeting of Holders of Notes, a Person shall be (i) a Holder on a Record Date established pursuant to Section 15.5 of one or more Outstanding Notes, or (ii) a Person appointed by an instrument in writing as proxy for a Holder or Holders of one or more Outstanding Notes by such Holder or Holders. The only Persons who shall be permitted to be present or to speak at any meeting of Holders of Notes of any series shall be the Persons entitled to vote at such meeting and their counsel, any representatives of the Trustee and its counsel and any representatives of the Issuer and its counsel.

Section 15.4. Quorum; Action.

The Persons entitled to vote a majority in principal amount of the Outstanding Notes shall constitute a “quorum” for a meeting of Holders of Notes, however, any modification postponing the date for payment of any interest, reducing or canceling any amount of principal or the rate of interest payable or altering the currency of payment in respect of the Notes will only be binding if passed at a meeting of Holders of at least 66 $\frac{2}{3}$ % of the Notes (a “special quorum”). In the absence of a quorum or a special quorum, as the case may be, within 15 minutes (or such longer period not exceeding 30 minutes as the chairman may decide) of the time appointed for any such meeting, the meeting shall if convened upon the requisition of Holders be dissolved. In any other case it shall stand adjourned to the same day in the next week (or if such day is not a Business Day the next succeeding Business Day) at the same time and place. If within 15 minutes (or such longer period not exceeding 30 minutes as the chairman may decide) after the time appointed for any adjourned meeting a quorum or a special quorum, as the case may be, is not present for the transaction of any particular business, then, subject and without prejudice to the transaction of the business (if any) for which a quorum or a special quorum, as the case may be, is present, the chairman may either (with the approval of the Trustee) dissolve such meeting or adjourn the same for such period, being not less than ten calendar days (but without any maximum number of calendar days), and to such place as may be appointed by the chairman either at or subsequent to such adjourned meeting and approved by the Trustee, and the provisions of this sentence shall apply to all further adjourned such meetings.

Notice of the reconvening of any adjourned meeting shall be given as provided in Section 15.2(1), except that such notice need be given only once not less than five days prior to the date on which the meeting is scheduled to be reconvened. Notice of a reconvening of an adjourned

meeting shall state expressly the percentage, as provided above, of the principal amount of the Outstanding Notes of such series which shall constitute a quorum.

Any resolution passed or decision taken at any meeting of Holders of Notes of any series duly held in accordance with this Section shall be binding on all the Holders of Notes of such series, whether or not presented or represented at the meeting. However, for the avoidance of doubt, no actions taken at such meeting shall be binding on all Holders of Notes unless such actions were approved by the minimum percentage in principal amount of the Outstanding Notes of the series as required elsewhere in this Indenture with respect to such actions.

Section 15.5. Determination of Voting Rights; Conduct and Adjournment of Meetings.

(a) Notwithstanding any other provisions of this Indenture, the Trustee may make such reasonable regulations as it may deem advisable for any meeting of Holders of Notes of a series in regard to proof of the holding of Notes of such series and the appointment of proxies and in regard to the appointment and duties of inspectors of votes, the submission and examination of proxies, certificates and other evidence of the right to vote, and such other matters concerning the conduct of the meeting as it shall deem appropriate. Except as otherwise permitted or required by any such regulations, the holding of Notes shall be proved in the manner specified in Section 1.4 and the appointment of any proxy shall be proved in the manner specified in Section 1.4. Such regulations may provide that written instruments appointing proxies, regular on their face, may be presumed valid and genuine without the proof specified in Section 1.4 or other proof.

(b) The Trustee shall, by an instrument in writing, appoint a temporary chairman of the meeting, unless the meeting shall have been called by the Issuer or by Holders of Notes as provided in Section 15.2(2), in which case the Issuer or the Holders of Notes of the series calling the meeting, as the case may be, shall in like manner appoint a temporary chairman. A permanent chairman and a permanent secretary of the meeting shall be elected by vote of the Persons entitled to vote a majority in principal amount of the Outstanding Notes of such series represented at the meeting.

(c) At any meeting each Holder of a Note of such series or proxy shall be entitled to one vote for each \$1,000 principal amount of the Outstanding Notes of such series held or represented by him or her; provided, however, that no vote shall be cast or counted at any meeting in respect of any Note challenged as not Outstanding and ruled by the chairman of the meeting to be not Outstanding. The chairman of the meeting shall have no right to vote, except as a Holder of a Note of such series or proxy.

(d) Any meeting of Holders of Notes of any series duly called pursuant to Section 15.2 at which a quorum is present may be adjourned from time to time by Persons entitled to vote a majority in principal amount of the Outstanding Notes of such series represented at the meeting, and the meeting may be held as so adjourned without further notice.

Section 15.6. Counting Votes and Recording Action of Meetings.

The vote upon any resolution submitted to any meeting of Holders of Notes of any series shall be by written ballots on which shall be subscribed the signatures of the Holders of Notes of

such series or of their representatives by proxy and the principal amounts and serial numbers of the Outstanding Notes of such series held or represented by them. The permanent chairman of the meeting shall appoint two inspectors of votes who shall count all votes cast at the meeting for or against any resolution and who shall make and file with the secretary of the meeting their verified written reports in duplicate of all votes cast at the meeting. A record, at least in duplicate, of the proceedings of each meeting of Holders of Notes of any series shall be prepared by the secretary of the meeting and there shall be attached to said record the original reports of the inspectors of votes on any vote by ballot taken thereat and affidavits by one or more persons having knowledge of the facts setting forth a copy of the notice of the meeting and showing that said notice was given as provided in Section 15.2 and, if applicable, Section 15.5. Each copy shall be signed and verified by the affidavits of the permanent chairman and secretary of the meeting and one such copy shall be delivered to the Issuer, and another to the Trustee to be preserved by the Trustee, the latter to have attached thereto the ballots voted at the meeting. Any record so signed and verified shall be conclusive evidence of the matters therein stated.

IN WITNESS WHEREOF, the parties hereto have caused this Indenture to be duly executed as of the day and year first above written.

NEXA RESOURCES S.A.

By: _____
Name:
Title:

By: _____
Name:
Title:

IN WITNESS WHEREOF, the parties hereto have caused this Indenture to be duly executed as of the day and year first above written.

NEXA RESOURCES CAJAMARQUILLA S.A.

By: _____
Name:
Title:

By: _____
Name:
Title:

IN WITNESS WHEREOF, the parties hereto have caused this Indenture to be duly executed as of the day and year first above written.

NEXA RECURSOS MINERAIS S.A.

By: _____
Name:
Title:

By: _____
Name:
Title:

Witnesses:

By: _____
Name:

By: _____
Name:

THE BANK OF NEW YORK MELLON,
as Trustee, Principal Paying Agent, Transfer Agent and Registrar

By: _____
Name:
Title:

**FORM OF CERTIFICATION FOR TRANSFER OR EXCHANGE OF
RESTRICTED GLOBAL NOTE TO REGULATION S GLOBAL
NOTE**

*(Exchanges or transfers pursuant to
Section 3.4(c)(2) of the Indenture)*

The Bank of New York Mellon
240 Greenwich Street
New York, New York 10286
United States
Attention: Global Corporate Trust

**Re: Nexa Resources S.A.
6.600% Senior Unsecured Notes due 2037 (the “Notes”)**

Reference is hereby made to the Indenture, dated as of April 8, 2025 (the “Indenture”), among Nexa Resources S.A., as Issuer, Nexa Resources Cajamarquilla S.A. and Nexa Recursos Minerais S.A., as Guarantors, and The Bank of New York Mellon, a New York banking corporation, as trustee (the “Trustee”), as principal paying agent (the “Principal Paying Agent”), as transfer agent (the “Transfer Agent”) and registrar (the “Security Registrar”). Capitalized terms used but not defined herein shall have the meanings given to them in the Indenture.

This letter relates to U.S.\$[] aggregate principal amount of Notes which are held in the form of the Restricted Global Note (CUSIP No. 65290D AC7 / ISIN No. US65290DAC74) with the Depositary in the name of [*insert name of transferor*] (the “Transferor”). The Transferor has requested a transfer of such beneficial interest in the Notes to a Person who will take delivery thereof in the form of an equal aggregate principal amount of Notes evidenced by the Regulation S Global Note (CUSIP No. L67359 AC0 / ISIN No. USL67359AC04).

In connection with such request, and in respect of such Notes, the Transferor does hereby certify that such transfer has been effected in accordance with the transfer restrictions set forth in the Notes and that:

- (A) The offer of the Notes was not made to a person in the United States; and
 - (B) either:
 - (i) at the time the buy order was originated, the transferee was outside the United States or the Transferor and any person acting on its behalf reasonably believed that the transferee was outside the United States; or
 - (ii) the transaction was executed in, on or through the facilities of a designated offshore securities market and neither the Transferor nor any person acting on our behalf knows that the transaction was pre-arranged with a buyer in the United States;
-

(C) no directed selling efforts have been made in contravention of the requirements of Rule 903(a)(2) or 904(a)(2) of Regulation S, as applicable; and

(D) the transaction is not part of a plan or scheme to evade the registration requirements of the Securities Act.

We understand that this certificate is required in connection with certain securities laws of the United States. In connection therewith, if administrative or legal proceedings are commenced or threatened in connection with which this certificate is or would be relevant, we irrevocably authorize you to produce this certificate to any interested party in such proceeding. This certificate and the statements contained herein are made for your benefit and the benefit of the Issuer and the Guarantors.

[INSERT NAME OF TRANSFEROR]

By: _____
Name:
Title:

Dated:

cc: Nexa Resources S.A.

**FORM OF CERTIFICATION FOR TRANSFER OR EXCHANGE OF
REGULATION S GLOBAL NOTE TO RESTRICTED GLOBAL
NOTE**

*(Exchanges or transfers pursuant to
Section 3,4(c)(3) of the Indenture)*

The Bank of New York Mellon
240 Greenwich Street
New York, New York 10286
United States
Attention: Global Corporate Trust

**Re: Nexa Resources S.A.
6.600% Senior Unsecured Notes due 2037 (the “Notes”)**

Reference is hereby made to the Indenture, dated as of April 8, 2025 (the “Indenture”), among Nexa Resources S.A., as Issuer, Nexa Resources Cajamarquilla S.A. and Nexa Recursos Minerais S.A., as Guarantors, and The Bank of New York Mellon, a New York banking corporation, as trustee (the “Trustee”), as principal paying agent (the “Principal Paying Agent”), as transfer agent (the “Transfer Agent”) and registrar (the “Security Registrar”). Capitalized terms used but not defined herein shall have the meanings given to them in the Indenture.

This letter relates to U.S.\$[] principal amount of Notes which are evidenced by an aggregate Regulation S Global Note (CUSIP No. L67359 AC0 / ISIN No. USL67359AC04) and held with the Depositary through [Euroclear] [Clearstream] in the name of [*insert name of transferor*] (the “Transferor”). The Transferor has requested a transfer of such beneficial interest in Notes to a person that will take delivery thereof in the form of an equal principal amount of Notes evidenced by a Restricted Global Note of the same series and of like tenor as the Notes (CUSIP No. 65290D AC7 / ISIN No. US65290DAC74).

In connection with such request and in respect of such Notes, the Transferor does hereby certify that such transfer is being effected pursuant to and in accordance with Rule 144A under the Securities Act and, accordingly, the Transferor does hereby further certify that the Notes are being transferred to a Person that the Transferor reasonably believes is purchasing the Notes for its own account, or for one or more accounts with respect to which such person exercises sole investment discretion, and such person and each such account is a “qualified institutional buyer” within the meaning of Rule 144A, in each case in a transaction meeting the requirements of Rule 144A and in accordance with any applicable securities laws of any state of the United States.

This certificate and the statements contained herein are made for your benefit and the benefit of the Issuer and the Guarantors.

[INSERT NAME OF TRANSFEROR]

By: _____
Name:
Title:

Dated:

cc: Nexa Resources S.A.

**FORM OF CERTIFICATION FOR TRANSFER
OR EXCHANGE OF NON-GLOBAL RESTRICTED NOTE TO
RESTRICTED GLOBAL NOTE**
*(Transfers and exchanges pursuant to
Section 3.4(c)(4) of the Indenture)*

The Bank of New York Mellon
240 Greenwich Street
New York, New York 10286
United States
Attention: Global Corporate Trust

**Re: Nexa Resources S.A.
6.600% Senior Unsecured Notes due 2037 (the “Notes”)**

Reference is hereby made to the Indenture, dated as of April 8, 2025 (the “Indenture”), among Nexa Resources S.A., as Issuer, Nexa Resources Cajamarquilla S.A. and Nexa Recursos Minerais S.A., as Guarantors, and The Bank of New York Mellon, a New York banking corporation, as trustee (the “Trustee”), as principal paying agent (the “Principal Paying Agent”), as transfer agent (the “Transfer Agent”) and registrar (the “Security Registrar”). Capitalized terms used but not defined herein shall have the meanings given to them in the Indenture.

This letter relates to U.S.\$[] principal amount of Restricted Notes held in definitive form (CUSIP No. 65290D AC7 / ISIN No. US65290DAC74) by [*insert name of transferor*] (the “Transferor”). The Transferor has requested an exchange or transfer of such Notes.

In connection with such request and in respect of such Notes, the Transferor does hereby certify that (i) such Notes are owned by the Transferor and are being exchanged without transfer or (ii) such transfer has been effected pursuant to and in accordance with Rule 144A or Rule 144 under the United States Securities Act of 1933, as amended (the “Securities Act”) and accordingly the Transferor does hereby further certify that:

- (A) the Notes are being transferred to a person that the Transferor reasonably believes is purchasing the Notes for its own account, or for one or more accounts with respect to which such Person exercises sole investment discretion;
- (B) such Person and each such account is a “qualified institutional buyer” within the meaning of Rule 144A; and
- (C) the Notes have been transferred in a transaction meeting the requirements of Rule 144A and in accordance with any applicable securities laws of any state of the United States.

We understand that this certificate is required in connection with certain securities laws of the United States. In connection therewith, if administrative or legal proceedings are commenced or

threatened in connection with which this certificate is or would be relevant, we irrevocably authorize you to produce this certificate to any interested party in such proceeding. This certificate and the statements contained herein are made for your benefit and the benefit of the Issuer and the Guarantors.

[INSERT NAME OF TRANSFEROR]

By: _____
Name:
Title:

Dated:

cc: Nexa Resources S.A.

**FORM OF CERTIFICATION FOR TRANSFER
OR EXCHANGE OF NON-GLOBAL RESTRICTED NOTE TO
REGULATION S GLOBAL NOTE**
*(Transfers and exchanges pursuant to
Section 3.4(c)(4) of the Indenture)*

The Bank of New York Mellon
240 Greenwich Street
New York, New York 10286
United States
Attention: Global Corporate Trust

**Re: Nexa Resources S.A.
6.600% Senior Unsecured Notes due 2037 (the “Notes”)**

Reference is hereby made to the Indenture, dated as of April 8, 2025 (the “Indenture”), among Nexa Resources S.A., as Issuer, Nexa Resources Cajamarquilla S.A. and Nexa Recursos Minerais S.A., as Guarantors, and The Bank of New York Mellon, a New York banking corporation, as trustee (the “Trustee”), as principal paying agent (the “Principal Paying Agent”), as transfer agent (the “Transfer Agent”) and registrar (the “Security Registrar”). Capitalized terms used but not defined herein shall have the meanings given to them in the Indenture.

This Letter relates to U.S.\$[] principal amount of Restricted Notes held in definitive form (CUSIP No. 65290D AC7 / ISIN No. US65290DAC74) by [*insert name of transferor*] (the “Transferor”). The Transferor has requested an exchange or transfer of such Notes.

In connection with such request and in respect of such Notes, the Transferor does hereby certify that (i) such Notes are owned by the Transferor and are being exchanged without transfer or (ii) such transfer has been effected pursuant to and in accordance with (a) Rule 903 or Rule 904 under the Securities Act of 1933, as amended (the “Act”), or (b) Rule 144 under the Act, and accordingly the Transferor does hereby further certify that:

- (A) the offer of the Notes was not made to a person in the United States; (B) either:
 - (i) at the time the buy order was originated, the transferee was outside the United States or the Transferor and any person acting on its behalf reasonably believed that the transferee was outside the United States, or
 - (ii) the transaction was executed in, on or through the facilities of a designated offshore securities market and neither the Transferor nor any person acting on its behalf knows that the transaction was pre-arranged with a buyer in the United States;
 - (C) no directed selling efforts have been made in contravention of the requirements of Rule 903(a)(2) or 904(b)(2)) of Regulation S, as applicable; and
-

(D) the transaction is not part of a plan or scheme to evade the registration requirements of the Act.

We understand that this certificate is required in connection with certain securities laws of the United States. In connection therewith, if administrative or legal proceedings are commenced or threatened in connection with which this certificate is or would be relevant, we irrevocably authorize you to produce this certificate to any interested party in such proceeding. This certificate and the statements contained herein are made for your benefit and the benefit of the Issuer and the Guarantors.

[INSERT NAME OF TRANSFEROR]

By: _____
Name:
Title:

Dated:

cc: Nexa Resources S.A.

**FORM OF CERTIFICATION FOR TRANSFER
OR EXCHANGE OF NON-GLOBAL REGULATION S
NOTE TO RESTRICTED GLOBAL NOTE**
*(Transfers and exchanges pursuant to
Section 3.4(c)(5) of the Indenture)*

The Bank of New York Mellon
240 Greenwich Street
New York, New York 10286
United States
Attention: Global Corporate Trust

**Re: Nexa Resources S.A.
6.600% Senior Unsecured Notes due 2037 (the “Notes”)**

Reference is hereby made to the Indenture, dated as of April 8, 2025 (the “Indenture”), among Nexa Resources S.A., as Issuer, Nexa Resources Cajamarquilla S.A. and Nexa Recursos Minerais S.A., as Guarantors, and The Bank of New York Mellon, a New York banking corporation, as trustee (the “Trustee”), as principal paying agent (the “Principal Paying Agent”), as transfer agent (the “Transfer Agent”) and registrar (the “Security Registrar”). Capitalized terms used but not defined herein shall have the meanings given to them in the Indenture.

This letter relates to U.S.\$[] principal amount of Regulation S Global Notes held in definitive form (CUSIP No. L67359 AC0 / ISIN No. USL67359AC04) by [insert name of transferor] (the “Transferor”). The Transferor has requested an exchange or transfer of such Notes.

In connection with such request and in respect of such Notes, the Transferor does hereby certify that (i) such Notes are owned by the Transferor and are being exchanged without transfer or (ii) such transfer has been effected pursuant to and in accordance with Rule 144A under the United States Securities Act of 1933, as amended, and accordingly the Transferor does hereby further certify that the Notes are being transferred to a person that the Transferor reasonably believes is purchasing the Notes for its own account, or for one or more accounts with respect to which such Person exercises sole investment discretion, and such Person and each such account is a “qualified institutional buyer” within the meaning of Rule 144A, in each case in a transaction meeting the requirements of Rule 144A and in accordance with any applicable securities laws of any state of the United States.

We understand that this certificate is required in connection with certain securities laws of the United States. In connection therewith, if administrative or legal proceedings are commenced or threatened in connection with which this certificate is or would be relevant, we irrevocably authorize you to produce this certificate to any interested party in such proceeding. This certificate and the statements contained herein are made for your benefit and the benefit of the Issuer and the Guarantors.

[INSERT NAME OF TRANSFEROR]

By: _____
Name:
Title:

Dated:

cc: Nexa Resources S.A.

**FORM OF CERTIFICATION FOR TRANSFER
OR EXCHANGE OF NON-GLOBAL REGULATION S
NOTE TO REGULATION S GLOBAL NOTE**
*(Transfers and exchanges pursuant to
Section 3.4(c)(5) of the Indenture)*

The Bank of New York Mellon
240 Greenwich Street
New York, New York 10286
United States
Attention: Global Corporate Trust

**Re: Nexa Resources S.A.
6.600% Senior Unsecured Notes due 2037 (the “Notes”)**

Reference is hereby made to the Indenture, dated as of April 8, 2025 (the “Indenture”), among Nexa Resources S.A., as Issuer, Nexa Resources Cajamarquilla S.A. and Nexa Recursos Minerais S.A., as Guarantors, and The Bank of New York Mellon, a New York banking corporation, as trustee (the “Trustee”), as principal paying agent (the “Principal Paying Agent”), as transfer agent (the “Transfer Agent”) and registrar (the “Security Registrar”). Capitalized terms used but not defined herein shall have the meanings given to them in the Indenture.

This letter relates to U.S.\$[] principal amount of Regulation S Global Notes held in definitive form (CUSIP No. L67359 AC0 / ISIN No. USL67359AC04) by [insert name of transferor] (the “Transferor”). The Transferor has requested an exchange or transfer of such Notes.

In connection with such request and in respect of such Notes, the Transferor does hereby certify that (i) such Notes are owned by the Transferor and are being exchanged without transfer or (ii) such transfer has been effected pursuant to and in accordance with (a) Rule 903 or Rule 904 under the Securities Act of 1933, as amended (the “Act”), or (b) Rule 144 under the Act, and accordingly the Transferor does hereby further certify that:

- (A) the offer of the Notes was not made to a person in the United States; (B) either:
 - (i) at the time the buy order was originated, the transferee was outside the United States or the Transferor and any person acting on its behalf reasonably believed that the transferee was outside the United States, or
 - (ii) the transaction was executed in, on or through the facilities of a designated offshore securities market and neither the Transferor nor any person acting on its behalf knows that the transaction was pre-arranged with a buyer in the United States;
 - (C) no directed selling efforts have been made in contravention of the requirements of Rule 903(a)(2) or 904(b)(2) of Regulation S, as applicable; and
-

(D) the transaction is not pan of a plan or scheme to evade the registration requirements of the Act.

We understand that this certificate is required in connection with certain securities laws of the United States. In connection therewith, if administrative or legal proceedings are commenced or threatened in connection with which this certificate is or would be relevant, we irrevocably authorize you to produce this certificate to any interested party in such proceeding. This certificate and the statements contained herein are made for your benefit and the benefit of the Issuer and the Guarantors.

[INSERT NAME OF TRANSFEROR]

By: _____
Name:
Title:

Dated:

cc: Nexa Resources S.A.

DESCRIPTION OF THE REGISTRANT’S SECURITIES REGISTERED PURSUANT TO SECTION 12 OF THE SECURITIES EXCHANGE ACT OF 1934

As of December 31, 2025, Nexa Resources S.A. (“Nexa Resources,” “we,” “us,” and “our”) had one class of securities registered under Section 12 of the Securities Exchange Act of 1934, as amended: our common shares.

Description of Common Shares

The following description of our common shares is a summary and does not purport to be complete. It is subject to and qualified in its entirety by reference to our amended and restated articles of association, which is incorporated as an exhibit to our most recent Annual Report on Form 20-F, the Luxembourg law of August 10, 1915, on commercial companies, as amended (the “1915 Law”), and by any other applicable Luxembourg corporate law. We encourage you to read our articles of association, the 1915 Law, and applicable provisions of Luxembourg law for additional information.

Share capital

As of December 31, 2025, our issued share capital was US\$132,438,611 represented by 132,438,611 common shares fully paid, with par value of US\$1.00 per share. In addition to our issued share capital, we have an authorized share capital of US\$231,924,819, represented by 231,924,819 common shares. Our common shares are publicly traded in the United States on the New York Stock Exchange (or NYSE), under the ticker symbol NEXA.

Changes to our share capital are decided by our shareholders or, pursuant to our articles of association, by our board of directors within the limits of the authorized share capital. Our shareholders may at any time at a shareholders’ meeting decide to increase or decrease our share capital. Such resolution must satisfy the quorum and majority requirements that apply to an amendment of the articles of association, as described below. No shareholder is liable to make any further contribution to our share capital other than with respect to shares held by such shareholder that are not fully paid-up.

Distributions

Pursuant to our articles of association, the general meeting of shareholders may approve dividends and the board of directors may declare interim dividends, in each case to the extent permitted by Luxembourg law. Under Luxembourg law, dividends are determined by a simple majority vote at a general shareholders’ meeting based on the recommendation of our board of directors. Pursuant to our articles of association, the board of directors may also declare distributions to our shareholders in the form of reimbursement of share premium to the extent permitted by Luxembourg law.

Each common share entitles the holder to participate equally in any distributions, if and when declared by the general meeting of shareholders or, in the case of interim dividends or reimbursements of share premium, the board of directors, out of funds legally available for such purposes. Dividends and other distributions on our common shares will be declared and paid in U.S. dollars. Declared and unpaid distributions held by us for the account of the shareholders shall not bear interest. Under Luxembourg law, claims for unpaid distributions will lapse in our favor five years after the date such distribution has been declared.

We and our subsidiaries are subject to certain legal requirements that may affect our ability to pay dividends or other distributions. Distributions to shareholders (including in the form of dividends or reimbursement of share premium) may only be made from amounts available for distribution in accordance with Luxembourg law, determined based on our standalone statutory accounts prepared under Luxembourg GAAP. Under Luxembourg law, the amount of a distribution paid to shareholders (including in the form of dividends or reimbursement of share premium) may not exceed the amount of the profits at the end of the last financial year plus any profits carried forward and any amounts drawn from reserves that are available for that purpose, less any losses carried forward and sums to be placed in reserve in accordance with Luxembourg law or our articles of association. Furthermore, no distributions (including in the form of dividends or reimbursement of share premium) may be made if at the end of the last financial year the net assets as set out in the standalone statutory accounts prepared under Luxembourg GAAP are, or following such a distribution would become, less than the amount of the subscribed share capital plus the non-distributable reserves.

Distributions in the form of dividends may only be made from net profits and profits carried forward, whereas distributions in the form of share premium reimbursements may only be made from available share premium.

Luxembourg law also requires at least 5.0% of our net profits per year to be allocated to the creation of a legal reserve until such reserve has reached an amount equal to 10.0% of our issued share capital. If the legal reserve subsequently falls below the 10.0% threshold, at least 5.0% of net profits again must be allocated toward the reserve. The legal reserve is not available for distribution.

Voting rights

There are no restrictions on the rights of Luxembourg or non-Luxembourg residents to vote our shares. All of our shareholders, including our public shareholders, hold common shares with identical voting rights, preferences and privileges. Each common share entitles the shareholder to attend a general meeting of shareholders in person or by proxy, to address the general meeting of shareholders and to vote. Each common share entitles the holder to one vote at the general meeting of shareholders.

General meeting of shareholders

In accordance with Luxembourg law and our articles of association, any regularly constituted general meeting of our shareholders has the power to order, carry out or ratify acts relating to our operations to the extent that such decisions are the domain of the shareholders and not the board of directors.

Our annual general meeting of shareholders shall be held at our registered office, or at such other place in Luxembourg as may be specified in the notice of the meeting, within six months after the end of the relevant financial year. Except as otherwise specified in our articles of association, resolutions at a general meeting of shareholders are adopted by a simple majority of shares present or represented and voting at such meeting.

A shareholder entitled to vote may act at any general meeting of shareholders by appointing another person (who need not be a shareholder) as his proxy, which proxy shall be in writing and comply with such requirements as determined by our board with respect to the attendance to the general meeting, and proxy forms in order to enable shareholders to exercise their right to vote. All proxies must be received by us (or our agents) no later than the day determined by our board of directors.

The board of directors may also decide to allow shareholders to vote by correspondence by means of a proxy form providing for a positive or negative vote or an abstention on each agenda item. The conditions for voting by correspondence are set out in the articles of association and in the convening notice.

The board of directors may decide to arrange for shareholders to be able to participate in the general meeting by conference call, video conference or similar means of communication, whereby (i) the shareholders attending the meeting can be identified, (ii) all persons participating in the meeting can hear and speak to each other, (iii) the transmission of the meeting is performed on an ongoing basis and (iv) the shareholders can properly deliberate without the need for them to appoint a proxyholder who would be physically present at the meeting.

Appointment and term limits of members of our board of directors

In accordance with our articles of association and the 1915 Law, the members of our board of directors are elected by a resolution of a general meeting of shareholders adopted with a simple majority of the votes validly cast, regardless of the portion of capital represented at such general meeting. Votes are cast for or against each nominee proposed for election to the board and cast votes shall not include votes attaching to shares for which the shareholder has not participated in the vote, has abstained or has returned a blank or invalid vote.

Our directors are appointed for a mandate of a two-years term and may be reelected. Members of our board of directors may be removed at any time, with or without cause, by a resolution adopted at a general meeting of our shareholders. Under Luxembourg law, in the case of a vacancy of the office of a director appointed by the general meeting of shareholders, the remaining directors may fill the vacancy on a provisional basis. In these circumstances, the following general meeting of shareholders shall make the final appointment of the director.

Issuance of shares and preferential subscription rights

Our shares may be issued pursuant to a resolution of the general meeting of shareholders. The general meeting of shareholders may also delegate the authority to issue shares to the board of directors for a renewable period of five years. The board of directors has been authorized to issue up to 231,924,819 common shares. Such authorization will expire five years after the date of publication in the Luxembourg legal gazette (*Recueil Electronique des Sociétés et Associations*) of the minutes of the general meeting of shareholders held on May 8, 2025 (unless amended or extended by the general meeting of shareholders).

Each holder of shares has preferential subscription rights to subscribe for any issue of shares pro rata to the aggregate amount of such holder's existing holding of the shares. Each shareholder shall, however, have no preferential subscription right on shares issued for a contribution in kind.

Preferential subscription rights may be restricted or excluded by a resolution of the general meeting of shareholders, or by the board of directors if the shareholders so delegate. The general meeting of shareholders has delegated to the board of directors the power to cancel or limit the preferential subscription rights of the shareholders when issuing new shares, so long as the issuance of new shares is carried out through a public offering.

If we decide to issue new shares in the future and do not exclude the preferential subscription rights of existing shareholders, we will publish the decision by placing an announcement in the Luxembourg official journal *Recueil Electronique des Sociétés et Associations* and in a newspaper published in Luxembourg. The announcement will specify the period in which the preferential subscription rights may be exercised. Such period may not be shorter than 14 days from the publication of the offer. The announcement will also specify details regarding the procedure for exercise of the preferential subscription rights. Under Luxembourg law preferential subscription rights are transferable and tradable property rights.

Repurchase of shares

Nexa Resources is prohibited by the 1915 Law from subscribing for its own shares. Nexa Resources may, however, repurchase its own shares or have another person repurchase shares on its behalf, subject to certain conditions, including:

- prior authorization of the general meeting of shareholders setting out the terms and conditions of the proposed repurchase, including the maximum number of shares to be repurchased, the duration of the period for which the authorization is given (which may not exceed five years) and the minimum and maximum consideration per share;
- the repurchase may not reduce the net assets of Nexa Resources on a non-consolidated basis to a level below the aggregate of the issued share capital and the reserves that Nexa Resources must maintain pursuant to the 1915 Law or our articles of association;
- only fully paid-up shares may be repurchased; and
- the acquisition offer is made on the same terms and conditions to all the shareholders who are in the same position; however, listed companies may repurchase their own shares on the stock exchange without making an acquisition offer to the shareholders.

As of December 31, 2025, there were no authorized share buyback programs.

Form and transfer of shares

Our shares are issued in registered form only and are freely transferable. Luxembourg law does not impose any limitations on the rights of Luxembourg or non-Luxembourg residents to hold or vote our shares.

Under Luxembourg law, the ownership of registered shares is generally evidenced by the inscription of the name of the shareholder, the number of shares held by him or her in the shareholders' register, which is maintained at our registered office. Each transfer of shares is made by a written declaration of transfer recorded in our shareholders' register, dated and signed by the transferor and the transferee or by their duly appointed agent. We may accept and

enter into its shareholders' register any transfer based on an agreement between the transferor and the transferee provided a true and complete copy of the agreement is provided to us.

Our articles of association provide that, in case our shares are recorded in the register of shareholders on behalf of one or more persons in the name of a securities settlement system or the operator of such a system, or in the name of a professional depositary of securities or any other depositary or of a sub-depositary designated by one or more depositaries, NEXA—subject to a confirmation in proper form received from the depositary—will permit those persons to exercise the rights attaching to those shares, including admission to and voting at general meetings of shareholders. The board of directors may determine the requirements with which such confirmations must comply. Shares held in such manner generally have the same rights and obligations as any other shares recorded in our shareholder register(s).

Liquidation rights

The liquidation of Nexa Resources shall be decided by a general meeting of shareholders fulfilling the conditions as to attendance and majority required for the amendments of the articles of association. The method of liquidation shall be determined, and the liquidators shall be appointed by the general meeting of shareholders. In accordance with the 1915 Law, the assets that remain after payment of all debts and liabilities are distributed to the shareholders, on a pro rata basis.

Other Provisions

Holders of our common shares have no sinking fund, redemption or conversion rights.

Limitations on the right to own securities

Neither Luxembourg law nor our articles of association impose any general limitation on the right of nonresidents or foreign persons to hold our common shares or exercise voting rights on our common shares other than those limitations that would generally apply to all shareholders.

There is no law, governmental decree or regulation in Luxembourg that would affect the remittance of dividends or other distributions by Nexa Resources to nonresident holders of its common shares, other than withholding tax requirements. In certain limited circumstances, the implementation and administration of international financial sanctions may affect the remittance of dividends or other distributions. There are no specified procedures for nonresident holders to claim dividends or other distributions.

Transfer Agent

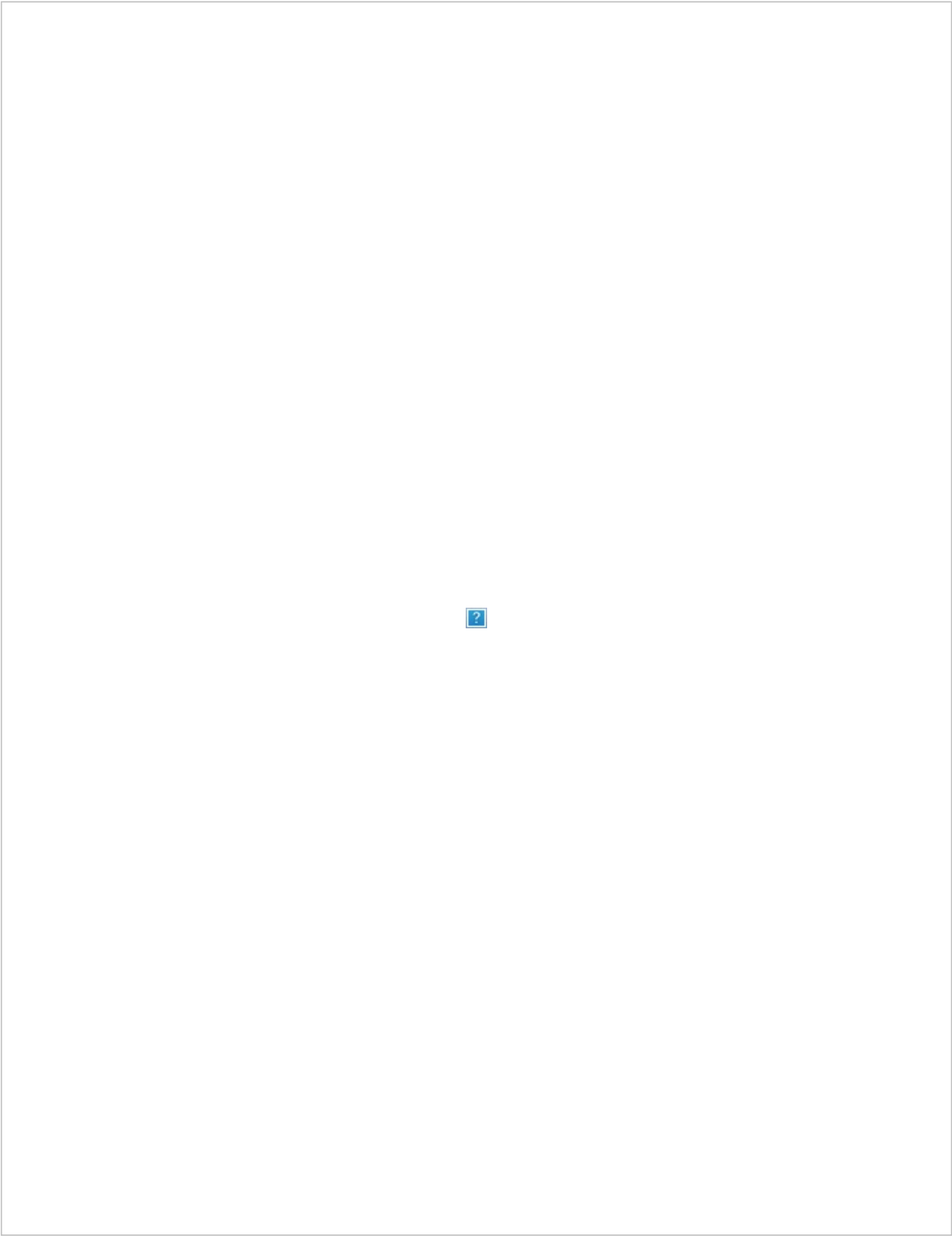
Computershare Trust Company, N.A., is the paying agent for shareholders who hold common shares listed on the NYSE.

LIST OF SUBSIDIARIES OF NEXA RESOURCES S.A.

Name of Subsidiary	Jurisdiction of Incorporation or Organization
Campos Novos Energia S.A.	Brazil
Compañía Minera Shalipayco S.A.C.	Peru
Compañía Magistral S.A.C.	Peru
Compañía Minera Doña Isabel Ltda.	Chile
Compañía Minera Gaico S.A.	Peru
Consórcio Capim Branco Energia	Brazil
Consórcio UHE Igarapava	Brazil
Exploraciones Chimborazo Metals & Mining S.A.	Ecuador
IncPac Holding Limited	British Virgin Islands
Inversiones Garza Azul S.A.C.	Peru
Karmin Holdings Ltda.	Brazil
L.D.O.S.P.E. Empreendimentos e Participações Ltda.	Brazil
L.D.Q.S.P.E. Empreendimentos e Participações Ltda.	Brazil
L.D.R.S.P.E. Empreendimentos e Participações Ltda.	Brazil
Minera Bongará S.A.	Peru
Mineração Colina Ltda.	Brazil
Mineração Parnamirim Ltda.	Brazil
Mineração Rio Aripuanã Ltda.	Brazil
Mineração Santa Maria Ltda.	Brazil
Mineração Soledade Ltda.	Brazil
Nexa Energy Comercializadora Energia Ltda.	Brazil
Nexa Resources Atacocha S.A.A.	Peru
Nexa Resources Cajamarquilla S.A.	Peru
Nexa Resources El Porvenir S.A.C.	Peru
Nexa Recursos Minerais S.A.	Brazil
Nexa Resources Peru S.A.A.	Peru
Nexa Resources UK Limited.	United Kingdom
Nexa Resources US Inc.	United States
Nexa Resources Botswana Proprietary Limited.	Botswana
Nexa Solar Três Marias 1 Ltda.	Brazil
Nexa Solar Vazante 1 Ltda.	Brazil
Otavi Mining Investments (Proprietary) Ltd.	Namibia
Otjitoombo Mining (Proprietary) Ltd.	Namibia
Pollarix S.A.	Brazil
Rayrock Antofagasta S.A.C.	Peru
SMRL Ltda. Pepita 1	Peru
SMRL CMA nº 54	Peru
Votorantim Andina S.A.	Chile

Votorantim Metals Canada Inc.
Votorantim Metals Namibia (Proprietary) Ltd.
Tinka Resources Limited.
Darwin Resources Corp.
Tinka Resources S.A.C.
Darwin Peru S.A.C.
Compañía Eléctrica
Chaupihuaranga S.A.C.
Tinka Saudi Resources Corp
Midad Al Mona Mining Company

Canada
Namibia
Canada
Canada
Peru
Peru
Peru
Peru
Saudi Arabia
Saudi Arabia



Summary

1.OBJECTIVE	4
2.SCOPE	4
3.DEFINITIONS	4
3.1AFFECTED PERSONS	5
3.2BLACKED OUT PERSONS	5
3.3INSIDER	5
3.4MATERIAL INFORMATION	5
3.5REPORTING INSIDER	6
3.6UNDISCLOSED MATERIAL INFORMATION	7
4.GUIDELINES	7
4.1GENERAL PROHIBITION AGAINST INSIDER TRADING AND TIPPING	7
4.2RESTRICTIONS ON SHORT SELLING, PUBLICLY TRADED OPTIONS, AND OTHER SPECULATIVE TRADING	8
4.3HEDGING TRANSACTIONS	8
4.4MARGIN ACCOUNTS AND PLEDGES	8
4.5TRADING BLACKOUTS	9
4.6QUERIES ON BLACKOUT PERIODS	9
4.7CERTAIN EXCEPTIONS	9

4.8	TRANSACTIONS UNDER RULE 10B5-1 PLANS	10
4.9	PRE-CLEARANCE	10
4.10	OBLIGATION TO PRESENT PROOF OF TRADING	10
4.11	REPORTING INSIDER REQUIREMENTS	11
4.12	TRADING IN SECURITIES OF OTHER COMPANIES	11
4.13	CONFIDENTIALITY	12
4.14	POLICY AWARENESS AND CONSEQUENCES FOR VIOLATION	12
4.15	RATING AGENCY REPORTS	13
4.16	POTENTIAL CRIMINAL AND CIVIL LIABILITY AND/OR DISCIPLINARY ACTION	13
4.17	REVIEW OF THE POLICY AND MONITORING COMPLIANCE	13
4.18	ACKNOWLEDGMENT	13
5.	ATTACHMENTS	13
5.1	ORGANIZATIONAL CHART	13

1. OBJECTIVE

Nexa Resources S.A., a public limited liability company (*société anonyme*) incorporated under the laws of the Grand Duchy of Luxembourg, having its registered office at 37A Avenue J.F. Kennedy, L-1855, Luxembourg, Grand Duchy of Luxembourg and registered with the *Registre de Commerce et des Sociétés* (RCS) in Luxembourg under number B 185.489 (the “Issuer”, “the Company” or “we”) and its directors, officers, employees, and associated persons are subject to securities laws governing the handling of Undisclosed Material Information (as defined below) and trading in the Issuer’s securities. These laws prohibit trading in the Issuer’s equity or debt securities while in possession of Undisclosed Material Information about the Company.

This Insider Trading Policy (“Policy”) outlines guidelines designed to protect the Issuer and all individuals subject to this Policy from improper trading or the appearance thereof. The guidelines provided here supplement, rather than replace, applicable securities laws in Canada, the United States, Luxembourg, and other applicable jurisdictions. This Policy is intended to complement the Issuer’s “Disclosure Policy”.

2. SCOPE

This Policy applies to all directors, officers, employees, independent consultants, and contractors of Issuer and its subsidiaries, regardless of location, as well as to individuals and entities in a special relationship with the Issuer, as described in Appendix “A” of this Policy (collectively, the “Affected Persons”). The list of Affected Persons and Insiders (as defined herein) will be maintained and updated as necessary by any Company’s management committee member, in consultation with the Chief Financial Officer (“CFO”) and/or the Head of Compliance, Internal Controls, and Internal Audit (“CCIA”), including by removing or adding persons to the list as necessary.

It is crucial that everyone subject to this Policy understands and complies with insider trading laws. When trading in the Issuer’s securities or those of companies with which the Issuer conducts business, it is your personal responsibility to ensure adherence to this Policy and all relevant laws.

The restrictions and prohibitions in this Policy extend to related persons of Affected Persons, including: (1) spouses or partners; (2) other adult household members; and (3) entities directly or indirectly influenced or controlled by Affected Persons.

This Policy applies to all transactions involving the Issuer’s securities, including but not limited to: (1) shares; (2) securities convertible or exchangeable into shares, such as warrants, and convertible debentures; (3) derivative securities, including exchange-traded options; and (4) debt instruments, puts, calls, options, or other rights to buy or sell the Issuer’s securities.

It is important to note that this Policy applies to all securities that you beneficially own or control, whether directly or indirectly. This includes securities owned by related persons if you direct or influence their investment decisions.

Securities laws, including prohibitions on insider trading, also apply when the Issuer transacts in its own securities. To comply with these laws, including the prohibition under Rule 10b-5 and applicable case law against trading while in possession of Undisclosed Material Information, the Issuer (1) requires that all transactions in its securities be authorized by the Board of Directors and (2) has implemented procedures to ensure the Issuer does not possess material non-public information at the time of any such transaction and at the time the Issuer enters into or modifies any Rule 10b5-1 plan.

This Policy (or a summary of it) will be provided to all new Affected Persons upon the start of their relationship with the Issuer or its subsidiaries. It will also be distributed to all Affected Persons at least annually.

3. DEFINITIONS



3.1 Affected Persons

Refers to all directors, officers, employees, independent consultants, and contractors of the Issuer and its subsidiaries, regardless of location. This also includes persons and companies in a special relationship with the Issuer as described in Appendix “A”, to whom this Policy applies.

3.2 Blacked Out Persons

Includes (1) members of the Board of Directors; (2) officers and members of the management committee of the Company (“ManCo”); (3) all general managers, managers, and senior consultants; (4) employees in corporate areas located in Brazil, Peru, Luxemburg, the United States, Canada or any other countries where the Issuer operates (whether based in offices or operating units); (5) any employees working closely with financial or other material information or designated as Blacked Out Persons by the CFO.

3.3 Insider

Refers to (1) certain Affected Persons who, in the normal course of their duties, have or are likely to have regular or special access to Undisclosed Material Information. These individuals are identified in Appendix “A” of this Policy as Insiders; and (2) any director or officer of a reporting issuer or of a company that is itself an insider or subsidiary of a reporting issuer. For additional information on Insiders, refer to Canadian National Instrument 55-104 (“NI 55-104”).

3.4 Material Information

Generally, it refers to any fact or change (or a decision by the Board of Directors or senior management to implement a change) in the Issuer’s business, operations, financial situation, or capital that could reasonably be expected to have a significant impact on the market price or value of the Issuer’s securities (even if affecting only one type or category of security). It also includes information that a reasonable investor would consider important in making an investment decision to buy, hold, or sell securities.

Material Information can be either positive or negative and may include both large and small changes likely to affect a company’s stock price. The determination of materiality is ultimately made by enforcement authorities based on all relevant facts and circumstances, often with the benefit of hindsight.

Examples of Material Information (non-exhaustive):

- operating and financial results;
- financial projections (revenues, earnings, or losses);
- proposed mergers, acquisitions, or joint ventures involving the Issuer;
- divestitures or acquisitions of significant assets or subsidiaries;
- changes in control, senior management, or Board of Directors;
- public or private sales of the Issuer’s securities;
- proposed or pending material financings;
- defaults under financing or other agreements;

- material transactions involving directors, officers, or principal shareholders;
- labor disputes or disputes with key customers incurring in material relationship changes (e.g., termination or reduction of material revenue sources;
- natural disasters or other significant environmental, health, or safety events;
- gain or loss of substantial customers or suppliers;
- auditor changes;
- significant litigation, investigations, or regulatory actions;
- internal investigations or compliance-related matters;
- material impairments, write-offs, or restructurings;
- creation of significant financial obligations;
- impending bankruptcy or liquidity issues;
- material agreements outside the ordinary course of business (or amendments/termination thereof);
- dividend decisions or changes to shareholders rights;
- changes to capital or corporate structure;
- significant cybersecurity incidents and data breaches;
- amendments affecting the respective rights of different categories of securities;
- any change or transfer of the paying agent of a security;
- announcement of any distribution related to a security;
- payment and detachment of interests related to a security;
- coupons related to a security being declared without value;
- redemption of securities in particular before the due date;
- change of the name of the Issuer.

Any member of the ManCo, in consultation with the CFO or other senior management as appropriate, has the authority to determine whether specific information constitutes Undisclosed Material non-public information.

3.5 Reporting Insider

Certain individuals are designated insiders for reporting purposes under NI 55-104. These include: (a) the CEO, CFO or COO of a reporting issuer, a significant shareholder of a reporting issuer, or a major subsidiary of a reporting issuer; (b) directors of a reporting issuer, a significant shareholder, or of a major subsidiary of a reporting issuer; (c) persons responsible for a

principal business unit, division, or function of a reporting issuer; (d) significant shareholders of a reporting issuer; (e) significant shareholders based on post-conversion beneficial ownership of a reporting issuer's securities, as well as the CEO, CFO, COO, and directors of such significant shareholders; (f) management companies providing significant management or administrative services to a reporting issuer or a major subsidiary, along with their directors, CEOs, CFOs and COOs, and significant shareholders; (g) individuals performing functions similar to those of any insiders described in paragraphs (a) to (f); (h) the listed company itself if it holds its own securities after purchase, redemption, or acquisition; (i) any other insider who: (x) regularly receives or has access to Material Information concerning a reporting issuer before it is publicly disclosed; and (y) exercises, or can exercise, significant influence over the business, operations, capital, or development of the reporting issuer. Under NI 55-104, individuals who become Reporting Insiders but lack a disclosable interest are not required to file a report. For additional details, refer to NI 55-104 and section 4.10 of this Policy.

3.6 Undisclosed Material Information

Material Information that has not been publicly disclosed is considered "Undisclosed Material Information". Information about the Issuer should be treated as non-public unless it is clearly available to the public. Material Information is considered "generally disclosed" only after it has been accurately published, widely disseminated (e.g., via press release or SEC filing), and sufficient time has passed for the market to react.

Sufficient time is defined as (1) information released before 9:30 a.m. U.S. Eastern Time on a trading day: It is considered public at 9:30 a.m. on the same trading day; (2) information released after 9:30 a.m. U.S. Eastern Time and during market trading hours: It is considered public at the time of release; and (3) information released after 4:00 p.m. U.S. Eastern Time: It is considered public at 9:30 a.m. on the following trading day.

4. GUIDELINES

4.1 General prohibition Against Insider Trading and Tipping

Insider trading and tipping are prohibited to ensure all market participants have equal access to Material Information. These prohibitions protect investors and promote fair market practices.

While in possession of Undisclosed Material Information, no Affected Person may:

- buy, sell, or engage in transactions involving Issuer Securities (except as outlined in Section 4.7 of this Policy);
- make recommendations or express opinions on trading Issuer Securities based on such information;
- disclose such information to third parties, including relatives or associates; and
- assist others in engaging in the above activities.

a) Persons in a "Special Relationship" with Issuer

Insider trading and tipping are prohibited to ensure all market participants have equal access to Material Information. These prohibitions protect investors and promote fair market practices.

b) No Trading on Undisclosed Material Information

It is illegal and strictly prohibited to engage in transactions, directly or indirectly, involving the Issuer's securities while possessing Undisclosed Material Information. This constitutes insider trading.

If you have any questions about whether information is material, public, or has ceased to be material, consult the Investor Relations Department, which will coordinate with the Legal Department to provide guidance.

Note that transactions that may be necessary for personal reasons (e.g., emergencies) are not exempted from these restrictions. Securities laws do not account for mitigating circumstances, and even the appearance of impropriety must be avoided to uphold the Issuer's reputation for ethical conduct.

c) No "Tipping" or "Recommending"

It is both illegal and strictly prohibited by this Policy to disclose, Undisclosed Material Information about the Issuer to any other person, except in the necessary course of business. This includes family members, friends, neighbors, acquaintances, investment professionals, financial planners, family companies, or trusts. Furthermore, making recommendations or encouraging others to purchase or sell the Issuer's securities based on such information is also prohibited. These actions constitute "tipping".

Determining whether a particular disclosure falls within the "necessary course of business" requires a case-by-case assessment as it is a mixed question of law and fact. Communications with employees, officers, directors, legal counsel, auditors and other professional advisors are generally permissible. However, sharing similar information with analysts, institutional investors, market professionals, or the media may be deemed "tipping" and is unlikely to qualify as being in the necessary course of business. Any questions regarding whether a specific disclosure is permissible should be directed to the Investor Relations Department.

4.2 Restrictions on Short Selling, Publicly Traded Options, and Other Speculative Trading

Investing in the Issuer's securities is intended to provide an opportunity to share the Company's long-term growth. As a general guideline, you are encouraged to acquire the Issuer's securities only if you intend to hold them for at least six months, while adhering to the terms of this Policy.

The Affected Persons must avoid speculative or short-term trading of the Issuer's securities based on market fluctuations. This includes, but is not limited to (1) short selling - selling securities you do not own, which signals a lack of confidence in the Issuer and creates potential conflicts of interest; (2) options and derivatives - trading in puts, calls, or other derivatives, which is akin to betting on the short-term price movement of the Issuer's securities and may create the appearance of insider trading; and (3) margin purchases - buying the Issuer's securities on margin, which can result in unintended sales if a margin call is not met.

While you may exercise stock options granted by the Issuer and, subject to this Policy, sell the acquired shares, speculative trading practices such as the above are strictly prohibited.

4.3 Hedging Transactions

The Affected Persons are prohibited from engaging in transactions that hedge or offset potential decreases in the market value of the Issuer's securities, including instruments like prepaid variable forward contracts, equity swaps, and collars.

Hedging transactions, such as zero-cost collars, equity swaps, and forward sale contracts, allow stockholders to lock in the value of their holdings while limiting the potential for upside appreciation. Although these instruments enable stockholders to maintain ownership of the securities, they undermine alignment with the Issuer's long-term objectives. As a result, such transactions are strictly prohibited.

4.4 Margin Accounts and Pledges

Holding the Issuer's securities in margin accounts or pledging them as collateral for loans is prohibited. Securities in margin accounts may be sold by brokers without the holder's consent if margin calls are unmet. Similarly, pledged securities can be sold in foreclosure if the borrower defaults on a loan. Such sales may occur during periods when the holder is privy to Undisclosed Material Information, violating this, Policy.

To avoid these risks, Affected Persons are therefore not allowed to hold the Issuer's securities in margin accounts or pledge them as loan collateral.

4.5 Trading Blackouts

The Issuer has established specific periods, referred to as "Blackout Periods," during which Blacked-Out Persons are prohibited from conducting any transactions in the Issuer's securities. These periods are designed to prevent the misuse or appearance of misuse of Undisclosed Material Information.

Quarterly Blackout Periods. A standard Blackout Period begins on the first day following the end of a fiscal quarter or fiscal year and ends at (1) 9:30 a.m. U.S. Eastern Time on the first trading day after the public release of the Issuer's earnings for the relevant fiscal quarter or year, if the release occurs before 9:30 a.m. U.S. Eastern Time on a trading day or at (2) 9:30 a.m. U.S. Eastern Time on the second trading day after the release, if the release occurs on or after 9:30 a.m. U.S. Eastern Time on a trading day or on a non-trading day.

During these quarterly Blackout Periods, Affected Persons are prohibited from conducting any transactions involving the Issuer's securities.

Special Blackout Periods. The CFO may impose special Blackout Periods as needed. During these periods, Affected Persons are strictly prohibited from engaging in any transactions involving the Issuer's securities. The CFO will provide written notice to all Affected Persons regarding the imposition of a special Blackout Period. This prohibition will remain in effect until further written notice is given. It is important to note that the existence of a special Blackout Period is considered confidential information, and its imposition must not be disclosed to others.

Modification of a Blackout Period. The CFO has the authority to shorten, suspend, terminate, or extend any Blackout Period as deemed appropriate based on the relevant circumstances. Any individuals affected by such modifications will receive timely notification.

4.6 Queries on Blackout Periods

Because Blacked Out Persons regularly have access to Undisclosed Material Information, such individuals must contact the Investor Relations Department, the CCIA or Risks Department if they are uncertain whether a Blackout Period is in effect before initiating any transaction in the Issuer's securities. This includes but is not limited to: (i) transactions occurring outside a standard Blackout Period; (ii) the exercise of a stock option plan by any director or employee; (iii) any gifts of Issuer's securities.

Clearance or individual evaluation of specific transactions involving the Issuer's securities will not be provided. Each individual must use their best judgement and knowledge, including consulting the provisions of this Policy, to assess whether a potential transaction may raise insider trading or other concerns under applicable securities laws.

4.7 Certain Exceptions

The following routine transactions, within the specified limits, are generally not subject to the trading restrictions of this Policy. However, the Issuer reserves the right to prohibit any such transaction as its sole discretion as deemed necessary.

Stock Option Exercises: this Policy does not apply to the exercise of any stock options where you pay out-of-pocket to exercise and hold the stock, or to the "net exercise" of a tax withholding right, where shares subject to an option are withheld by the Issuer to satisfy tax-withholding requirements. This Policy does apply, however, to any sale of shares as part of a broker-assisted cashless exercise of stock options or any other market sale for the purpose of generating cash to pay the exercise price of an employee stock option.

Employee Stock Purchase Plan: this Policy does not apply to purchases of Issuer stock resulting from periodic contributions to the Employee Stock Purchase Plan, based on elections made at the time of enrollment. This Policy does apply, however, to (1) elections to participate in the plan for any enrollment period; (2) sales of Issuer stock purchased pursuant under the plan; and (3) changes to the amount of automatic periodic contributions made by payroll deduction.

Restricted Stock and Restricted Stock Unit (RSU) Awards: this Policy does not apply to the vesting and settlement of restricted stock and RSUs, or the withholding or sale of stock back to the Issuer to satisfy tax-withholding obligations upon vesting. This Policy does apply, however, to any market sale of stock following vesting.

Dividend Reinvestment Plan: this Policy does not apply to purchases of Issuer stock under the Dividend Reinvestment Plan resulting from reinvestment of dividends paid on Issuer stock. This Policy does apply, however, to voluntary purchases of Issuer stock through additional contributions to the plan, elections to participate in the plan or to increase participation levels and sales of Issuer stock purchased under the plan.

4.8 Transactions under Rule 10b5-1 Plans

Rule 10b5-1 plans are automatic trading plans permitted under U.S. securities laws when they are entered into in good faith at a time when the individual is not in possession of Undisclosed Material Information. These plans serve to demonstrate that Undisclosed Material Information did not factor into any trading decisions, even if the pre-planned trades occur after a person later becomes aware of Undisclosed Material Information. If adopted in accordance with the Securities and Exchange Commission (“SEC”) Rule 10b5-1, these plans provide an affirmative defense to trading on the basis of Undisclosed Material Information in insider trading cases.

Any person who wishes to implement, amend or terminate a qualified Rule 10b5-1 plan must first have the plan (or any amendment or proposal to terminate) pre-approved by the Investor Relations Department. In pre-clearing the implementation, amendment or termination of a qualified Rule 10b5-1 plan, the Investor Relations Department will not be responsible for determining whether the plan complies with Rule 10b5-1; compliance with Rule 10b5-1 is solely the adopting person’s responsibility. The Issuer recommends that you fully understand the limitations and conditions of the rule before you establish a 10b5-1 trading plan.

4.9 Pre-Clearance

Officers, directors and shareholders who own, directly or indirectly, more than 10% of the Issuer’s equity securities (“Insiders”) must obtain written pre-clearance from the Investor Relations Department before initiating any transaction in the Issuer’s securities. This requirement applies to transactions occurring outside a Blackout Period, entry into or termination of a Rule 10b5-1 plan or any other non-Rule 10b5-1 plan, any exercises of director or employee stock options and any gifts of Issuer securities (“Notification”).

A Notification form is provided as Appendix “B”. Requests for pre-clearance must be submitted at least two (2) days before the proposed transaction. The CCIA or Risks Department are under no obligation to approve any trade. Approved pre-clearance is valid for a maximum of 48 hours. If the transaction is not executed within that period, the insider must submit a new pre-clearance request and receive written approval again. Insiders must treat all denials of pre-clearance requests as confidential. Each Notification will include confirmation on whether the Insider is subject to a Blackout Period. The CCIA or Risks Department will maintain records of all Notifications. The Issuer reserves the right to provide these records to securities authorities if required.

4.10 Obligation to Present Proof of Trading

Members of the Board of Directors or ManCo of the Issuer who trade in the Issuer’s securities must submit proof of such transactions to the Issuer within three (3) calendar days of execution. Proof must include: the transaction date, the nature of the transaction (e.g., type of security such as bonds, shares, derivatives, etc.), the number of securities traded, and the price paid. The CCIA or Risks Department will maintain records of all trading proofs. The Issuer reserves the right to provide these records to securities authorities if required.

4.11 Reporting Insider Requirements

Under Canadian securities laws, certain Insiders are classified as Reporting Insiders and are required to report their trades in the Issuer's securities. The Investor Relations Department, in collaboration with the Legal and Governance Department, will notify individuals of their status as Reporting Insiders under applicable securities laws.

Reporting Obligations:

- Initial Report: Reporting Insiders must file an initial insider trading report within ten (10) calendar days of first becoming a Reporting Insider. This report must disclose: (i) direct or indirect beneficial ownership of or control over the Issuer's securities; and (ii) any interest, right, or obligation associated with a related financial instrument involving the Issuer's securities.
- Change Report: Reporting Insiders must file a report within five (5) calendar days of any change in ownership, control, interest, right, or obligation.

Filing Process:

- Reports must be submitted electronically through the System for Electronic Disclosure by Insiders (SEDI) at www.sedi.ca.
- Reporting Insiders (not the Issuer) are legally responsible for accurate and timely disclosure of their trading activities.

The Investor Relations Department, in collaboration with the Legal and Governance Department, can assist you with preparing and filing insider trading reports. However, this assistance does not absolve Reporting Insiders of their legal obligations. Insiders seeking assistance must provide all required information to ensure timely submission. is requested, Reporting Insiders must provide the Investor Relations Department with all required information to allow for timely submission.

Reporting Insiders who file their reports independently are requested to promptly provide a copy to the Investor Relations Department to update the Issuer's records.

Compliance with this Policy is essential to Issuer's reputation and success. All individuals subject to this Policy must understand and fulfill their responsibilities under it and under applicable securities laws. Failure to adhere to this Policy may result in severe consequences, including (1) internal disciplinary action, up to and including termination without notice; and (2) legal penalties, fines, or imprisonment under Applicable Laws, or other applicable jurisdictions.

Potential violations of this Policy should be reported via the Issuer's Ethics Line team. The Issuer's Ethics Line Team, in collaboration with the Conduct Committee and Audit Committee (according to the investigation protocol), will investigate these reports and determine appropriate disciplinary actions to be implemented.

4.12 Trading in Securities of Other Companies

This Policy is not limited to information affecting the Issuer and its securities. You may come into possession of Undisclosed Material Information about other companies in the course of your work for the Issuer. As such, this Policy and the guidelines also apply to Undisclosed Material Information regarding other companies or entities with which we do business, including but not limited to joint venture partners, services providers, customers, shareholders, partners, vendors, and suppliers of Issuer, as well as potential takeover, merger, or acquisition candidates (collectively referred to as "Business Counterparties"), when such information is obtained through employment with or services provided to or on behalf of the Issuer.

Criminal and civil penalties, as well as termination of your relationship with the Issuer, may result from trading in the securities of, or tipping or recommending trades in relation to, any Business Counterparty while in possession of Undisclosed Material Information about that Business Counterparty. Undisclosed Material Information about the Issuer's Business Counterparties must be treated with the same level of care and confidentiality as information related directly to the Issuer.

4.13 Confidentiality

You are required to maintain confidentiality of the Issuer's non-public information. If you receive any inquiry or request for information (particularly financial results and/or projections, or request to affirm or deny information about the Issuer) from any person or entity outside the Issuer, such as a stock analyst, and it is not part of your regular corporate duties to respond, the inquiry must be referred to the Investor Relations Department, which will determine whether the inquiry should also be forwarded to the CCIA and Risks Department. For additional guidance on confidentiality and related restrictions, refer to the Issuer's Disclosure Policy.

4.14 Policy Awareness and Consequences for Violation

Copies of this Policy will be made available to directors, officers, employees, consultants, and contractors, either directly or by posting the Policy on Issuer's website. Individuals will be notified whenever significant changes are made to this Policy.

Insider trading and tipping are serious offences, and the consequences can be severe. Issuer's directors, officers, employees, contractors, or consultants who violate this Policy will be subject to disciplinary action by the Issuer, which may include termination of their relationship with Issuer. Violations may also result in significant fines, penalties, and/or imprisonment under the securities laws of applicable jurisdictions, including Canada, the United States, and Luxembourg. Consider carefully how your trading activities might appear to enforcement authorities, who may review your actions with the benefit of hindsight. Furthermore, directors and officers acting on behalf of the Issuer may cause serious reputational harm to the Issuer if they engage in improper transactions involving the Issuer's securities.

Insiders can also be held accountable for improper transactions executed by any person (commonly referred to as a "tippee") to whom they have disclosed Undisclosed Material Information regarding the Issuer or to whom they have provided recommendations or opinions based on such information. Significant penalties have been imposed even in cases where the disclosing party did not profit from the trading.

Such activities, or even allegations of securities law violations could result in substantial personal consequences for you, harm the Issuer's reputation, and damage its relationships with Business Counterparties, potentially exposing the Issuer to liability.

Potential violations of this Policy should be reported via the Issuer's Ethics Line team. The Issuer's Ethics Line Team, in collaboration with the Conduct Committee and Audit Committee (according to the investigation protocol), will investigate these reports and determine appropriate disciplinary actions to be implemented.

The CFO may occasionally approve exceptions to this Policy. However, no provision of this Policy is intended to create civil liability to the Issuer's security holders or any other legal liability.

Although the Investor Relations Department and the CCIA, as well as the Risks Department are available to provide guidance regarding this Policy, including the appropriateness of specific transactions, the responsibility for compliance lies solely with each Affected Person. Affected Persons are responsible for ensuring that they, and any related persons, adhere to this Policy. Regardless of any announcements or guidance from the Investor Relations Department or the CFO, Affected Persons must independently ensure they are not trading while in possession of Undisclosed Material Information.

Every Affected Person has an individual responsibility to comply with this Policy and the applicable laws of their jurisdiction. Insiders may, at times, need to forgo planned transactions in the Issuer's securities upon becoming aware of Undisclosed Material Information, even if this results in economic loss and missed profit opportunities. Trading during an open trading window should not be considered a "safe harbor," and all directors, officers, and other individuals should exercise sound judgment at all times.

4.15 Rating Agency Reports

This Policy remains applicable even after the termination of employment or service with the Issuer. If you possess Undisclosed Material Information at the time your employment or service terminates, you are prohibited from trading in the Issuer's securities (or the securities of another company, as outlined in this Policy) until such information becomes public or is no longer material.

4.16 Potential Criminal and Civil Liability and/or Disciplinary Action

Criminal and Civil Liability. Under securities laws, individuals engaged in tipping or insider trading may face severe consequences, including substantial monetary fines and imprisonment. The Issuer and its supervisory personnel may also be held civilly and criminally liable for failing to take adequate measures to prevent illegal insider trading.

The SEC has imposed significant penalties even in cases where the disclosing individual did not personally profit from the trading. No minimum profit threshold is required for prosecution.

Possible Disciplinary Action. Affected Persons who violate this Policy will be subject to disciplinary measures by the Issuer. Such actions may include termination of employment or ineligibility to participate in the Issuer's equity incentive plans in the future.

4.17 Review of the Policy and Monitoring Compliance

This Policy will be reviewed periodically by the Issuer to ensure alignment with applicable laws and adherence to best corporate governance practices. The Investor Relations Department, in collaboration with the CCIA, as well as the Risks Department will oversee and monitor compliance with this Policy.

The Issuer's CFO retains the discretion to amend this Policy at any time, in collaboration with the teams mentioned throughout the document. Material changes to this Policy will be submitted for review and recommendation by the Audit Committee, and final approval to the Issuer's Board of Directors.

If you have any questions regarding insider trading matters, any aspect of this Policy, its application to a proposed transaction, or your responsibilities under it, please contact the Investor Relations Department. In cases of uncertainty about the appropriateness of any communication or action, consult the Investor Relations Department, the CCIA, or the Risks Department before engaging with any external parties, including brokers or entities contemplating or executing securities transactions. Ultimately, the responsibility for complying with this Policy and avoiding unlawful transactions lies with each individual employee or other applicable party.

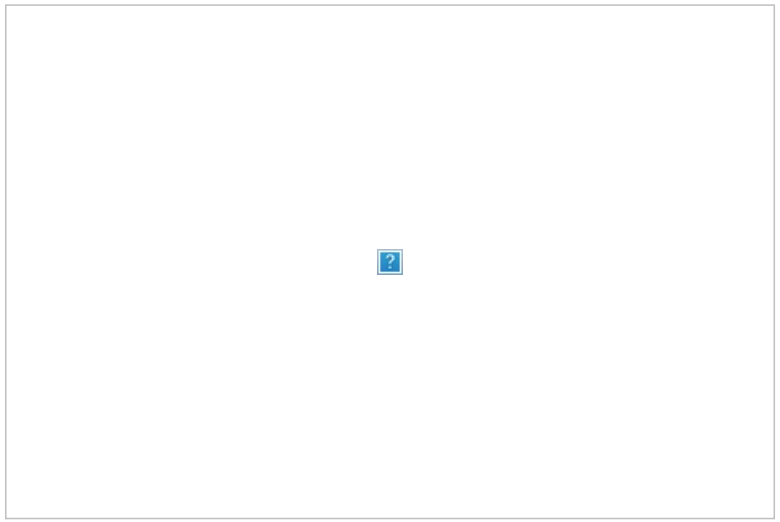
4.18 Acknowledgment

The Issuer assumes that you have carefully read this Policy, fully understood its contents, and intended to comply with it. Lack of awareness or familiarity with this Policy does not exempt you from fulfilling the obligations it imposes and cannot be used as a mitigating circumstance in case of non-compliance.

5. ATTACHMENTS

5.1 Organizational chart





APPENDIX “A”
PERSONS AND COMPANIES IN A SPECIAL RELATIONSHIP WITH NEXA RESOURCES S.A.

Under applicable securities laws, persons considered to be in a “special relationship” with Issuer include:

- (a) all directors, officers and employees of the Issuer;
- (b) all directors, officers and employees of any subsidiary of the Issuer;
- (c) any person or company who directly or indirectly beneficially owns, controls or directs the securities of the Issuer carrying more than 10% of the voting rights attached to all outstanding voting securities;
- (d) every director or officer of a company referred to in (c);
- (e) a person or company that is: (i) considering or evaluating whether or proposing to make a takeover bid for the shares of the Issuer; or (ii) considering or evaluating whether or proposing to become a party to a reorganization, amalgamation, merger, arrangement, or other business combination with the Issuer; or (iii) considering or evaluating whether or proposing to acquire a substantial portion of the Issuer’s property; (each of (i), (ii), or (iii) is herein referred to as a **“Merger Partner”**), and every director, officer or employee of a Merger Partner and any person who beneficially owns, controls or directs more than 10% of the voting shares of the Merger Partner;
- (f) a person or company (such as lawyers, accountants, engineers, and other advisers or consultants) that is engaging in or considering or evaluating whether or proposing to engage in any business or professional activity with or on behalf of the Issuer or a Merger Partner, and every director, officer or employee thereof;
- (g) a person or company that learns of Undisclosed Material Information while the person or company was any of the persons or companies described in (a) through (f) above; and
- (h) a person or company that learns of Undisclosed Material Information with respect to the Issuer (a “tippee”) from any other person or company in a special relationship with the Issuer (a “tipper”) where the tippee knows or ought reasonably to have known that the tipper is in a special relationship with the Issuer. This includes a “tippee” who is tipped by a previous “tippee”.

APPENDIX "B"
FORM OF TRADING CLEARANCE APPLICATION



CERTIFICATION

I hereby certify that I am not in possession of any material non-public information about the Company and / or its subsidiaries. I understand that Undisclosed Material Information is information concerning the Issuer that (a) is not generally known to the public; and (b) if publicly known, would be likely to affect either the market price of the Issuer's securities or a person's decision to buy, sell or hold the Issuer's securities. If entering into a Rule 10b5-1 Plan or other non-Rule 10b5-1 plan, I am adopting the plan in good faith and not as part of a plan or scheme to evade the prohibitions of Rule 10b-5. I understand that if I trade while in possession of material non-public information, I may be subject to severe civil or criminal penalties and may be subject to discipline by the Issuer up to and including termination for cause.

Name:

Date:

REVIEW AND DECISION

The undersigned has reviewed the foregoing application and approves / prohibits (circle one) the proposed trade(s).

Name:

Title:

Date:

Compliance, Internal Controls and Internal Audit Department ("CCIA")



Name:
Title:
Date:
Risks Department

Name:
Title:
Date:
Investor Relations Officer



I, Ignacio Rosado, certify that:

1. I have reviewed this annual report on Form 20-F of Nexa Resources S.A.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the company as of, and for, the periods presented in this report;
4. The company's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15-d-15(f)) for the company and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the company, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the company's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the company's internal control over financial reporting that occurred during the period covered by the annual report that has materially affected, or is reasonably likely to materially affect, the company's internal control over financial reporting; and
5. The company's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the company's auditors and the audit committee of the company's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the company's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the company's internal control over financial reporting.

/s/ Ignacio Rosado

Name: Ignacio Rosado
Title: President and Chief Executive Officer
Date: March 26, 2026

I, José Carlos del Valle, certify that:

1. I have reviewed this annual report on Form 20-F of Nexa Resources S.A.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the company as of, and for, the periods presented in this report;
4. The company's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15-d-15(f)) for the company and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the company, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the company's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the company's internal control over financial reporting that occurred during the period covered by the annual report that has materially affected, or is reasonably likely to materially affect, the company's internal control over financial reporting; and
5. The company's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the company's auditors and the audit committee of the company's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the company's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the company's internal control over financial reporting.

/s/ José Carlos del Valle

Name: José Carlos del Valle
Title: Senior Vice President of Finance and Group
Chief Financial Officer
Date: March 26, 2026

Certification

Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (Subsections (a) and (b) of Section 1350, Chapter 63 of Title 18, United States Code)

Pursuant to section 906 of the Sarbanes-Oxley Act of 2002 (subsections (a) and (b) of section 1350, chapter 63 of Title 18, United States Code), each of the undersigned officers of Nexa Resources S.A. (the "Company"), does hereby certify, to such officer's knowledge, that:

The Annual Report on Form 20-F for the year ended December 31, 2025 (the "Form 20-F") of the Company fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934 and information contained in the Form 20-F fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Ignacio Rosado

Name: Ignacio Rosado
Title: President and Chief Executive Officer
Date: March 26, 2026

/s/ José Carlos del Valle

Name: José Carlos del Valle
Title: Senior Vice President of Finance and Group Chief Financial Officer
Date: March 26, 2026

A signed original of this written statement required by Section 906 of the Sarbanes-Oxley Act of 2002 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.





Technical Report Summary on the Cerro Lindo Mine, Department of Ica, Peru

SLR Project No: 233.03246.R0000

Prepared by
SLR Consulting (Canada) Ltd.
55 University Ave., Suite 501
Toronto, ON M5J 2H7
for

Nexa Resources S.A.
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30380-380

Effective Date - December 31, 2020
Signature Date - January 29, 2021
Amended Date - October 18, 2021

FINAL

Distribution: 1 copy - Nexa Resources S.A.
1 copy - SLR Consulting (Canada) Ltd.



CONTENTS

1.0	EXECUTIVE SUMMARY	1-1
1.1	Summary	1-1
1.2	Economic Analysis	1-6
1.3	Technical Summary	1-11
2.0	INTRODUCTION	2-1
2.1	Site Visits	2-1
2.2	Sources of Information	2-1
2.3	List of Abbreviations	2-3
3.0	PROPERTY DESCRIPTION	3-1
3.1	Location	3-1
3.2	Land Tenure	3-1
3.3	Surface Rights and Easements	3-12
3.4	Tax Stability Agreement and Mining Special Tax	3-15
3.5	Material Government Consents	3-15
4.0	ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY	4-1
4.1	Accessibility	4-1
4.2	Climate	4-1
4.3	Local Resources	4-1
4.4	Infrastructure	4-1
4.5	Physiography	4-1
5.0	HISTORY	5-1
5.1	Exploration and Development History	5-1
5.2	Past Production	5-1
6.0	GEOLOGICAL SETTING, MINERALIZATION, AND DEPOSIT	6-1
6.1	Regional Geology	6-1
6.2	Local and Property Geology	6-3
6.3	Deposit Geology	6-9
6.4	Mineralization	6-11
6.5	Deposit Types	6-14
7.0	EXPLORATION	7-1
7.1	Exploration	7-1
7.2	Drilling	7-10
7.3	Hydrogeology	7-19
7.4	Geotechnical Data, Testing, and Analysis	7-19
8.0	SAMPLE PREPARATION, ANALYSES, AND SECURITY	8-1
8.1	Density Determinations	8-1
8.2	Analytical and Test Laboratories	8-4





8.3	Sample Preparation and Analysis	8-5
8.4	Sample Security	8-7
8.5	Quality Assurance and Quality Control	8-7
8.6	QA/QC Recommendations	8-27
9.0	DATA VERIFICATION	9-1
9.1	Databases	9-1
9.2	Internal Verification	9-1
9.3	External Verification 2003-2017	9-1
9.4	SLR Verification	9-2
10.0	MINERAL PROCESSING AND METALLURGICAL TESTING	10-1
10.1	Recent Test Work	10-1
10.2	LOM Plan	10-8
11.0	MINERAL RESOURCE ESTIMATES	11-1
11.1	Summary	11-1
11.2	Resource Database	11-3
11.3	Geological Interpretation	11-7
11.4	Geological Modelling	11-8
11.5	Domain Modelling	11-11
11.6	Resource Assays	11-24
11.7	Treatment of High Grade Assays	11-27
11.8	Compositing	11-36
11.9	Trend Analysis	11-39
11.10	Search Strategy and Grade Interpolation Parameters	11-43
11.11	Bulk Density	11-44
11.12	Block Models	11-53
11.13	Net Smelter Return and Cut-off Value	11-54
11.14	Classification	11-57
11.15	Block Model Validation	11-64
11.16	Mineral Resource Reporting	11-73
11.17	Comparison to Previous Mineral Resource Estimates	11-76
12.0	MINERAL RESERVE ESTIMATES	12-1
12.1	Summary	12-1
12.2	Dilution	12-2
12.3	Extraction	12-2
12.4	Net Smelter Return and Cut-off Value	12-3
13.0	MINING METHODS	13-1
13.1	Background	13-1
13.2	Mine Design	13-4
13.3	Mine Method	13-6
13.4	Geotechnical Considerations	13-8
13.5	Hydrogeological Considerations	13-13





13.6	Life of Mine Plan	13-13
13.7	Infrastructure	13-15
13.8	Mine Equipment	13-18
13.9	Manpower	13-19
14.0	PROCESSING AND RECOVERY METHODS	14-1
14.1	Process Description	14-1
15.0	INFRASTRUCTURE	15-1
15.1	Site Access	15-1
15.2	Power Supply	15-1
15.3	Water Supply	15-1
15.4	Site Buildings	15-2
15.5	Mine Waste Management	15-4
16.0	MARKET STUDIES	16-1
16.1	Markets	16-1
16.2	Contracts	16-6
17.0	ENVIRONMENTAL STUDIES, PERMITTING, AND PLANS, NEGOTIATIONS, OR AGREEMENTS WITH LOCAL INDIVIDUALS OR GROUPS	17-1
17.1	Environmental Studies	17-1
17.2	Mine Waste and Water Management	17-8
17.3	Project Permitting	17-10
17.4	Social or Community Requirements	17-13
17.5	Mine Closure Requirements	17-19
18.0	CAPITAL AND OPERATING COSTS	18-1
18.1	Capital Costs	18-1
18.2	Operating Costs	18-1
19.0	ECONOMIC ANALYSIS	19-1
19.1	Economic Criteria	19-1
19.2	Cash Flow	19-3
19.3	Sensitivity Analysis	19-7
20.0	ADJACENT PROPERTIES	20-1
21.0	OTHER RELEVANT DATA AND INFORMATION	21-1
22.0	INTERPRETATION AND CONCLUSIONS	22-1
22.1	Geology and Mineral Resources	22-1
22.2	Mining and Mineral Reserves	22-1
22.3	Mineral Processing	22-2
22.4	Environment, Permitting and Social Considerations	22-2
22.5	Costs and Economic Analysis	22-3
23.0	RECOMMENDATIONS	23-1





23.1	Geology and Mineral Resources	23-1
23.2	Mining and Mineral Reserves	23-1
23.3	Mineral Processing	23-2
23.4	Environment, Permitting and Social Considerations	23-2
23.5	Costs and Economic Analysis	23-2
24.0	REFERENCES	24-1
25.0	RELIANCE ON INFORMATION PROVIDED BY THE REGISTRANT	25-1
26.0	DATE AND SIGNATURE PAGE	26-1





TABLES

Table 1-1: Discounted Cash Flow Summary	1-9
Table 1-2: Summary of Mineral Resources - December 31, 2020	1-12
Table 1-3: Summary of Mineral Reserves - December 31, 2020	1-13
Table 1-4: Sustaining Capital Cost	1-16
Table 1-5: Mine Operating Cost Estimate	1-17
Table 3-1: Cerro Lindo Mineral Rights	3-2
Table 3-2: Cerro Lindo Beneficiation Concession	3-5
Table 3-3: Annual Fee per Mineral Right and Beneficiation Concession - 2020	3-9
Table 3-4: Main Government Consents	3-15
Table 5-1: Production History	5-1
Table 6-1: Dimensions of Main Mineralized Bodies within Mining Production Areas	6-12
Table 6-2: General Features of the Cerro Lindo Deposit	6-15
Table 7-1: 2019 Rock Chip Sampling Results At Ventanalloc Target	7-2
Table 7-2: 2019 Rock Chip Sampling Results At Toldo Chico Target	7-2
Table 7-3: Cerro Lindo Drilling Summary as of March 2, 2020	7-10
Table 7-4: Summary of Drilling Excluded from Mineral Resource Estimate as of March 2, 2020	7-11
Table 7-5: Summary of Drilling Included in Mineral Resource Estimate as of March 2, 2020	7-11
Table 7-6: Channel Sampling Summary at Cerro Lindo	7-12
Table 7-7: Core Recovery by Domain - 2019-2020	7-17
Table 7-8: Geotechnical Drilling - 2015-2020	7-19
Table 7-9: Physical Property Test	7-22
Table 7-10: Load Testing	7-22
Table 8-1: Number of Density Measurements by Sample Type and Year	8-1
Table 8-2: Analytical and Test Laboratories	8-4
Table 8-3: Detection Limits at Mine Laboratory, Inspectorate Lima and Certimin Lima	8-6
Table 8-4: QA/QC Sample Insertion Rates, 2014-2016	8-9
Table 8-5: 2014-2016 QA/QC Program Summary	8-9
Table 8-6: Control Sample Insertion Rate and Failure Criteria	8-10
Table 8-7: Summary of QA/QC Submittals from 2017 to 2020	8-10
Table 8-8: 2017-2020 Cerro Lindo In-House CRM Values	8-13
Table 8-9: 2017-2020 Cerro Lindo In-House CRM Performance	8-14
Table 8-10: 2017-2020 Cerro Lindo Blanks Performance	8-22
Table 8-11: 2017-2020 Cerro Lindo Duplicate Performance	8-24
Table 8-12: ALS Lima Versus Primary Laboratory Check Results - October, 2017 to April, 2019	8-26





Table 9-1: SLR Assay Certificate Verification Results	9-2
Table 10-1: Comminution Test Work Results for 2019 Geometallurgical Samples	10-4
Table 10-2: Flotation Composite Constituents	10-4
Table 10-3: Average of Locked Cycle Test Concentrate Analyses for the Last Two Cycles	10-5
Table 10-4: Bulk Rougher Concentrates from Variability Tests	10-5
Table 10-5: Zinc Rougher Concentrates from Variability Tests	10-6
Table 10-6: Summary of Historical Performance and LOM Plan	10-9
Table 11-1: Summary of Mineral Resources – December 31, 2020	11-2
Table 11-2: Mineral Resource Estimate by Mineralization Domains – December 31, 2020	11-2
Table 11-3: Excluded Holes	11-5
Table 11-4: Geological Domains	11-7
Table 11-5: Zn, Cu, Ag and Pb Grade Domains	11-11
Table 11-6: Estimation Domains	11-22
Table 11-7: Estimation Domain Raw Assay Statistics	11-24
Table 11-8: Grade Capping Levels	11-28
Table 11-9: Capped Assay Statistics	11-32
Table 11-10: Estimation Domain Composite Statistics	11-36
Table 11-11: Variogram Parameters	11-42
Table 11-12: Zinc Estimation Parameters	11-43
Table 11-13: Copper Estimation Parameters	11-44
Table 11-14: Density Data	11-45
Table 11-15: Assigned Density Values	11-45
Table 11-16: Density Capping Values	11-47
Table 11-17: Block Estimation Parameters for Bulk Density	11-48
Table 11-18: Statistical Comparison of Blocks versus Composites: Density	11-49
Table 11-19: Block Model Setup	11-53
Table 11-20: Block Model Attribute Descriptions	11-54
Table 11-21: Resource NSR Data	11-55
Table 11-22: Average NSR Factors	11-56
Table 11-23: Comparison Between Estimates (OK/ID ³), NN and Composite Means	11-64
Table 11-24: Cerro Lindo Comparison of 2020 Versus 2019 Mineral Resources	11-77
Table 12-1: Summary of Mineral Reserves – December 31, 2020	12-1
Table 12-2: Mine Dilution Factors	12-2
Table 12-3: Mine Stope Extraction Factors	12-3
Table 12-4: NSR Data	12-3





Table 12-5: Average NSR Factors	12-5
Table 13-1: Design Factors for Lithologies	13-8
Table 13-2: Geomechanical Classification	13-9
Table 13-3: Life of Mine Plan	13-14
Table 13-4: Mine Equipment List	13-18
Table 13-5: Equipment Performance Criteria and Productivities	13-19
Table 13-6: Nexa Mine Personnel	13-19
Table 13-7: Mine Contractor List	13-20
Table 16-1: Third Party Contractors	16-7
Table 17-1: Summary of Key Environmental Effects and Management Strategies	17-4
Table 17-2: Environmental, Mine Closure and Tailings Disposal Licences	17-11
Table 17-3: Summary of Main Closure Activities	17-21
Table 18-1: Sustaining Capital Cost	18-1
Table 18-2: Mine Operating Cost Estimate	18-1
Table 18-3: Manpower Distribution	18-2
Table 18-4: Contractors List - December 2020	18-3
Table 19-1: After-Tax Cash Flow Summary	19-4
Table 19-2: Cash Flow Analysis	19-7
Table 19-3: After-Tax Sensitivity Analysis	19-7

FIGURES

Figure 3-1: Mine Location	3-6
Figure 3-2: Land Tenure	3-7
Figure 3-3: Surface Rights	3-13
Figure 6-1: Regional Geology	6-2
Figure 6-2: Geological Map of the Cerro Lindo Property	6-4
Figure 6-3: Local Stratigraphic Column	6-5
Figure 6-4: Vertical Section through Mineralized Bodies Showing Mineralization Types	6-8
Figure 6-5: Cross-Section Schematic of the Massive Sulphide at Cerro Lindo	6-10
Figure 6-6: Main Mineralized Bodies within Mining Production Areas	6-13
Figure 6-7: Schematic Section Transversal to Sulphide Orebodies and Intrusions	6-16
Figure 7-1: 3D Chargeability Model and New Targets	7-4
Figure 7-2: Brownfield Exploration Targets by Priority	7-8
Figure 7-3: Brownfield Exploration Targets – Section and Plan View	7-9
Figure 7-4: Drill Hole Location	7-13





Figure 7-5: Schematic of Selected Drilling and Related Geological Interpretation	7-14
Figure 7-6: Location of Channel Sampling (2007-2016)	7-15
Figure 7-7: Histograms of RDQ and RMR	7-21
Figure 8-1: Distribution of Density Samples used for 2020 Mineral Resource Estimate by Year Analyzed	8-3
Figure 8-2: Sample Preparation and Quality Control Flowsheet (Milpo 2000-2001 Program)	8-6
Figure 8-3: CRM “MCL06” Results for Zinc – Mine and Certimin Laboratories – (2017-2018)	8-18
Figure 8-4: CRM “MCL07” Results for Copper – Mine and Certimin Laboratories – (2017-2018)	8-19
Figure 8-5: Cerro Lindo CRM Zn Performance for PECLSDT003 (2018-2020)	8-20
Figure 8-6: Cerro Lindo CRM “PECLSDT003 (2018-2020)” Results for Copper – Inspectorate Mine Laboratory	8-21
Figure 8-7: 2019-2020 Cerro Lindo Blank Zn and Cu Assays – Inspectorate Mine Laboratory	8-23
Figure 8-8: 2019-2020 Cerro Lindo Pulp Duplicates Zn and Cu Assays – Inspectorate Mine Laboratory	8-25
Figure 8-9: 2018-2019 2020 Cerro Lindo Zn and Cu External Check Assays – Inspectorate Mine Laboratory	8-27
Figure 9-1: Density Sampling Coverage Relative to Mineral Resources and Mineral Reserves	9-4
Figure 10-1: Sample Representation of Major Lithologies	10-1
Figure 10-2: Sample Representation of Orebodies	10-2
Figure 10-3: Location of Individual Samples in the Block Model	10-3
Figure 10-4: Locked Cycle Flotation Test Flowsheet	10-4
Figure 11-1: 3D View of Cerro Lindo Mineralized Solid and Drill holes	11-6
Figure 11-2: Structural Trends	11-9
Figure 11-3: Geological Model Shown with and without Dikes	11-10
Figure 11-4: Zn Distribution in SPB and SSM Domains	11-13
Figure 11-5: Cu Distribution in SPB and SPP Domains	11-14
Figure 11-6: Ag Distribution in SSM and VM Domains	11-15
Figure 11-7: SPB and SPP High and Low Grade Zn Domains – Plan View	11-16
Figure 11-8: SSM and VM High and Low Zn Domains – Plan View	11-17
Figure 11-9: SPB and SPP High and Low Grade Cu Domains – Plan View	11-18
Figure 11-10: SSM and VM High and Low Grade Cu Domains – Plan View	11-19
Figure 11-11: SPB and SPP High and Low Grade AG-Pb Domains – Plan View	11-20
Figure 11-12: SSM and VM High and Low Grade Ag-Pb Domains – Plan View	11-21
Figure 11-13: Capping Analysis for SPB Zn High Grade Mineralization	11-29
Figure 11-14: Capping Analysis for SPB Cu High Grade Mineralization	11-30
Figure 11-15: Capping Analysis for SPB Ag High Grade Mineralization	11-31
Figure 11-16: Copper Decile Analysis, Probability Plot, Histogram and Desintegration Analysis for Domain SPB HG	11-35





Figure 11-17: Composite Length Comparisons	11-36
Figure 11-18: Zn Variogram for Mineralization SPB Domain	11-40
Figure 11-19: Cu Variogram for Mineralization SPP Domain	11-41
Figure 11-20: Density Sample Location by Geological Domains	11-46
Figure 11-21: Density Capping Analysis for SPB Domain	11-47
Figure 11-22: Plan View of Block and Density Samples	11-50
Figure 11-23: SPB Swath Plots – Density Values	11-51
Figure 11-24: SPP Swath Plots – Density Values	11-51
Figure 11-25: SSM Swath Plots – Density Values	11-52
Figure 11-26: VM Swath Plots – Density Values	11-52
Figure 11-27: Zinc Recovery	11-56
Figure 11-28: Copper Recovery	11-57
Figure 11-29: Lead Recovery	11-57
Figure 11-30: Validation of Classification (SPB and SPP)	11-61
Figure 11-31: Validation of Classification (SSM and VM)	11-62
Figure 11-32: Final Classification Designation	11-63
Figure 11-33: Swath Plot: Zn Grade Variation along X, Y, and Z	11-68
Figure 11-34: Swath Plot: Cu Grade Variation along X, Y, and Z	11-69
Figure 11-35: Vertical Section Showing Zn Block versus Composite Grades	11-70
Figure 11-36: Vertical Section Showing Cu Block versus Composite Grades	11-71
Figure 11-37: Plant Versus Resource Model Reconciliation	11-72
Figure 11-38: Plan View of Mineral Resources Inclusive and Exclusive of Mineral Reserves	11-74
Figure 11-39: Longitudinal View of Mineral Resources Inclusive and Exclusive of Mineral Reserves	11-75
Figure 12-1: Zinc Recovery	12-5
Figure 12-2: Lead Recovery	12-6
Figure 12-3: Copper Recovery	12-6
Figure 13-1: Longitudinal Section of the Mine	13-2
Figure 13-2: Simplified Plan View of the 1820 m Level	13-3
Figure 13-3: Cerro Lindo Underground Mine Design	13-5
Figure 13-4: Production Drilling Layout	13-7
Figure 13-5: Stability and Rock Quality Indices	13-9
Figure 13-6: Ground Support Standards	13-11
Figure 13-7: Finite Element Model for T320-1880 Stope Safety Factor Assessment	13-12
Figure 13-8: LOM Production Profile	13-13
Figure 13-9: Cerro Lindo Ventilation Circuit Schematic	13-16





Figure 14-1: Cerro Lindo Process Plant Layout	14-2
Figure 14-2: Simplified Process Flowsheet	14-3
Figure 15-1: Surface Plan of Infrastructure	15-3
Figure 15-2: Mine Site Layout and Waste Management Areas	15-5
Figure 15-3: Tailings Dry Stack Pahuaypita 2 and Supporting Infrastructure	15-7
Figure 16-1: Zinc Price Outlook (2020-2025)	16-2
Figure 16-2: Refined Copper Market Balance (2020-2025)	16-3
Figure 16-3: Copper Price Outlook (2020-2025)	16-4
Figure 16-4: Lead Price Outlook (2020-2025)	16-5
Figure 16-5: Silver Price Outlook (2020-2025)	16-6
Figure 17-1: Water Supply System for Cerro Lindo Mine	17-9
Figure 18-1: Operating Cost Profile	18-2
Figure 19-1: After-Tax NPV Sensitivity Graph	19-9





1.0 EXECUTIVE SUMMARY

1.1 Summary

SLR Consulting Ltd (SLR) was retained by Nexa Resources S.A. (Nexa) to prepare an independent Technical Report Summary on the Cerro Lindo Mine (Cerro Lindo or the Mine), located in the Department of Ica, Peru. The purpose of this report is to support the Mineral Resource and Mineral Reserve estimates for the Mine as of December 31, 2020. This Technical Report Summary conforms to United States Securities and Exchange Commission's (SEC) Modernized Property Disclosure Requirements for Mining Registrants as described in Subpart 229.1300 of Regulation S-K, Disclosure by Registrants Engaged in Mining Operations (S-K 1300) and Item 601 (b)(96) Technical Report Summary. SLR visited the property from June 4 to 7 and June 18 to 20, 2019. SLR has prepared this amended Technical Report Summary to disclose Mineral Resources and Mineral Reserves attributable to Nexa only, provide additional information about metallurgical recoveries and lead and silver markets, and to disclose the accuracy of the cost estimates. SLR notes that the effective date of the technical information contained herein remains December 31, 2021.

Nexa is a publicly traded company on the Toronto Stock Exchange (TSX) and the New York Stock Exchange (NYSE). It is a reporting issuer in all provinces and territories of Canada.

Nexa is a large-scale, low-cost, integrated zinc producer with over 60 years of experience developing and operating mining and smelting assets in Latin America. Nexa has a diversified portfolio of polymetallic mines (zinc, lead, copper, silver, and gold) and also greenfield projects at various stages of development in Brazil and Peru. In Brazil, Nexa owns and operates two underground mines, Vazante and Morro Agudo (Zn and Pb). It also operates two zinc smelters in Brazil (Três Marias and Juiz de Fora). In Peru, Nexa operates the El Porvenir (Zn, Pb, Cu, and Ag), Cerro Lindo (Zn, Cu, Pb, and Ag), and Atacocha (Zn, Cu, Pb, Au, and Ag) mines, as well as the Cajamarquilla zinc smelter near Lima. Nexa's development projects in Peru include Magistral, Shalipayco, Florida Canyon (JV with Solitario), Hilarión, and Pukaqaqa. In Brazil, Nexa is developing the Aripuanã Zinc Project (Zn, Pb, Cu, Au, and Ag), which is currently under construction.

Cerro Lindo is located in the Chavín District, Chinchá Province, Ica Department of Peru, approximately 268 km southeast of Lima. Nexa owns a total of 80.16% in the Mine that corresponds to the sum of Nexa's direct interest in Nexa Resources Peru S.A.A. (Nexa Peru) (0.17%) and Nexa's indirect interest in Nexa Peru (80.06%) through its controlled company Nexa Resources Cajamarquilla S.A. (99.91%), and the remaining 19.76% are floating shares. Cerro Lindo commenced operations in 2007 and comprises an underground zinc-lead-copper-silver mine, a conventional comminution flotation process plant, a coastal desalination plant, and associated infrastructure. The Mine produces separate zinc, lead, and copper concentrates with silver content. In 2020, the Mine produced 105,876 tonnes (t) of zinc, 32,499 t of copper, 15,688 t of lead, and 4,254,239 ounces (oz) of silver. As of December 2020, the Mine is scheduled to produce a total of approximately 52 million tonnes (Mt) of Mineral Reserves over a mine life of nine years.

Production in 2020 was significantly lower than in 2019 impacted by the COVID-19 pandemic and associated production interruptions. On March 15, 2020, the Peruvian Government declared a national emergency and imposed operating business restrictions including on the mining sector. The quarantine period was initially expected to last until the end of March but was subsequently extended up to May 10, 2020. As a consequence of the government restrictions, Nexa suspended production at Cerro Lindo. During this period, mining activities were limited to critical operations with a minimum workforce to ensure appropriate maintenance, safety, and security. On May 6, the Peruvian Government announced the conditions for the resumption of operations for different sectors, including mining operations above 5,000 tonnes per day (tpd). Cerro Lindo operations, which were suspended on March 18, restarted production on May 11, 2020, following the end of the quarantine period. After the resumption of operations, Cerro Lindo ramped up production to pre-pandemic levels by June 2020.

1.1.1 Conclusions

SLR has the following conclusions by area.



Nexa Resources S.A. | Cerro Lindo Mine, SLR Project No: 233.03246.R0000
Technical Report Summary - January 29, 2021



1.1.1.1 Geology and Mineral Resources

- As of December 31, 2020, exclusive of Mineral Reserves, Measured Mineral Resources are estimated to total 3.53 Mt at 2.00% Zn, 0.20% Pb, 0.67% Cu, and 19.61 g/t Ag and Indicated Mineral Resources are estimated to total 2.77 Mt at 1.37% Zn, 0.25% Pb, 0.45% Cu, and 24.96 g/t Ag. In addition, Inferred Mineral Resources are estimated to total 6.30 Mt at 1.28% Zn, 0.35% Pb, 0.33% Cu, and 31.23 g/t Ag. Mineral Resources are reported on an 80.16% Nexa attributable ownership basis.
- Cerro Lindo is a Kuroko-style volcanogenic massive sulphide (VMS) deposit that comprises a number of lens-shaped massive and semi-massive sulphide bodies.
- Three massive sulphide units, one semi-massive sulphide unit, and one mineralized volcanic rock unit have been recognized.
- The control of mineralization is lithological, mineralogical, and structural. Most copper mineralization is located in a pyritic massive sulphide unit and most zinc mineralization is located in baritic massive sulphide units, with lesser disseminated mineralization as patches or stringers in the semi-massive sulphide and mineralized volcanic units.
- The geological setting, geophysical studies, surface samples and geological mapping of the Cerro Lindo area present good exploration potential, as a number of targets have already been identified within a ten kilometre radius of the mining operation.
- Protocols for drilling, sampling preparation and analysis, verification, and security meet industry standard practices and are appropriate for the purposes of a Mineral Resource estimate.
- The quality assurance/quality control (QA/QC) program as designed and implemented by Nexa is adequate, with no significant bias, to support the resource database. The resource database was verified by SLR and is suitable for Mineral Resource estimation.
- The geological models are reasonably constructed using available geological information and are appropriate for Mineral Resource estimation.
- The assumptions, parameters, and methodology used for the Cerro Lindo Mineral Resource estimate are appropriate for the style of mineralization and proposed mining methods.

1.1.1.2 Mining and Mineral Reserves

- As of December 31, 2020, Proven and Probable Mineral Reserves are estimated to total 41.76 Mt at 1.44% Zn, 0.20% Pb, 0.61% Cu, and 21.17 g/t Ag. Mineral Reserves are reported on an 80.16% Nexa attributable ownership basis.
- Dilution and extraction factors follow the historical trend and are considered appropriate for the type of stoping methods employed at Cerro Lindo.
- The level of dilution will likely increase in the latter years of production as the stopes on the fringes of the deposit will increase exposing the stopes to more external dilution.
- The level of extraction will likely decrease under similar circumstances as more care will be required to avoid excess dilution in the ore.
- Modifications to the mining approach for the areas requiring a more conventional method such as cut and fill (C&F) will be required in the latter years when mining the fringes of the deposit. Paste backfill delivery is an issue when stopes are distant from the paste fill source requiring dilution with water which in turn can result in lower strength backfill. This does not represent a significant risk to the Mineral Reserve estimate, as C&F represents a small amount of the total Mineral Reserves. Pastefill can also be substituted with cemented rock fill (CRF). CRF can be mixed underground closer to the C&F stopes.

1.1.1.3 Mineral Processing

- The development of a geometallurgical model to predict metallurgical response during future processing at Cerro Lindo remains a work in progress. Additional work and metallurgical testing are necessary to confirm the validity of the relationships derived to date for throughput, grinding media consumption, recovery, and concentrate quality.





- Analysis of historical production demonstrates that recoveries of copper, lead, and zinc are related to their head grades, while silver recoveries to the copper and lead concentrates tend to follow the copper and lead head grades.
- Average life of mine (LOM) planned head grades of copper, lead, and silver for the next three years are similar to those experienced from 2016 to 2020 at 0.48%, 0.25%, and 0.70 oz/t, respectively, while the planned head grades of zinc decrease steadily from 1.8% after 2020.
- Head grades towards the end of the LOM are anticipated to decrease, particularly those of zinc. Forecast recoveries and concentrate grades are initially in line with those of recent years, and then predicted to fall as head grades decrease.
- Apart from decreasing head grades, no fundamental changes to the concentrator feed are anticipated, and in the Qualified Person's (QP) opinion, based on recent processing plant performance, the forecast recoveries and concentrate qualities for the near future are reasonable. With end of LOM zinc and lead head grades being well below the historical ranges, however, there is a risk that actual recoveries may be lower than forecast due to the lack of data on processing material with these low head grades.
- A small amount of transition or supergene ore has been identified in two stopes, and test work is underway to determine economical alternatives for processing the ore, e.g., by campaigning the supergene material through the processing plant using conditions and reagents optimized specifically for this material.

1.1.1.4 Environment, Permitting and Social Considerations

- No known environmental issues were identified during the site visit and documentation review. The Cerro Lindo Mine operation complies with applicable Peruvian permitting requirements and Nexa maintains a list of permits for the Project, which was provided to SLR. The approved permits address the authority's requirements for operation of the underground mine, tailings storage facilities (TSF), waste rock dumps, process plant, water usage, and effluents discharge. There is no discharge of industrial or domestic water to the environment at the mine site.
- There is a comprehensive Environmental Management Plan (EMP) in place, which includes a complete monitoring program for effluent discharges, gas emissions, air quality, non-ionizing radiation, noise, surface water quality, groundwater quality, soil quality, terrestrial biology (vegetation and wildlife), and aquatic biology. Cerro Lindo reports the results of the monitoring program to the authorities according to the frequency stated in the approved resolutions and no compliance issues have been raised by the authorities. In the SLR QP's opinion the proposed environmental plans are adequate to address potential issues related to environmental compliance.
- Regarding the tailings dry-stack storage facilities, some movement of the tailings relative to the foundation has been noted from the tailings monitoring data, however, phreatic levels in the tailings are very low and the range of movement is considered to be within normal parameters. It is noted that the likelihood of the mine site experiencing a severe seismic event is relatively high given the mine site proximity to a major tectonic plate subduction zone.
- Water management involves complete recirculation of water at the mine site where there is no fresh water withdrawal from natural water bodies and there is no discharge of industrial or treated sewage water to the environment. Fresh water is being supplied from a desalination plant located at the coast to meet site and process water make-up requirements. Water quality monitoring is carried out monthly at stations located along the Topará Creek at the mine site and in Jahuay beach at the discharge location from the desalination plant.
- A Mine Closure Plan has been developed for all the Mine components within the context of Peruvian legislation and is periodically updated.
- A social baseline description, assessment of socio-economic impacts, and a social management plan have been carried out to mitigate negative impacts and maximize positive benefits of the Cerro Lindo Mine. These components are generally consistent with social impact assessment practices. The Social Management Plan is comprised of three plans (Communications Plan, Community Relations Plan, and Community Development Plan) and includes measures and indicators to track social management performance. Nexa implements a complaint register to gather and respond to complaints from the public. In the SLR QP's opinion the Social Management Plan and the grievance mechanism in place are adequate to address potential issues related to local communities.





- Nexa hires from the local workforce when possible, both for skilled and unskilled workers. Outreach is conducted to the local community through social and employment programs.
- The review of social aspects indicates that, at present, Nexa's operations at the Cerro Lindo site in Peru are a positive contribution to sustainability and community well-being. Nexa has established and continues to implement its various Corporate policies, procedures, and practices in a manner consistent with relevant International Finance Corporation (IFC) Performance Standards. Nexa has, and continues to make, a positive contribution to the communities most affected by the Mine and has done a thorough job in collecting information to support its environmental effects assessment. Information regarding the outcomes of the complaints and grievances reports and site-specific health and safety practices was not provided at the time of this review, however, the corporate policies that guide these activities are clear and aligned with IFC Performance Standards.
- The water quality concerns outside of the mine site that communities express from time to time remain a risk for the operations at Cerro Lindo.

1.1.1.5 Costs and Economic Analysis

- SLR reviewed the sustaining capital costs and considers them to be appropriate for the remaining mine life. The sustaining capital costs are spread over the LOM period from 2021 to 2029, with mine closure in 2030. The bulk of the sustaining capital is mine development required to both access and develop the stoping blocks for mining. Equipment replacement is comprised of new equipment and equipment overhauls.
- The LOM operating cost forecast reflects the existing operating status of the mine. The SLR QP has reviewed recent operating costs and is of the opinion that the forecast is appropriate for the Cerro Lindo mine operation. Cerro Lindo staff also continue to assess operating efficiencies and approaches in efforts to improve operating costs in the different cost centres.
- The economics of the Cerro Lindo mine operation are robust over the LOM, confirming that the Cerro Lindo Mineral Reserves are economically viable. The economic analysis shows an after-tax net present value (NPV), at an 9% base discount rate, of \$304 million, on a 100% Mine basis (Nexa owns 80.16%).

1.1.2 Recommendations

SLR has the following recommendations by area.

1.1.2.1 Geology and Mineral Resources

1. Improve reconciliation processes by implementing a formal procedure and by forming a multi-disciplinary team to organize and analyze reconciliation results so that production data can be used to calibrate future resource and reserve models.
2. Investigate the potential 5% negative bias for lead at Inspectorate Lima.
3. Incorporate controls to reduce failure rates observed for some lead and silver CRMs.
4. Actively monitor blank results so any contamination issues can be corrected immediately, particularly the mine samples where there is no remaining core for re-analysis.
5. Take density measurements for pyritic oxidized sulphides (SOP), baritic oxidized sulphides (SOB), and leached massive sulphides (SLB) domains, and collect more density samples at the extremities of the mineralization where resource and reserve shapes were generated.





6. Investigate building grade domains without separating them by geological domain to preserve grade continuity, evaluate incorporating mineralogy data, and review the geometry and trends of the grade domains
7. Improve dynamic anisotropy (DA) angles particularly for the OB1 area based on grade trends and structural interpretations and potential further sub-domaining.
8. Continuously improve post-mineralization dike modelling to capture more of the logged intercepts and core angles, as well as contacts based on the underground mapping. Dikes are important to delimit internal waste and to guide the local interpolation strategy as some of them are behaving like faults by controlling the mineralization trends.
9. Build a more detailed structural model and structural domains to customize local search anisotropies and directions. It appears that there are at least four main structural trends present (northwest-southeast dipping northeast, northwest-southeast dipping southwest, northeast-southwest dipping northwest, and west-northwest/east-southeast dipping northwest and plunging west-northwest) that should be investigated further. Some mineralization domains appear to have mineralization trending in various directions due to local faulting and folding and further sub-domaining may be warranted.
10. Using the production data, monitor the chosen drill spacing for SSM and VM to determine if sufficient confidence is provided to support detailed mine planning, as these domains show less grade continuity and more grade variability than the massive sulphide domains.
11. Optimize resource shapes to reduce unnecessary internal dilution and improve grades, and possibly generate more shapes that were not built due to the resource shape construction methodology used.
12. Generate a no survey solid to account for the mined-out areas that were not surveyed, and document work to support the resultant solid.
13. Document all the data support to define non-recoverable solids and document any changes.
14. Complete the proposed 2021 exploration program, consisting of a 35,100 m of diamond drilling, and continue with advanced exploration, including geological mapping, and geochemical and geophysical surveys. The 2021 exploration program budget is approximately US\$7.1 million.
15. Complete the proposed 2021 mine geology drilling, consisting of 48,000 m with a goal of upgrading Inferred Mineral Resources to Indicated or Measured Resources (recategorization drilling) and for mine planning purpose (infill drilling) and ultimately convert them into Probable or Proven Mineral Reserves. The 2021 mine geology drilling program budget is approximately US\$3.1 million.

1.1.2.2 Mining and Mineral Reserves

1. Review the stope designs to address the potential for increased dilution as mining nears the deposit limits. The use of shanty back design could be useful in addressing this issue.
2. Adjust the mining methods to reduce the level of internal dilution. Trade-off studies will be required to assess all aspects of the methods.
3. Complete a trade-off study comparing the use of CRF in areas that are distant from the paste fill source requiring high water content for delivery and lowering the backfill quality.
4. Consider upgrading the mine's underground data-communications capabilities by replacing the present leaky-feeder system with a Wi-Fi fibre-optic network or a 4G-LTE cellular network.
5. An upgraded communications system will permit implementing centralized control and monitoring of underground operations from a control room on surface. These centralized functions can include real-time tracking of personnel and equipment, telemetry, ventilation-on-demand, and closed-circuit television, among other applications.
6. With a wireless communications system, consider implementing automated and/or tele-remote technology to operate equipment from control stations on surface. The technology can be used for mucking stopes, mucking development headings, production drilling, crushing, and operating rockbreakers, among other applications. A significant benefit is that it allows many mining operations to continue during otherwise non-productive periods, including lunch breaks, shift changes, blasting times, and ventilating smoke.





1.1.2.3 Mineral Processing

- 1. Re-evaluate the potential benefits that may be derived from a geometallurgical model to determine if additional test work and further development of a geometallurgical model will provide more valuable information than what is already available from test work results.
- 2. Conduct flotation test work on ore samples representing the lower lead and zinc head grades anticipated towards the end of the LOM to provide information on recovery and concentrate quality for planning purposes.
- 3. Continue investigations into development of processing conditions suitable for campaigning transition/supergene ore through the plant.

1.1.2.4 Environment, Permitting and Social Considerations

- 1. Continue identifying and comparing solutions for storing tailings for the remainder of the LOM.
- 2. Evaluate the long term environmental impacts of allowing the tailings valley runoff to pond against and seep through the Pahuaypita waste rock dump.
- 3. Continue with participatory monitoring of water quality and implement social commitments to help improve access to water and water quality in the area.
- 4. Sourcing local employment may be difficult with expanded and continued operations as Nexa has already reported that sourcing local employees has, at times, been challenging. Continue with commitments in educating, training, recruitment, and diversity targeted to the local workforce.
- 5. Improve social and employment policies and procedures by developing mechanisms to communicate the outcomes of the employee and community focused activities with stakeholders and the public, particularly with a focus on access to water and perception about water quality.
- 6. Confirm the basis for the community of Chavin's categorization as an Indigenous group by the Ministry of Culture in 2020 and conduct a gap analysis with respect to its 2018 impact assessment studies to determine the need for additional socio-cultural studies focused on Indigenous Peoples. The categorization of the community of Chavin by the Ministry of Culture should be explicitly acknowledged in Nexa's Social Management Plan and its sub-plans (Communications Plan, Social Concertation Plan, and Community Development Plan) modified accordingly.

1.1.2.5 Costs and Economic Analysis

- 1. Continuously monitor costs and lock in costs as soon as possible to eliminate economic uncertainty.
- 2. Continue efforts towards improving efficiencies and approaches to mining and development operations as opportunities arise in these areas.

1.2 Economic Analysis

The economic analysis contained in this Technical Report Summary is based on Cerro Lindo's Mineral Reserves reported on a 100% ownership basis (Nexa owns 80.16%), economic assumptions provided by Nexa, and the capital and operating costs as presented in Section 18 of this Technical Report Summary.

Nexa has a silver streaming agreement with Triple Flag Mining Finance Bermuda Ltd. (Triple Flag) on silver production from the Cerro Lindo Mine. Triple Flag has the rights to 65% of all payable silver, at a cost of 10% of the spot silver price (up to a total of 19.5 million ounces (Moz) Ag). After the total has been reached, currently anticipated to be in 2027, Triple Flag is entitled to 25% of payable silver.

1.2.1 Economic Criteria

1.2.1.1 Physicals

- Mine life: 9 years (between 2021 and 2029):





- Underground ore tonnes mined: 52,101 kt
 - o Cu grade: 0.61%
 - o Zn grade: 1.44%
 - o Pb grade: 0.20%
 - o Ag grade: 21.2 g/t
- Processed:
 - o Total Ore Feed: 52,101 kt
 - \$ Cu grade: 0.61%
 - \$ Zn grade: 1.44%
 - \$ Pb grade: 0.20%
 - \$ Ag grade: 21.2 g/t
 - o Contained Metal:
 - \$ Cu: 319 kt
 - \$ Zn: 748 kt
 - \$ Pb: 106 kt
 - \$ Ag: 35,472 koz
 - o Metallurgical Recoveries at LOM average grade (recoveries vary as a function of head grade):
 - \$ Cu recovery 86.3%
 - \$ Zn recovery 88.1%
 - \$ Pb recovery 68.6%
 - \$ Ag in Cu recovery 39.9%
 - \$ Ag in Pb recovery 28.9%
 - o Recovered Metals:

\$ Cu:	277 kt
\$ Zn:	660 kt
\$ Pb:	74 kt
\$ Ag:	26,527 koz
 - o Payable Metals:

\$ Cu:	266.7 kt
\$ Zn:	561.2 kt
\$ Pb:	70.6 kt
\$ Ag:	22,446 koz

1.2.1.2 Revenue

- Revenue is estimated based on the following LOM weighted average metal prices:
 - o Cu price: US\$6,458/t





- o Zn price: US\$2,487/t
- o Pb price: US\$1,987/t
- o Ag price - spot: US\$17.01/oz
- Net Revenue includes the benefit of Cerro Lindo's zinc concentrate processed at Nexa's Cajamarquilla (CJM) zinc refinery in Peru (61%) and Très Marias (TM) (35%) and Juiz de Fora (JF) (4%) zinc refineries in Brazil. This integration with Nexa's internal refineries provides the benefit of additional US\$150.34/t zinc selling price in average, and zinc smelting at cost (rather than at commercial third-party terms).
- Logistics, Treatment and Refining charges:
 - o LOM average Transportation/Logistics charges:
 - \$ Cu concentrate: US\$109.26/t concentrate
 - \$ Zn concentrate: US\$64.82/t concentrate (weighted average logistic integration cost with CJM, TM, and JF refineries)
 - \$ Pb concentrate: US\$108.75/t concentrate
 - o Treatment Charges:
 - \$ TC+RC Cu concentrate: US\$112.35/t concentrate
 - \$ TC Zn concentrate for export: US\$238.91/t concentrate
 - \$ TC Pb concentrate: US\$201.16/t concentrate
 - \$ Refined Zn weighted average conversion costs at CJM, TM, and JF refineries: US\$443.10/t
 - o Refining Charges:
 - \$ Ag in Cu concentrate: US\$0.50/oz
 - \$ Ag in Pb concentrate: US\$1.00/oz
- NSR Revenue after Logistics, Treatment and Refining charges is US\$3,076 million.

1.2.1.3 Capital Costs

- LOM sustaining capital costs of US\$154.8 million.
- LOM working capital balance of US\$117.7 million.
- Closure costs of US\$57.2 million were included at the end of the Mineral Reserves based LOM in year 2030.

1.2.1.4 Operating Costs

- LOM unit operating cost average of:
 - o Mine Development: US\$4.44/t mined
 - o Underground Mining: US\$15.18/t mined
 - o Processing: US\$11.95/t milled
 - o G&A: US\$3.01/t milled
- Total unit operating costs of US\$34.58/t milled.
- LOM operating costs of US\$1,801 million.

1.2.1.5 Taxation and Royalties

- Corporate tax rate in Peru is 29.50%.





- Special Mining Tax (IEM/GEM) LOM average rate: 4.3%.
- Mining royalties LOM average rate: 4.3%.
- Employees participation: 8%.
- SLR has relied on a Nexa taxation model for calculation of income taxes applicable to the cash flow.

1.2.2 Cash Flow Analysis

SLR developed a LOM after-tax cash flow model for the Cerro Lindo Mine to confirm the economics of the LOM plan. The model is based on Nexa’s TR Cerro Lindo 2020 Final2 model. The model does not take into account the following components:

- Financing costs
- Insurance
- Overhead cost for a corporate office

The economic analysis confirmed that the Cerro Lindo Mineral Reserves are economically viable. The pre-tax NPV at a 9% discount rate is US\$639 million and the after-tax NPV at a 9% discount is US\$304 million, on a 100% Mine basis (Nexa owns 80.16%).

A discounted cash flow summary is presented in Table 1-1. All costs are in Q4 2020 US dollars with no allowance for inflation.

Table 1-1: Discounted Cash Flow Summary
Nexa Resources S.A. - Cerro Lindo Mine

	Units	Total LOM
Production		
LOM	years	9
UG Production	'000 tonnes	52,101
Ag Grade	gr/t	21.2
Cu Grade	%	0.61%
Pb Grade	%	0.20%
Zn Grade	%	1.44%
Concentrate Production		
Cu Concentrate	dmt	1,071,157
Pb Concentrate	dmt	116,434
Zn Concentrate	dmt	1,121,767
Recovered		
Ag	oz	26,526,801
Cu	tonnes	277,430
Pb	tonnes	74,308
Zn	tonnes	660,272
Metal Prices		
LOM average - Ag	US\$/oz	17.05





	Units	Total LOM
LOM average - Cu	US\$/tonne	6,458
LOM average - Pb	US\$/tonne	1,987
LOM average - Zn	US\$/tonne	2,487
Cash Flow		
Gross Revenue	US\$ million	3,718
Transport / TC-RC Charges	US\$ million	(642)
Royalties	US\$ million	(184)
Net Revenue	US\$ million	2,892
Operating Costs		
Mining Costs	US\$ million	(1,022)
Processing Costs	US\$ million	(623)
G&A	US\$ million	(157)
Other Costs	US\$ million	(25)
Operating Cash Flow	US\$ million	1,065
Direct Capital Costs	US\$ million	(19)
Sustaining Capital Costs	US\$ million	(136)
Reclamation & Closure	US\$ million	(57)
Change Working Capital	US\$ million	118
Pre-Tax Net Cash Flow	US\$ million	971
Taxes - Income Tax	US\$ million	(407)
Taxes - IEM/GEM	US\$ million	(73)
After-Tax Cashflow	US\$ million	491
Project Economics		
Pre-Tax		
Pre-tax NPV at 8%	US\$ million	667
Pre-tax NPV at 9%	US\$ million	639
Pre-tax NPV at 10%	US\$ million	612
After-Tax		
After-Tax NPV at 8%	US\$ million	319
After-Tax NPV at 9%	US\$ million	304
After-tax NPV at 10%	US\$ million	290

1.2.3 Sensitivity Analysis

SLR conducted cash flow sensitivity analyses on the after-tax NPV at a 9% discount rate, to identify project risks, using metal price, head grade, metallurgical recovery, capital costs and operating costs.





The Project after-tax NPV is most sensitive to metal prices, head grade, followed by operating costs, metallurgical recovery, and capital costs.

1.3 Technical Summary

1.3.1 Property Description and Location

The Mine is located in the Chavín District, Chincha Province, Ica Department of Peru, approximately 268 km southeast of Lima and 60 km from the coast. The approximate coordinates of the Mine are 392,780m E and 8,554,165m N, using the UTM_WGS84 datum.

The current access from Lima is via the Panamericana Sur highway to Chincha (180 km) and then via an unpaved dirt road (60 km) from Huamanpuquio up the river valley. The closest commercial airport is Jorge Chavez, at Callao, approximately 300 km northwest.

1.3.2 Land Tenure

Cerro Lindo consists of 68 mineral concessions covering an area of 43,750.19 ha, and one beneficiation concession covering an area of 518.78 ha. The concessions are located in the districts of Chavin, Lunahuana, San Juan de Yanac, Grocio Prado, Pueblo Nuevo and Pacaran, provinces of Chincha and Cañete, departments of Lima and Ica in Peru.

Nexa owns a total of 80.16% in the Mine that corresponds to the sum of Nexa’s direct interest in Nexa Resources Peru (0.17%) and Nexa’s indirect interest in Nexa Peru (80.06%) through its controlled company Nexa Resources Cajamarquilla S.A. (99.91%), and the remaining 19.76% are floating shares.

1.3.3 History

Artisanal-style mining of outcropping barite bodies for use by the oil industry began in the early 1960s. The Cerro Lindo deposit was discovered in 1967, during a colour anomaly reconnaissance program. Compañía Minera – Milpo S.A.A. (Milpo), a predecessor company to Nexa Peru, acquired the property in 1984. From 1984 to 2011, Milpo carried out geological mapping, geophysical surveys, geochemical sampling, drilling, and trenching over the property. A feasibility study was completed in 2002 and construction started in 2006. The Mine commenced production in 2007.

To June 30, 2020, the Mine had produced a total of approximately 66.4 Mt of ore.

1.3.4 Geology and Mineralization

The Cerro Lindo deposit is located in a 30 km by 10 km northwest trending belt of marine volcano-sedimentary rocks of the Middle Albian to Senonian (mid-Cretaceous) Huaranguillo Formation, belonging to the Casma Group, which is located within Tertiary intrusions of the Coastal Batholith. The Huaranguillo Formation fills the Canete volcano-sedimentary basin, one of the several similar basins that form the Casma Metalotect at the western side of the Andean Cordillera Occidental. In addition to Cerro Lindo, the Casma Metalotect hosts a number of important volcanogenic massive sulphide (VMS) deposits, including Tambogrande, Perubar, Potrobayo, Totoral, Maria Teresa, Aurora Augusta, and Palma

The Cerro Lindo deposit is a Kuroko-type VMS deposit. Mineralization is hosted in a pyroclastic unit composed of ash and lapilli-type polymictic tuffs of the Huaranguillo Formation. The deposit comprises lens-shaped, massive and stringer zones composed of pyrite, sphalerite, galena, chalcopyrite, and barite. The mineralization has characteristic zoning from zinc-rich to pyrite-rich and associated sericitic-pyritic alteration.

The mineralization has been divided into 19 mining production areas, which are termed OB-1, OB-2, OB-2B, OB3-4, OB-5, OB-5B, OB-5C, OB-5D, OB-6, OB-6A, OB-6B, OB-6C, OB-7, OB-8, OB-9, OB-10, OB-11, OB-12, OB-13, and OB-14. The mineralized lenses exhibit an irregular elongated geometry, and their longest axis (nearly 500 m) has a northwest-southeast horizontal trend (azimuth 135°). The mineralized bodies are up to 300 m thick and 100 m wide and generally dip to the southwest at 65° on average.





1.3.5 Exploration Status

A total of 4,808 drill holes totalling 654,129.63 m, as of March 02, 2020, have been completed at Cerro Lindo since 1995. Exploration has been carried out systematically since 2007. The 2020 exploration program, including an additional 52 drill holes totalling 19,541.4 m as of December 31, 2020, confirmed the continuity of the mineralization at the OB-13 and OB-14 zones towards the northwest and also for OB-14 at depth towards the southeast, as well as the upper part of OB-5B between the 1750 and 1950 levels, with an average thickness of 15 m trending northeast. Future exploration priorities include deeper stratigraphic levels of known mineralized zones at Cerro Lindo, as well as Northwest Extension OB3-4 and OB-12, Cerro Lindo Southeast Extension, Pucasalla, Pucasalla East, Festejo, Ventanalloc, Patahuasi Millay, Orcocobre, Toldo Grande, Pucatoro, Toldo Chico, Chavin del Sur, Mesa Rumi, Festejo Norte, Festejo Sur, Puca Punta, Pucasalla Norte, OB-14 Upper and Pucasalla Sur targets. Exploration work planned for 2021 includes 35,100 m of diamond core drilling focused on defining Inferred Mineral Resources at six different targets (Pucasalla, OB-6, OB-5B, OB-12, OB-8, and Patahuasi Millay areas), an airborne geophysical versatile time domain electromagnetic (VTEM) survey for all the exploration targets, 1:2,000 scale geological surface mapping for Pucasalla, Pucatoro and Orcocobre, and a geochemical gas sampling survey. In addition to the exploration program, the mining geology team plans to drill an additional 48,000 m with a goal of upgrading Inferred Mineral Resources and for mine planning purpose.

1.3.6 Mineral Resources

The Mineral Resource estimate for the Cerro Lindo Mine, as of December 31, 2020, using all data available as of March 2, 2020 was completed by Cerro Lindo staff and reviewed by SLR.

The Mineral Resource estimate was completed using Datamine Studio RM and Leapfrog Geo software. Wireframes for geology and mineralization were constructed in Leapfrog Geo based on geology sections, assay results, lithological information, underground mapping, and structural data. Assays were capped to various levels based on exploratory data analysis and then composited to 2.5 m lengths. Wireframes were filled with blocks sub-celled at wireframe boundaries. Blocks were interpolated with grade using the ordinary kriging (OK) and inverse distance cubed (ID³) interpolation algorithms. Block estimates were validated using industry standard validation techniques. Classification of blocks used distance-based and other criteria. The Mineral Resource estimate was reported using all the material within resource shapes generated in Deswik Stope Optimizer (DSO) software, satisfying the minimum mining size, continuity criteria, and using a net smelter return (NSR) cut-off value of US\$33.56/t for SLS resource shapes and US\$49.90/t for C&F resource shapes. NSR cut-off values for the Mineral Resources are based on a zinc price of US\$1.30/lb, a lead price of US\$1.02/lb, a copper price of US\$3.37/lb, and a silver price of US\$19.38/oz.

The SLR QP reviewed the Mineral Resource assumptions, input parameters, geological interpretation, and block modelling and reporting procedures, and is of the opinion that the Mineral Resource estimate is appropriate for the style of mineralization and that the block model is reasonable and acceptable to support the December 31, 2020 Mineral Resource estimate.

The Mineral Resource estimate for Cerro Lindo, as of December 31, 2020, is summarized in Table 1-2.

Mineral Resources have been classified in accordance with the definitions for Mineral Resources in S-K 1300, which are consistent with Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves dated May 10, 2014 (CIM (2014) definitions).

Table 1-2: Summary of Mineral Resources - December 31, 2020
Nexa Resources S.A. - Cerro Lindo Mine

Category	Tonnage (Mt)	Grade				Contained Metal			
		(% Zn)	(% Pb)	(% Cu)	(g/t Ag)	(000 t Zn)	(000 t Pb)	(000 t Cu)	(000 oz Ag)
Measured	3.53	2.00	0.20	0.67	19.61	70.38	7.10	23.55	2,223.7
Indicated	2.77	1.37	0.25	0.45	24.96	37.93	7.05	12.46	2,225.2





Category	Tonnage (Mt)	Grade				Contained Metal			
		(% Zn)	(% Pb)	(% Cu)	(g/t Ag)	(000 t Zn)	(000 t Pb)	(000 t Cu)	(000 oz Ag)
Total M+I	6.30	1.72	0.22	0.57	21.96	108.31	14.15	36.01	4,448.9
Inferred	6.98	1.28	0.35	0.33	31.23	89.07	24.52	23.33	7,012.4

Notes:

1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources which are consistent with CIM (2014) definitions.
2. Mineral Resources are reported on an 80.16% Nexa attributable ownership basis.
3. Mineral Resources are estimated at a net smelter return (NSR) cut-off value of US\$33.56/t for sub-level open stoping (SLS) and US\$49.90/t for cut and fill (C&F).
4. Mineral Resources are estimated using average long term metal prices of Zn: US\$2,869.14/t (US\$1.30/lb), Pb: US\$2,249.40/t (US\$1.02/lb), Cu: 7,426.59/t (US\$3.37/lb), and Ag: US\$19.38/oz.
5. Metallurgical recoveries are accounted for in the NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average head grades are 86.3% for Cu, 88.1% for Zn, 68.6% for Pb, and 68.8% for Ag.
6. A minimum mining width of 5.0 m and 4.0 m was used to create SLS and C&F resource shapes respectively.
7. Bulk density varies depending on mineralization domain.
8. Mineral Resources are exclusive of Mineral Reserves.
9. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
10. Numbers may not add due to rounding.

The SLR QP is of the opinion that, with consideration of the recommendations summarized in this section, any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.

1.3.7 Mineral Reserves

The Mineral Reserves for Cerro Lindo were estimated using an NSR cut-off value of US\$33.56/t processed for SLS, US\$49.90/t processed for C&F stoping, and a minimum mining width of five and four metres respectively. Mineral Reserves to be mined from 2021 to 2029 were estimated at 41.76 million tonnes, grading 1.44% Zn, 0.20% Pb, 0.61% Cu, and 21 g/t Ag. Mineral Reserves are reported on an 80.16% Nexa attributable basis.

The Mineral Reserve estimate, as of December 31, 2020, is summarized in Table 1-3.

Table 1-3: Summary of Mineral Reserves - December 31, 2020
Nexa Resources S.A. - Cerro Lindo Mine

Category	Tonnage (Mt)	Grade				Contained Metal			
		(% Zn)	(% Pb)	(% Cu)	(g/t Ag)	(000 t Zn)	(000 t Pb)	(000 t Cu)	(000 oz Ag)
Proven	23.55	1.71	0.23	0.60	20.86	402.0	53.0	142.1	15,793
Probable	18.22	1.08	0.18	0.62	21.58	197.5	32.1	113.7	12,641
Total	41.76	1.44	0.20	0.61	21.17	599.5	85.1	255.8	28,434

Notes:

1. The definitions for Mineral Reserves in S-K 1300 were followed for Mineral Reserves which are consistent with CIM (2014) definitions.





2. The Mineral Reserve estimate is reported on an 80.16% Nexa attributable ownership basis.
3. Mineral Reserves are estimated at NSR cut-off values of US\$33.56/t processed for SLS and US\$49.90/t processed for C&F stoping. A number of incremental stopes (down to US\$26.16/t NSR value) are included in the estimate.
4. Mineral Reserves are estimated using average long term metal prices of Zn: US\$2,494.90/t (US\$1.13/lb); Pb: US\$1,956.00/t (US\$0.89/lb); Cu: US\$6,457.90/t (US\$2.93/lb); Ag: US\$16.85/oz with all costs in US dollars.
5. Metallurgical recoveries are accounted for in the NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average head grades are 86.3% for Cu, 88.1% for Zn, 68.6% for Pb, and 68.8% for Ag.
6. A minimum mining width of 5.0 m and 4.0 m was used for SLS stopes and C&F stopes respectively.
7. Bulk density varies depending on mineralization domain.
8. Numbers may not add due to rounding.

The SLR QP is not aware of any risk factors associated with, or changes to, any aspect, of the modifying factors such as mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate.

1.3.8 Mining Method

At Cerro Lindo, the main mining method utilized is sub-level longhole stoping with sub-level intervals of up to 30 m in heights. The stoping follows a primary, secondary, and tertiary sequence and paste backfill is used to provide ground support after each sequence. The paste fill is distributed from surface via a pipeline system to the stope locations. C&F stoping is also used to recover sill pillars and areas requiring a conventional mining approach for effective results. The stopes are mucked with load-haul-dump (LHD) units and haul trucks deliver ore to the main underground crusher on the 1820 m level via the grizzlies. The ore is then conveyed to surface stockpiles followed by use of overland conveyors for final delivery to the process plant.

1.3.9 Mineral Processing

The Cerro Lindo processing plant is located on a ridge adjacent to the mine at an altitude of 2,100 MASL to 2,200 MASL. The processing plant commenced operations in 2007 with a capacity of 5,000 tpd, however, it has since been expanded to a name-plate capacity of 21,000 tpd. The current LOM plan continues to 2029. Processing consists of conventional crushing, grinding, and flotation to produce separate copper, lead, and zinc concentrates. Tailings are thickened and filtered for use as backfill or trucked to the dry stack tailings storage facility.

Water is supplied from a reverse osmosis desalination plant located on the coast and is pumped 60 km to the mine site. This is sufficient to supply the requirements for make-up water and potable water (treated at the mine site). Most of the process water requirement is recovered from tailings thickening and filtration and is returned to water storage tanks at the processing plant. Approximately 90% of total tailings water is recovered and recycled to the processing plant as process water.

The Cerro Lindo concentrates contain low concentrations of deleterious elements and higher than average concentrations of the primary metals. Due to the combined lead and zinc content of the copper concentrate (approximately 4.8% to 5.6%), however, the concentrate attracts a small penalty of approximately US\$2.00/t.

1.3.10 Project Infrastructure

The in-situ and operating infrastructure at Cerro Lindo includes the following:

- An underground mine accessed by 15 portals.
- An underground crusher and conveyance system to surface.
- Surface ore stockpiles and waste dumps.
- A 21,000 tpd processing plant.
- Two dry-stack TSFs.





- Main site power supply.
- Site access roads.
- Mine shops, offices, warehouse facilities.
- Mine camps facilities.

Power to the mine is supplied via the National Grid. The overall site demand to sustain a production rate of 20,800 tpd is approximately 36.5 MW. The mine has a backup generator to support the main ventilation system.

There is no fresh water withdrawal from natural water bodies at the mine site, and the mine obtains very little water from the underground mine workings. Approximately 40% of total demand is extracted from five local groundwater wells/boreholes. The remaining 60% of industrial fresh water is supplied from a desalination plant located on the coast.

Tailings from the process plant are thickened to two streams. Approximately 50% of the tailings are further thickened and used for paste fill and the other 50% is sent to the Pahuaypite 1 and 2 dry stacks. Pahuaypite 1 has been approved for a 10% expansion and a plan is in place for a similar expansion at Pahuaypite 2.

Waste rock from the underground mining operations is either used as backfill underground or stockpiled on the surface. There are currently six locations on surface for waste rock stockpiling with a combined capacity of 6.7 Mm³.

1.3.11 Market Studies

The principal commodities that are produced at the Cerro Lindo mine – zinc, copper, lead, and silver – are freely traded at prices and terms that are widely known so that prospects for sale of any production are virtually assured. Zinc and copper represent 91% of Cerro Lindo’s gross revenue, while lead and silver contribute 9% of the revenue. Cerro Lindo is an operating mine with concentrate sales contracts in place for copper and lead concentrates, with the main players in the world, between global traders and refineries. Zinc concentrate is consumed by Nexa’s Cajamarquilla, Trés Marias, and Juiz de Fora smelters according to their internal planning.

Market information is based on the industry scenario analysis prepared by Nexa’s Market Intelligence team in July 2020 using information sourced from different banks and independent financial institutions.

1.3.12 Environmental, Permitting, and Social Considerations

The geographical area where the Cerro Lindo facilities are located is arid, characterized by very low precipitation and high evaporation. Water conservation is a primary objective in Cerro Lindo due to the limited water availability in the area. Water is recycled from ore processing and re-used as much as possible. Nexa operates Cerro Lindo with a zero-discharge commitment for industrial and domestic water. Industrial fresh water is supplied from a desalination plant located at the coast to meet water requirements for mine operation activities. There is no fresh water withdrawal from natural water bodies at the mine site. Approximately 60% of the total fresh water supply to the mine site is taken from the ocean with approximately 40% taken from groundwater wells.

Tailings from the process plant are thickened and then further dewatered in either the paste plant to be deposited underground, or to the filter plant to the south of the processing plant to be filtered and subsequently placed in two dry-stack storage facilities, Pahuaypite 1 and Pahuaypite 2. As much as 90% of the process water from dewatered tailings is recycled with industrial fresh water being supplied from a desalination plant at the coast to meet site and process water make-up requirements. The mine site operates with a zero-water discharge commitment.

The most recent modification of the Environmental Impact Assessment (EIA) was approved by the Peruvian authorities in 2018 to grant authorization for a maximum production rate of 22,500 tpd. Cerro Lindo has an EMP, which addresses mitigation measures and monitoring programs for industrial and domestic effluent discharges, surface water quality and sediment, groundwater quality, surface flow, air quality (particulate matter and gas emissions), non-ionizing radiation, noise, vibrations, soil quality, terrestrial and aquatic flora, terrestrial and aquatic fauna. The most recent update of the environment plan was presented in the 2018 EIA.





Cerro Lindo holds a number of permits in support of the current operations. The permits are Directorial Resolutions issued by the Peruvian authorities upon approval of mining environmental management instruments filed by the mining companies. Nexa maintains and up to date record of the legal permits obtained to date.

Nexa adheres to international standards to provide best practices for public reporting on economic, environmental, and social impacts in order to help Nexa and its shareholders and stakeholders understand their corporate contribution to sustainable development. Corporately, Nexa has made several commitments to improve community health and safety as well as the overall well-being of community members.

A formal Mine Closure Plan was prepared in 2009 for the mine components within the context of the Peruvian legislation and has subsequently been amended or updated four times. The Closure Plan addresses temporary, progressive and final closure actions, and post closure inspection and monitoring. Progressive closure will continue taking place until 2027, final Closure is planned for 2028 and 2029, and post-closure monitoring will take place between 2030 and 2034. A closure cost estimate was developed and included in the Mine Closure Plans. The total financial assurance for progressive closure, final closure and post-closure is calculated by Nexa according to the Peruvian regulations (Supreme Decree D.S. N° 262-2012-MEM/DM).

1.3.13 Capital and Operating Cost Estimates

The capital costs for the Mine are shown in Table 1-4. Cerro Lindo is an operating mine hence all capital costs are considered sustaining cost.

Table 1-4: Sustaining Capital Cost
Nexa Resources S.A. - Cerro Lindo Mine

Description	Total (US\$000)	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Mine Development	66,275	20,326	16,768	15,903	3,722	9,556	—	—	—	—	—
Equipment Replacement	32,410	3,744	5,136	5,195	8,860	6,651	2,824	—	—	—	—
Other Sustaining	37,547	8,649	6,630	(492)	7,737	3,096	1,910	3,339	3,339	3,339	—
Tailings / Dumps	9,246	3,082	664	5,500	—	—	—	—	—	—	—
Modernization	9,364	3,760	4,779	525	205	95	—	—	—	—	—
Sub-Total	154,842	39,561	33,977	26,631	20,524	19,398	4,734	3,339	3,339	3,339	—
Closure	57,157	—	—	—	—	—	—	—	—	—	57,157
Total	211,999	39,561	33,977	26,631	20,524	19,398	4,734	3,339	3,339	3,339	57,157

The operating costs for Cerro Lindo are shown in Table 1-5.





Table 1-5: Mine Operating Cost Estimate
Nexa Resources S.A. - Cerro Lindo Mine

Description	Total LOM (US\$M)	Average (US\$M/yr)	LOM Unit Cost (US\$/t)
UG Mining	791	88	15.18
Mine Development	231	26	4.44
Processing	623	69	11.95
G&A	157	17	3.01
Total	1,802	200	34.58





2.0 INTRODUCTION

SLR Consulting Ltd (SLR) was retained by Nexa Resources S.A. (Nexa) to prepare an independent Technical Report Summary on the Cerro Lindo Mine (Cerro Lindo or the Mine), located in the Department of Ica, Peru. The purpose of this report is to support the Mineral Resource and Mineral Reserve estimates for the Mine as of December 31, 2020. This Technical Report Summary conforms to United States Securities and Exchange Commission (SEC) Modernized Property Disclosure Requirements for Mining Registrants as described in Subpart 229.1300 of Regulation S-K, Disclosure by Registrants Engaged in Mining Operations (S-K 1300) and Item 601 (b)(96) Technical Report Summary. SLR visited the property from June 4 to 7 and June 18 to 20, 2019. SLR has prepared this amended Technical Report Summary to disclose Mineral Resources and Mineral Reserves attributable to Nexa only, provide additional information about metallurgical recoveries and lead and silver markets, and to disclose the accuracy of the cost estimates. SLR notes that the effective date of the technical information contained herein remains December 31, 2021.

Nexa is a publicly traded company on the Toronto Stock Exchange (TSX) and the New York Stock Exchange (NYSE). It is a reporting issuer in all provinces and territories of Canada.

Nexa is a large-scale, low-cost, integrated zinc producer with over 60 years of experience developing and operating mining and smelting assets in Latin America. Nexa has a diversified portfolio of polymetallic mines (zinc, lead, copper, silver, and gold) and also greenfield projects at various stages of development in Brazil and Peru. In Brazil, Nexa owns and operates two underground mines, Vazante and Morro Agudo (Zn and Pb). It also operates two zinc smelters in Brazil (Três Marias and Juiz de Fora). In Peru, Nexa operates the El Porvenir (Zn, Pb, Cu, and Ag), Cerro Lindo (Zn, Cu, Pb, and Ag), and Atacocha (Zn, Cu, Pb, Au, and Ag) mines, as well as the Cajamarquilla zinc smelter near Lima. Nexa's development projects in Peru include Magistral, Shalipayco, Florida Canyon (JV with Solitario), Hilarión, and Pukaqaqa. In Brazil, Nexa is developing the Aripuanã Zinc Project (Zn, Pb, Cu, Au, and Ag), which is currently under construction.

Cerro Lindo is located in the Chavín District, Chinchá Province, Ica Department of Peru, approximately 268 km southeast of Lima. Nexa owns a total of 80.16% in the Mine that corresponds to the sum of Nexa's direct interest in Nexa Resources Peru S.A.A. (Nexa Peru) (0.17%) and Nexa's indirect interest in Nexa Peru (80.06%) through its controlled company Nexa Resources Cajamarquilla S.A. (99.91%), and the remaining 19.76% are floating shares. Cerro Lindo commenced operations in 2007 and comprises an underground zinc-lead-copper-silver mine, a conventional comminution flotation process plant, a coastal desalination plant, and associated infrastructure. The Mine produces separate zinc, lead, and copper concentrates with silver content. In 2020, the Mine produced 105,876 tonnes (t) of zinc, 32,499 t of copper, 15,688 t of lead, and 4,254,239 ounces (oz) of silver. As of December 2020, the Mine is scheduled to produce a total of approximately 52 million tonnes (Mt) over a mine life of nine years.

2.1 Site Visits

SLR visited the Mine from June 4 to 7, 2019. During the site visit, SLR Qualified Persons (QP) reviewed plans and sections, visited the core shack, examined drill holes and mineralized underground exposures, reviewed core logging and quality assurance and quality control procedures and database management system, inspected the underground operations, the processing plant, the chemical laboratory and the surface and underground infrastructure and held discussions with Nexa personnel.

Subsequent to this visit, SLR visited the Mine from June 18 to 20, 2019. The purpose of the second visit was to conduct a site reconnaissance from an environmental perspective focusing on the tailings storage facilities, the water management ponds and environmental features such as the Topará Creek, and hold discussions with the Environment Manager and the Community Relations Manager at Cerro Lindo.

2.2 Sources of Information

During the preparation of this report and the site visit, discussions were held with the following personnel from Nexa:

- Thiago Nantes Teixeira, Mineral Resources and Mineral Reserves Committee



Nexa Resources S.A. | Cerro Lindo Mine, SLR Project No: 233.03246.R0000
Technical Report Summary - January 29, 2021



- Priscila Artioli, Mineral Resources and Mineral Reserves Committee
- Jose Antonio Lopes, Corporate Resource Manager
- Jerry Huaman, Resource Manager, Nexa Peru
- Jhonatan Lopez Alvarez, Modeller Geologist at Cerro Lindo
- Thomas Lafayette, Database Administrator Manager
- Charlton Villantoy Fajardo, Database Administrator at Cerro Lindo
- Jean Paul Bueno, Geology Manager at Cerro Lindo
- Edwards Espinoza Jara, Mine Chief Geologist
- Mervin Tapia, Brownfield Exploration Manager at Cerro Lindo
- Fernando Madeira Perisse, Technical Services Manager
- Paulo Henrique Araujo Calazans, Mining Engineer
- Souto Padron Antonio, General Manager at Cerro Lindo
- Rui Carlos Sorrentino Carboni, Short Term Planner at Cerro Lindo
- Hilario Gorvenia, Metallurgical Plant Manager at Cerro Lindo
- Cecilia Pastor, Land and Mineral Rights Manager, Nexa Peru
- Pablo Peña, Land and Mineral Rights GIS, Nexa Peru
- Gladys Ruiz, Environment Manager at Cerro Lindo
- Jose Neira Araoz, Community Relations Chief at Cerro Lindo.
- Renato Piazzon, Corporate Legal Counsel, Nexa Peru

This Technical Report Summary was prepared by SLR QPs. The documentation reviewed, and other sources of information, are listed at the end of this report in Section 24 References.





2.3 List of Abbreviations

Units of measurement used in this report conform to the metric system. All currency in this report is US dollars (US\$) unless otherwise noted.

m	micron	kVA	kilovolt-amperes
mg	microgram	kW	kilowatt
a	annum	kWh	kilowatt-hour
A	ampere	L	litre
bbl	barrels	lb	pound
Btu	British thermal units	L/s	litres per second
°C	degree Celsius	m	metre
C\$	Canadian dollars	M	mega (million); molar
cal	calorie	m ²	square metre
cfm	cubic feet per minute	m ³	cubic metre
cm	centimetre	MASL	metres above sea level
cm ²	square centimetre	m ³ /h	cubic metres per hour
d	day	mi	mile
dia	diameter	min	minute
dmt	dry metric tonne	mm	micrometre
dwt	dead-weight ton	mm	millimetre
°F	degree Fahrenheit	mph	miles per hour
ft	foot	MVA	megavolt-amperes
ft ²	square foot	MW	megawatt
ft ³	cubic foot	MWh	megawatt-hour
ft/s	foot per second	oz	Troy ounce (31.1035 g)
g	gram	oz/t	ounce per tonne
G	giga (billion)	ppb	part per billion
Gal	Imperial gallon	ppm	part per million
g/L	gram per litre	psia	pound per square inch absolute
Gpm	Imperial gallons per minute	psig	pound per square inch gauge
g/t	gram per tonne	RL	relative elevation
gr/ft ³	grain per cubic foot	s	second
gr/m ³	grain per cubic metre	st	short ton
ha	hectare	stpa	short ton per year
hp	horsepower	stpd	short ton per day
hr	hour	t	metric tonne
Hz	hertz	tpa	metric tonne per year
in.	inch	tpd	metric tonne per day
in ²	square inch	US\$	United States dollar
J	joule	USg	United States gallon
k	kilo (thousand)	USgpm	US gallon per minute
kcal	kilocalorie	V	volt
kg	kilogram	W	watt
km	kilometre	wmt	wet metric tonne
km ²	square kilometre	wt%	weight percent
km/h	kilometre per hour	yd ³	cubic yard
kPa	kilopascal	yr	year





3.0 PROPERTY DESCRIPTION

3.1 Location

The Mine is located in the Chavin District, Chincha Province, Ica Department of Peru, approximately 268 km southeast of Lima and 60 km from the coast (Figure 3-1). The approximate coordinates of the Mine are 392,780m E and 8,554,165m N, using the UTM_WGS84 datum.

3.2 Land Tenure

Mineral rights in Peru include mineral concessions and mineral claims. A mineral claim is an application to obtain a mineral concession.

Cerro Lindo consists of 68 mineral concessions covering an area of 43,750.19 ha, and one beneficiation concession covering an area of 518.78 ha. The concessions are located in the districts of Chavin, Lunahuana, San Juan de Yanac, Grocio Prado, Pueblo Nuevo and Pacaran, provinces of Chincha and Cañete, departments of Lima and Ica in Peru.

The relevant mineral rights information, including the code number and concession name, titleholder, status, registration date and number, and available area for each of the mineral concessions, can be found in Table 3-1 (Nexa, 2020a) and is shown in Figure 3-2, and for the beneficiation concession in Table 3-2. Nos. 65 to 68 mineral concession titles were granted to Nexa in Q4 2020 after the release of legal opinion (Nexa, 2020a).

Nexa owns a total of 80.16% in the Mine that corresponds to the sum of Nexa’s direct interest in Nexa Resources Peru S.A.A. (Nexa Peru) (0.17%) and Nexa’s indirect interest in Nexa Peru (80.06%) through its controlled company Nexa Resources Cajamarquilla S.A. (99.91%), and the remaining 19.76% are floating shares.





Table 3-1: Cerro Lindo Mineral Rights
Nexa Resources S.A. - Cerro Lindo Mine

No.	Concession Code	Concession Name	Titleholder	Status*	Date	Public Registry Record**	Area (ha)
1	10009257X02	Febrero 1979	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 109	13/02/1979	P-02026393	998.77
2	10000049Y01	Cerro Lindo	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 109	15/06/1967	P-02018851	998.77
3	010210100	Cerro Lindo 12	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	10/11/2000	P-13596017	15.24
4	010210100A	Cerro Lindo 12-B Fraccionado	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	10/11/2000	P-13616219	0.83
5	010210200	Cerro Lindo 13	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	10/11/2000	P-12695744	10.54
6	010377204	Cerro Lindo 14	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	07/12/2004	P-12528871	999.43
7	010377104	Cerro Lindo 15	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	07/12/2004	P-12528882	200.00
8	010488308	Cerro Lindo 17	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	19/08/2008	P-12525671	100.00
9	010430411	Cerro Lindo 18	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	11/08/2011	P-13600117	232.39
10	010273015	Cerro Lindo 19	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	16/07/2015	P-13927075	747.78
11	010273115	Cerro Lindo 20	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	16/07/2015	P-14063670	568.37
12	010273215	Cerro Lindo 21	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	16/07/2015	P-13925791	493.75
13	010273315	Cerro Lindo 22	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	16/07/2015	P-13927144	300.00
14	010273415	Cerro Lindo 23	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	16/07/2015	P-13611414	602.28
15	010273515	Cerro Lindo 24	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	16/07/2015	P-13927140	660.90
16	010273615	Cerro Lindo 25	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	16/07/2015	P-13926206	786.09
17	010273715	Cerro Lindo 26	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	16/07/2015	P-14420944	1,000.00
18	010273815	Cerro Lindo 27	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	16/07/2015	P-14418565	500.00
19	010273915	Cerro Lindo 28	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	16/07/2015	P-14420320	500.00
20	010021518	Cerro Lindo 29	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018		549.36





No.	Concession Code	Concession Name	Titleholder	Status*	Date	Public Registry Record**	Area (ha)
21	010021818	Cerro Lindo 32	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018	P-14410200	669.70
22	010021918	Cerro Lindo 33	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018		626.40
23	010022118	Cerro Lindo 35	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018		477.82
24	010022318	Cerro Lindo 37	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018	P-14418651	704.14
25	010022518	Cerro Lindo 38	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018	P-14418719	825.41
26	010022418	Cerro Lindo 39	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018	P-14419450	320.12
27	010022618	Cerro Lindo 40	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018	P-14419449	652.70
28	010022718	Cerro Lindo 41	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018	P-14417939	836.83
29	010022918	Cerro Lindo 42	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018	P-14417892	563.17
30	010022818	Cerro Lindo 43	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018	P-14419494	416.12
31	010023018	Cerro Lindo 44	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018	P-14420266	591.77
32	010023118	Cerro Lindo 45	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018	P-14417945	900.00
33	010023218	Cerro Lindo 46	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018	P-14420941	1,000.00
34	010023418	Cerro Lindo 47	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018	P-14420268	1,000.00
35	010023518	Cerro Lindo 48	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018	P-14417884	670.05
36	010153218	Cerro Lindo 49	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	02/05/2018		481.64
37	010153118	Cerro Lindo 50	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	02/05/2018		524.60
38	010209200	Cerro Lindo 5	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	09/11/2000	P-13613580	900.00
39	010209300	Cerro Lindo 6	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	09/11/2000	P-13616230	875.97
40	010051313	Checho 500 M	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	02/01/2013	P-13611454	481.15
41	010051213	Checho 700 M	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	02/01/2013	P-13613538	700.00
42	010167797	Contopa 44	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	17/04/1997	P-02031014	300.00
43	11025895	Festejo 1	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 109	14/03/1990	P-02027481	1,000.00





No.	Concession Code	Concession Name	Titleholder	Status*	Date	Public Registry Record**	Area (ha)
44	10011858X01	Festejo 10	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 109	14/03/1990	P-02027470	1,000.00
45	11025896X01	Festejo 2	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 109	14/03/1990	P-02027476	1,000.00
46	11025897X01	Festejo 3	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 109	14/03/1990	P-02027477	1,000.00
47	010938595	Festejo 30	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	04/12/1995	P-02029871	875.59
48	11025899X01	Festejo 5	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 109	14/03/1990	P-02027479	1,000.00
49	10011854X01	Festejo 6	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 109	14/03/1990	P-02027468	1,000.00
50	10011855X01	Festejo 7	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 109	14/03/1990	P-02027482	1,000.00
51	10011856X01	Festejo 8	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 109	14/02/1990	P-02027469	1,000.26
52	010174812	Festejo 9 M	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	02/05/2012	P-13615927	800.00
53	010225414	Julia I M	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	02/05/2014	P-13595461	400.00
54	010225614	Kala I M	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	02/05/2014	P-13613582	200.00
55	010225514	Kala M	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	02/05/2014	P-13613554	100.00
56	010432706	Mariale Segunda	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	13/10/2006	P-12086766	900.00
57	010104614	Nuevo Horizonte 2008 M	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	02/01/2014	P-13613581	230.34
58	010225714	Ponciana 1 M	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	02/05/2014	P-13615933	400.00
59	010140608	VM 142	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	07/02/2008	P-12956960	1,000.00
60	010140708	VM 143	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	07/02/2008	P-12959327	400.00
61	010354306	VM 21	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	15/08/2006	P-12177428	1,000.00
62	010354406	VM 22	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	15/08/2006	P-12178991	500.00
63	010688808	VM 278	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	18/12/2008	P-12955719	799.03
64	010035609	VM 282	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	02/02/2009	P-12956175	100.00
65	010021618	Cerro Lindo 30	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	3/01/2018		891.77





No.	Concession Code	Concession Name	Titleholder	Status*	Date	Public Registry Record**	Area (ha)
66	010021718	Cerro Lindo 31	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	3/01/2018		759.31
67	010022018	Cerro Lindo 34	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	3/01/2018		626.57
68	010022218	Cerro Lindo 36	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	3/01/2018		655.28

Source: Nexa, 2020a

Notes.

- * All concessions are mineral concessions. Nos. 65 to 68 mineral concessions titles were granted in Q4 of 2020 after the release of Nexa, 2020a.
- **Some of the records are being updated by the National Office of the Superintendent of Public Registers (SUNARP).

Table 3-2: Cerro Lindo Beneficiation Concession
Nexa Resources S.A. - Cerro Lindo Mine

No.	Project	Code	Concession	Holder	Date	Granted Area (ha)	District	Province	Department
1	Mina Cerro Lindo	P0000506	Cerro Lindo	Nexa Resources Peru S.A.A.	10/10/2006	518.7800	Chavín	Chincha	Ica





Figure 3-1: Mine Location





Figure 3-2: Land Tenure





Pursuant to information provided by the Peruvian Institute of Geology, Mining and Metallurgy (INGEMMET), there are four archaeological sites overlapping with the Cerro Lindo concession (10000049Y01): Frente Pahuaypite (10,480.35 m²), Pahuaypite Bajo Sector 2 (1,047.42 m²), Pahuaypite Bajo (12,842.43 m²) and Patahuasi (Area: 21,573.39 m²). Exploration and/or mining activities in the area overlapping the archaeological sites are carried out under the Certificate of Non-existence of Archaeological Remains (CIRA) No. 2007-253.

3.2.1 Mineral Rights

The term “mineral rights” refers to mineral concessions and mineral claims. Other rights under the General Mining Law, such as beneficiation concessions, mineral transportation concessions, and general labour concessions are not considered under said term.

According to Peruvian General Mining Law (the Law):

- a. Mineral concessions grant their holder the right to explore, develop, and mine metallic or non-metallic minerals located within their internal boundaries.
- b. A mineral claim is an application to obtain a mineral concession. Exploration, development, and exploitation rights are obtained once title to concession has been granted, except in those areas that overlap with pre-existing claims or concessions applied for before December 15, 1991. Upon completion of the title procedure, resolutions awarding title must be recorded with the Public Registry to create enforceability against third parties and the State.
- c. Mineral rights are separate from surface rights. They are freely transferable.
- d. A mineral concession by itself does not authorize to carry out exploration or exploitation activities, but rather the titleholder must first:
 - (i) Obtain approval from the Culture Ministry of the applicable archaeological declarations, authorizations, or certificates.
 - (ii) Obtain the environmental certification issued by the competent environmental authority, subject to the rules of public participation.
 - (iii) Obtain permission for the use of land (i.e., obtain surface rights) by agreement with the owner of the land or the completion of the administrative easement procedure, in accordance with the applicable regulation.
 - (iv) Obtain the applicable governmental licences, permits, and authorizations, according to the nature and location of the activities to be undertaken.
 - (v) Carry out consultations with Indigenous Peoples under the Culture Ministry, should there be any communities affected by potential exploitation of the mineral concession, as per International Labour Organization (ILO) Convention 169.
- e. Mineral rights holders must comply with the payment of an annual fee equal to \$ 3.00 per hectare per year, on or before June 30 of each year.
- f. Holders of mineral concessions must meet a Minimum Annual Production Target or spend the equivalent amount in exploration or investments before a statutory deadline. When such deadline is not met, a penalty must be paid as described below:

Mineral concessions must meet a statutory Minimum Annual Production Target of 1 Tax Unit (*Unidad Impositiva Tributaria*, or UIT) per hectare per year for metallic concessions, within a statutory term of ten years since the concession is titled. The applicable penalty is 2% of the Minimum Annual Production Target per hectare per year as of the 11th year until the 15th year. Starting in the 16th year and until the 20th year, the applicable penalty is 5% of the Minimum Annual Production Target per year, and starting in the 21st year and until the 30th year the applicable penalty is 10% of the Minimum Annual Production Target per year.





After the 30th year, if the Minimum Annual Production Target is not met, the mining concession will lapse automatically.

- g. Mineral concessions may not be revoked as long as the titleholder complies with the Good Standing Obligations according to which mineral concessions will lapse automatically if any of the following events take place:
 - (i) The annual fee is not paid for two years.
 - (ii) The applicable penalty is not paid for two consecutive years.
 - (iii) A concession expires if it does not reach the minimum production in the year 30, and cannot justify the non-compliance up to five additional years due to reasons of force majeure described in the current legislation.
- h. Agreements involving mineral rights (such as an option to acquire, a mining lease or the transfer of a mineral concession) must be formalized through a deed issued by a public notary and must be recorded with the Public Registry to create enforceability against third parties and the Peruvian State.

3.2.2 Beneficiation Concession

According to Peruvian General Mining Law (the Law):

- a. The beneficiation concession grants the right to use physical, chemical, and physical-chemical processes to concentrate minerals or purify, smelt, or refine metals.
- b. As from the year in which the beneficiation concession was requested, the holder shall be obliged to pay the Mining Concession Fee in an annual amount according to its installed capacity, as follows:
 - (i) 350 tpd or less: 0.0014 of one UIT per tpd.
 - (ii) from more than 350 tpd to 1,000 tpd: 1.00 UIT
 - (iii) from 1,000 tpd to 5,000 tpd: 1.5 UIT
 - (iv) for every 5,000 tpd in excess: 2.00 UIT
 - (v) "tpd" refers to the installed treatment capacity. In the case of expansions, the payment that accompanies the application is based on the increase in capacity.

3.2.3 Annual Fees and Penalties

Pursuant to Table 3-1 and Table 3-2, all annual fees applicable to the mineral concessions, mineral claims, and beneficiation concession comprising the Mine have been paid in full up to and including year end 2020, as detailed in Table 3-3.

Table 3-3: Annual Fee per Mineral Right and Beneficiation Concession - 2020
Nexa Resources S.A. - Cerro Lindo Mine

Nº	Concession Code	Concession Name	2020 Annual Fee (US\$)	2020 Penalty (US\$)	2020 Total Payment (US\$)
1	10009257X02	Febrero 1979	2,996.31	24,388.56 *	2,996.31
2	10000049Y01	Cerro Lindo	2,996.31	24,388.55 *	2,996.31
3	010210100	Cerro Lindo 12	45.72	372.13 *	45.72
4	010210100A	Cerro Lindo 12-B Fraccionado	2.5	20.32 *	2.5





Nº	Concession Code	Concession Name	2020 Annual Fee (US\$)	2020 Penalty (US\$)	2020Total Payment (US\$)
5	010210200	Cerro Lindo 13	31.61	257.26 *	31.61
6	10011858X01	Festejo 10	2,999.99	24,418.53 *	2,999.99
7	10011854X01	Festejo 6	3,000.00	24,418.60 *	3,000.00
8	10011855X01	Festejo 7	3,000.00	24,418.60 *	3,000.00
9	10011856X01	Festejo 8	3,000.78	24,424.92 *	3,000.78
10	010209200	Cerro Lindo 5	2,700.00	21,976.74	24,676.74
11	010209300	Cerro Lindo 6	2,627.93	21,390.09	24,018.02
12	11025895X01	Festejo 1	3,000.00	24,418.60	27,418.60
13	11025896X01	Festejo 2	2,999.99	24,418.53	27,418.52
14	11025897X01	Festejo 3	3,000.00	24,418.63	27,418.63
15	010938595	Festejo 30	2,626.76	21,380.59	24,007.35
16	11025899X01	Festejo 5	3,000.00	24,418.60	27,418.60
17	010377204	Cerro Lindo 14	2,998.30	2,440.47	5,438.77
18	010377104	Cerro Lindo 15	600	488.37	1,088.37
19	010488308	Cerro Lindo 17	300	2,441.86	2,741.86
20	010430411	Cerro Lindo 18	697.18	**	697.18
21	010273015	Cerro Lindo 19	2,243.34	**	2,243.34
22	010273115	Cerro Lindo 20	1,705.10	**	1,705.10
23	010273215	Cerro Lindo 21	1,481.24	**	1,481.24
24	010273315	Cerro Lindo 22	900	**	900
25	010273415	Cerro Lindo 23	1,806.85	**	1,806.85
26	010273515	Cerro Lindo 24	1,982.71	**	1,982.71
27	010273615	Cerro Lindo 25	2,358.28	**	2,358.28
28	010273715	Cerro Lindo 26	3,000.00	**	3,000.00
29	010273815	Cerro Lindo 27	1,500.00	**	1,500.00
30	010273915	Cerro Lindo 28	1,500.00	**	1,500.00
31	010021518	Cerro Lindo 29	1,648.04	**	1,648.04
32	010021618	Cerro Lindo 30	2,700.00	**	2,700.00
33	010021718	Cerro Lindo 31	3,000.00	**	3,000.00
34	010021818	Cerro Lindo 32	2,009.06	**	2,009.06
35	010021918	Cerro Lindo 33	2,700.00	**	2,700.00
36	010022018	Cerro Lindo 34	3,000.00	**	3,000.00
37	010022118	Cerro Lindo 35	1,433.42	**	1,433.42
38	010022218	Cerro Lindo 36	3,000.00	**	3,000.00
39	010022318	Cerro Lindo 37	2,112.41	**	2,112.41





Nº	Concession Code	Concession Name	2020 Annual Fee (US\$)	2020 Penalty (US\$)	2020Total Payment (US\$)
40	010022518	Cerro Lindo 38	2,476.19	**	2,476.19
41	010022418	Cerro Lindo 39	960.36	**	960.36
42	010022618	Cerro Lindo 40	1,958.09	**	1,958.09
43	010022718	Cerro Lindo 41	2,510.45	**	2,510.45
44	010022918	Cerro Lindo 42	1,689.50	**	1,689.50
45	010022818	Cerro Lindo 43	1,248.35	**	1,248.35
46	010023018	Cerro Lindo 44	1,775.28	**	1,775.28
47	010023118	Cerro Lindo 45	2,700.00	**	2,700.00
48	010023218	Cerro Lindo 46	3,000.00	**	3,000.00
49	010023418	Cerro Lindo 47	3,000.00	**	3,000.00
50	010023518	Cerro Lindo 48	3,000.00	**	3,000.00
51	010153218	Cerro Lindo 49	1,800.00	**	1,800.00
52	010153118	Cerro Lindo 50	2,100.00	**	2,100.00
53	010051313	Checho 500 M	1,443.46	**	1,443.46
54	010051213	Checho 700 M	2,100.00	**	2,100.00
55	010167797	Contopa 44	900	7,325.58	8,225.58
56	010174812	Festejo 9 M	2,399.99	**	2,399.99
57	010225414	Julia I M	1,200.00	**	1,200.00
58	010225614	Kala I M	600	**	600
59	010225514	Kala M	300	**	300
60	010432706	Mariale Segunda	2,700.00	21,976.74	24,676.74
61	010104614	Nuevo Horizonte 2008 M	691.02	**	691.02
62	010225714	Ponciana 1 M	1,200.00	**	1,200.00
63	010140608	Vm 142	3,000.00	24,418.60	27,418.60
64	010140708	Vm 143	1,200.00	9,767.44	10,967.44
65	010354306	Vm 21	3,000.00	24,418.60	27,418.60
66	010354406	Vm 22	1,500.00	12,209.30	13,709.30
67	010688808	VM 278	2,397.10	19,511.30	21,908.40
68	010035609	VM 282	300	2,441.86	2,741.86
69	P0000506	Cerro Lindo (Beneficiation Concession)	11,237.50	**	11,237.50

Source: Nexa, 2020a

Notes.

*No penalty, achieved minimum annual production



Nexa Resources S.A. | Cerro Lindo Mine, SLR Project No: 233.03246.R0000
Technical Report Summary - January 29, 2021



**Not affected by penalty, within the statutory term of ten years

Exchange rate of 3.44 PEN/ USO based on SUNAT Exchange Rate as of May 29, 2020.

Certain mineral concessions comprising the Mine are subject to a penalty since the minimum required levels of production or exploration expenditures have not been met as stated in the previous subsection (Mineral Rights). The minimum annual production is equal to 1 Tax Unit (UIT) per granted hectare; the minimum annual investment is the penalty to be paid multiplied by 10. All penalties applicable to the mineral concessions comprising the Mine, have been paid as indicated in Table 3-3. The penalties on concessions included in the Administrative Economic Unit (UEA) Cerro Lindo (Nos. 1 through 9 in Table 3-3) are not due because the Minimum Annual Production Target was met for these concessions. The penalty amounts shown for these concessions represent the annual amounts that would be payable if the Minimum Annual Production Target was not met.

3.2.4 Recorded Liens and Encumbrances

Pursuant to the information gathered from the Public Registry, Nexa (2020a) reports that there are no liens and encumbrances.

3.3 Surface Rights and Easements

According to the General Mining Law and related legislation, surface rights are independent of mineral rights.

The law requires that the holder of a mineral concession either reach an agreement with the landowner before starting relevant mining activities (i.e., exploration, exploitation, etc.) or complete the administrative easement procedure, in accordance with the applicable regulation.

Surface property is acquired through

- (i) The transfer of ownership by agreement of the parties (derivative title), or
- (ii) Acquisitive prescription of domain (original title).

Temporary rights to use and/or enjoy derived powers from a surface property right may be obtained through usufruct (a right to temporarily use and derive revenue) and easements.

As indicated by Nexa, the Mine is located within the following surface rights as shown in Figure 3-3:





Figure 3-3: Surface Rights





i. Property of 500 ha.

On November 24, 2005, Nexa Peru acquired this surface property right from Comunidad Campesina de Chavín (Public Registry Record Partida 11026701).

ii. Usufruct right of 150 ha.

On November 24, 2005 Nexa Peru obtained this usufruct right from Comunidad Campesina de Chavín, in order to install the access road, water transportation pipeline, and power transmission line for the Mine (Public Registry Record Partida 11025833). According to the Public Registry, the agreement states that the usufruct right shall be in force until the mineral reserves of the Mine are exhausted, however, based on article 1001 of the Civil Code this term would be limited to 30 years (i.e., until 2035).

iii. Old Power Transmission Line

On March 1, 2013, through Ministerial Resolution 082-2013-MEM/DM, Nexa Peru obtained the permanent easement for the New Power Transmission Line of 60 kV S.E. Desert - SE Cerro Lindo (modification) located in the district of Chavin, Grocio Prado and Pueblo Nuevo, province of Chinchá, department of Ica.

On August 13, 2014, through Ministerial Resolution 363-2014-MEM/DM, Nexa Peru obtained the permanent easement for the of 60 kV S.E. Desert - Tower 39 and its derivations located in the district of Chavin, Grocio Prado and Pueblo Nuevo, province of Chinchá, department of Ica.

iv. Seawater Desalinization Plant

The seawater desalinization plant has been built in an area of 12.9676 ha in the district of Grocio Prado, province of Chinchá, department of Ica.

Cerro Lindo carried out an investigation which concluded that the property occupied by the desalinization plant is State property. On May 4, 2017, Nexa Peru applied for an occupation easement before the Superintendency of State Property (SBN) under Law 30327 and Supreme Decree 2-2016-VIVIENDA. A temporary easement was issued in the interim until final approval is made.

v. Seawater Intake Plant

Since April 2007, Nexa Peru has owned aquatic and surface rights to a zone of capture of seawater in Jahuay Beach (1,495 ha).

Nexa Peru has obtained aquatic rights through an authorization to use the aquatic area, which was granted by the Peruvian Navy by Directorate Resolution 466-2008-MGP-DCG, and then modified by Directorate Resolution 706-2012-MGP/DCG issued on July 23, 2012. The latter resolution extended the approved aquatic area up to 1,390.10 m², which allowed Nexa Peru to install four pipelines to extract water from the ocean, and one to discharge effluents. Nexa Peru has paid in full for the use of the aquatic area in years 2016 through 2019, with the 2020 payment pending due to lack of notification, regarding the amount of payment, by the authority because of the COVID-19 pandemic.

Nexa Peru is in the process of acquiring surface rights for the remainder of the area through the application for an easement to the SBN under Law 30327 and Supreme Decree 2-2016-VIVIENDA, which is currently ongoing. Application approval is expected to be received by Q3 2021.

vi. Water Pipeline

Since April 2007, Nexa Peru has been in possession of all the land occupied by the water pipeline, from the desalinization plant to the mine. Nexa Peru carried out an investigation which concluded that the water pipeline occupies three lots, located between the desalinization plant and the mine, which are State property. Nexa Peru is in the process of acquiring surface rights through the application for an easement to the SBN under Law 30327 and Supreme Decree 2-2016-VIVIENDA, which is currently ongoing. Application approval is expected to be received by Q3 2021.





3.4 Tax Stability Agreement and Mining Special Tax

On March 26, 2002, Nexa Peru entered into an Agreement of Guarantees and Measures for Investment Protection with Ministry of Energy and Mines, which will be in force until December 31, 2021. Under this agreement Nexa Peru will benefit tax stability, free commercialization of the products from Cerro Lindo, free disposition of the currencies generated from the export of the products, etc.

On October 14, 2011, Nexa Peru entered into an Agreement for the Application of the Mining Special Tax with the Peruvian Government, under which Nexa Peru agreed to pay a statutory tax rate on trimestral operative profits, as approved by Law 29790. This agreement will be in force for the same period as the Tax Stability Agreement, i.e., December 31, 2021.

3.5 Material Government Consents

This section details the material Governmental Consents required to carry the operation in compliance with applicable Peruvian laws and regulations (Table 3-4). These material Governmental Consents correspond to those permits, licences, authorizations, etc., issued by the applicable governmental authorities, which entitle Nexa Peru to build the components and/or perform the activities that are critical and typical for a mining operation. These components/activities may include: (i) mining activities and related facilities; (ii) beneficiation plant and related activities; (iii) water supply; (iv) effluent discharge and related facilities; (v) use of explosives; and (vi) power supply. Of note, the Third Amendment to the Mine Closure Plan is under review and approval process by the Peruvian Authorities.

Table 3-4: Main Government Consents
Nexa Resources S.A. - Cerro Lindo Mine

#	Government Consent	Resolution	Approval Date
	Environmental Certification		
1	Cerro Lindo Environmental Impact Assessment	RD 325-2004-MEM-AAM	02/07/2004
2	Environmental Impact Assessment for the Jahuay - Cerro Lindo access road	RD 37-2006-MTC/16	30/05/2006
3	Environmental Impact Assessment for water and energy supply, and for the desalination plant.	RD 134-2007-MEM-AAM	02/04/2007
4	First Amendment to Cerro Lindo Environmental Impact Assessment (Components Relocation)	RD 204-2007-MEM-AAM	08/06/2007
5	Second Amendment to Cerro Lindo Environmental Impact Assessment (Expansion of Beneficiation Plant Capacity)	RD 168-2010-MEM-AAM	17/05/2010
6	Amendment to the EIA for the production expansion to 10,000 MT/day, and for water and energy supply and desalination plant.	RD 239-2011- MEM/AAM	08/08/2011
7	First Supporting Technical Report for modification of components of the concentrator plant according to report 154-2014-MEM-DGAAM/DNAM/DGAM/D (Expansion of processing capacity to 10,000 MT/day)	RD 069-2014-MEM/DGAAM	30/01/2014
8	Second Supporting Technical Report to RD 239-2011-MEM-AAM (Expansion of processing capacity to 17,988 MT/day)	RD 391-2014-MEM-AAM	31/07/2014





#	Government Consent	Resolution	Approval Date
9	Third Supporting Technical Report to RD 239-2011-MEM-AAM (Expansion of Pahuaypite 1 storage capacity (10%) and Contingency Pond)	RD 48-2016-SENACE/DCA	14/07/2016
10	Detailed Technical Report	RD 258-2016-MEM-DGAAM	31/08/2016
11	Modification to the Environmental Impact Assessment (MEIA) of Cerro Lindo	RD 039-2018-SENACE-JEF/DEAR	13/03/2018
12	Supporting Technical Report to the MEIA DR 039-2018-SENACE	RD 001-2019-SENACE-PE/DEAR	3/01/2019
13	Supporting Technical Report to the MEIA DR 039-2018-SENACE	RD 134-2019-SENACE-PE/DEAR	22/08/2019
14	Supporting Technical Report to the MEIA DR 039-2018-SENACE	RD 00145-2020-SENACE-PE/DEAR	02/12/2020
Mine Closure Plan			
1	Cerro Lindo Mine Closure Plan	RD 326-2009-MEM-AAM	20/10/2009
2	First Mine Closure Plan Update	RD 84-2013-MEM-AAM	22/03/2013
3	First Amendment to the Mine Closure Plan	RD 432-2012-MEM-AAM	19/12/2012
4	Second Amendment to the Mine Closure Plan	RD 287-2016-MEM-DGAAM	29/09/2016
Mine and Waste Rock Facilities			
1	Authorization to start the underground mining activities and the approval of the Mining Plan	RD 139-2007-MEM/DGM	17/08/2007
2	Authorization to construct and operate Pahuaypite waste dump	RD 0587-2018-MEM-DGM/V	04/07/2018
Beneficiation Plant and Tailing Storage Facilities			
1	Beneficiation Concession Title for operation of Concentrator Plant with 5,000 MT/day capacity	RD 119-2007-MEM/DGM	13/07/2007
2	Authorization to operate the beneficiation plant at 7,490 Mt/day	RD 10-2010-MEM-DGM/V	14/01/2010
3	Authorization to operate additional components for the beneficiation plant	RD 77-2011-MEM-DGM/V	01/03/2011
4	Authorization to operate additional components for the beneficiation plant	RD 182-2011-MEM-DGM/V	07/06/2011
5	Amendment to the Beneficiation Concession for construction of the contingency deposit for temporal storage of filtered tailings	RD 138-2012-MEM-DGM/V	03/05/2012
6	Authorization to operate the Pahuaypite 2 filtered tailings deposit, and the contingency pond	RD 323-2012-MEM-DGM/V	10/10/2012
7	Authorization to operate additional components for beneficiation plant capacity of 14,990 Mt/day	RD 337-2012-MEM-DGM/V	18/10/2012
8	Amendment to the Beneficiation Concession for area expansion and manifold water supply system	RD 002-2013-MEM/DGM	10/01/2013





#	Government Consent	Resolution	Approval Date
9	Authorization to operate additional components for the beneficiation plant	RD 117-2014-MEM-DGM/V.	01/04/2014
10	Authorization to operate additional components for the beneficiation plant	RD 412-2014-MEM-DGM/V	04/09/2014
11	Authorization to operate additional components for beneficiation plant capacity of 17,988 MT/day	RD 567-2014-MEM-DGM/V	12/12/2014
12	Authorization to operate additional components for the beneficiation plant	RD 541-2015-MEM-DGM/V	05/11/2015
13	Authorization to operate additional components for the beneficiation plant	RD 72-2016-MEM-DGM/V	08/03/2016
14	Approval of a Technical Mining Report for the project "Extension of Pahuaypita 1 tailings deposit and auxiliary components"	RD 543-2016-MEM-DGM/V	06/09/2016
15	Authorization to operate the beneficiation plant at 20,000 MT/day and nine additional components	RD 0615-2017-MEM-DGM/V	05/07/2017
16	Amendment to the authorization for construction of stage 1 of Pahuaypita 1 tailings deposit	RD 260-2018-MEM-DGM/V	21/03/2018
17	Amendment to the Beneficiation Concession to construct a fourth line of filtered tailings and auxiliary infrastructure	RD 518-2019-MINEM-DGM/V	23/10/2019
18	Approval of a Technical Mining Report for a 10% increase of the Pahuaypita 2 filtered tailings deposit	RD 571-2019-MINEM-DGM/V	19/11/2019
Water Abstraction and Transportation Facilities			
1	Sea Water licence	RA 33-2012-ANA-ALA	02/03/2012
2	Groundwater licence for IRHS 182 well	RA 57-2009-ANA-ALACH-P	08/04/2009
3	Groundwater licence for IRHS 183 well	RA 58-2009-ANA-ALACH-P	08/04/2009
4	Groundwater licence for IRHS 179 well	RA 26-2011-ANA-ALA S.J.	29/04/2011
5	Groundwater licence for IRHS 180 well	RA 27-2011-ANA-ALA S.J.	29/04/2011
6	Groundwater licence for IRHS 181 well	RA 28-2011-ANA-ALA S.J.	29/04/2011
7	Authorization to use aquatic area	RD 466-2008/DCG	09/07/2008
8	Modification to the Authorization to use aquatic area for installation of water intake pipelines	RD 706-2012- MGP/DCG	23/07/2012
Effluent Discharge to the Environment			
1	Effluent Discharge Authorization for Desalination Plant	RD 008-2019-ANA-DGCRH	16/02/2019
Power Transmission Lines			
1	Power Transmission Concession	RS 004-2008-EM	07/02/2008
2	Modification to the Power Transmission Concession	RS 006-2012-EM	21/01/2012





#	Government Consent	Resolution	Approval Date
3	Permanent easement for the New Power Transmission Line of 60 kV S.E. Desert – SE Cerro Lindo	RS 082-2013-MEM/DM	01/03/2013
4	Permanent easement for the of 60 kV S.E. Desert - Tower 39 and its derivations	RS 363-2014-MEM/DM	13/08/2014
Use of Explosives			
1	Authorization for acquisition and use of Explosives	RD 400-2020-SUCAMEC/GEPP	19/02/2020
2	Authorization to operate an underground explosive magazine located on the Chinchá - Cerro Lindo highway	RD 2976-2019-SUCAMEC/GEPP	13/11/2019
3	Authorization to operate an underground explosive magazine located on the Chinchá - Cerro Lindo highway	RD 2977-2019-SUCAMEC/GEPP	13/11/2019
4	Authorization to operate an underground explosive magazine located on the Chinchá - Cerro Lindo highway	RD 2980-2019-SUCAMEC/GEPP	13/11/2019
5	Authorization to operate an underground explosive magazine located on the Chinchá - Cerro Lindo highway (currently in process of renewal)	RD 126-2015-SUCAMEC-GEPP	20/01/2015
6	Authorization to store explosives and related materials	RD 1396-2020-SUCAMEC/GEPP	30/9/2020
7	Authorization to store explosives and related materials	RD 1397-2020-SUCAMEC/GEPP	30/9/2020
8	Authorization to store explosives and related materials	RD 1398-2020-SUCAMEC/GEPP	30/9/2020

Source: Nexa, 2020a. Environmental Certification No. 14 and Authorizations for Use of Explosives Nos. 6 to 8 were granted to Nexa after the release of Nexa, 2020a.

SLR is not aware of any environmental liabilities on the property. Nexa has all required permits to work on the property. SLR is not aware of any significant factors and risks that may affect access, title, or the right or ability to explore and operate on the property.





4.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

4.1 Accessibility

The current access from Lima is via the Panamericana Sur highway to Chincha (180 km) and then via an unpaved dirt road (60 km) from Huamanpuquio up the river valley. This dirt road forks at 51 km before reaching the mine site, in order to provide access to the district of Chavín (82 km).

The closest commercial airport is Jorge Chavez, at Callao, approximately 300 km northwest. The closest airport to the Project is in Pisco, Ica, however, the Pisco airport is restricted to military and emergency usage.

4.2 Climate

The Mine is situated in an arid, cold-temperate climate. Rainfall in the region of the operation is minimal, varying on an average monthly basis from 24 mm to 36 mm in the dry season and 108 mm to 150 mm in the wet season. The evaporation rate is approximately 1,500 mm per annum. Rains, when they occur, are typically concentrated in the months of December to March, and for the rest of the year precipitation is generally rare and sporadic. The Mine operates year-round.

4.3 Local Resources

Various services, including temporary and permanent accommodations, are available in Chavín and the Topará River valley communities (population 2,003, census 2017) located approximately nine kilometres east of the Mine. The communities provide some of the Mine workers, with 122 people working directly for Nexa, and an additional 110 persons being employed by contractors to the operations.

A greater range of general services are available at the capital city of Lima, located approximately 270 km to the northwest. All goods and services for the operations are brought in by road from major regional centres or Lima.

4.4 Infrastructure

The Cerro Lindo operation is comprised of the following main facilities:

- Approximately 21,000 tonnes per day (tpd) underground mine
- Access roads
- Powerlines, water pipelines
- Desalination plant
- Offices and warehouses
- Accommodations
- Process plant/concentrator
- Conveyor systems
- Waste rock facilities
- Temporary ore stockpiles
- Paste backfill plant
- Dry-stack tailings storage facilities (TSFs)

Additional information on infrastructure is provided in Sections 18 and 20.





4.5 Physiography

Characterized by rugged topography and steep slopes, the Mine area is located in the occidental Andes mountains at an average elevation of 2,000 MASL. The Mine area is dissected by ravines (quebradas) developed as part of the dendritic drainage pattern feeding the Topará River.

Vegetation is limited on hill slopes and is predominantly cacti species. Along river valleys patches of coastal forest may occur. However, these valleys are favoured areas for agricultural activities, so little of the original vegetation remains. During baseline studies conducted in support of environmental permitting, a total of 58 flora species were identified. Following five semi-annual monitoring surveys, the species identified have increased to 85 plant species belonging to 27 families. Two flora species recorded are protected by national legislation.





5.0 HISTORY

5.1 Exploration and Development History

Artisanal-style mining of outcropping barite bodies for use by the oil industry began in the early 1960s. The Cerro Lindo deposit was discovered in 1967, during a colour anomaly reconnaissance program. Colour anomalies result from weathering of pyrite-rich rocks which causes the formation of various reddish iron oxide minerals. Various geochemical sampling and geological studies were subsequently completed. Compañía Minera - Milpo S.A.A. (Milpo), a predecessor company to Nexa Peru, acquired the property in 1984.

After acquisition, Milpo prepared access roads and conducted geological mapping, trenching, approximately 3,000 m of underground development, and 3,500 m of drilling. Phelps Dodge optioned the property in 1996, and completed 6,700 m of widely spaced, mostly vertical core drilling, as well as an electromagnetic (EM) moving-loop geophysical survey, which detected a prominent anomaly over the Cerro Lindo deposit. Phelps Dodge also carried out geochemical sampling in 1996 and 1997, which returned an intense zinc anomaly (Gariépy and Hinostroza, 2004 and Milpo, 2016e). Phelps Dodge returned the property to Milpo in 1997.

Milpo resumed exploration in 1999, conducted a thorough review of previous work, and decided to proceed with an extensive exploration program, consisting of core drilling and underground drift development. This program was completed in three distinct phases from 1999 through 2001.

During the three phases, Milpo completed a total of 28,371 m (129 holes) of core drilling and 1,365 m of underground drifting. Drift development provided access for delineation drilling and exploration of the southeastern portion of OB-1. During this program, Milpo studied the OB-1 and OB-2 zones, confirmed the presence of OB5, and achieved the drill grid density required for a feasibility study.

AMEC Simons/GRD Minproc (2002) and GEMIN (2005) completed feasibility studies. Mine construction started in 2006. At the beginning of operations, the plant had a 5,000 tpd treatment capacity; since then, three expansions have been carried out. The plant capacity was increased to 10,000 tpd in 2011, 15,000 tpd in 2012, and 18,000 tpd in 2014 (Milpo, 2016f). Current capacity is at nameplate 20,800 tpd, with actual production scheduled at 20,600 tpd over the life of mine (LOM) plan. Nexa has been granted approval for the terms of reference for an updated Environmental Impact Assessment (ELA), in which an expansion to 22,500 tpd is contemplated (see Section 17).

Systematic exploration restarted in 2007. This exploration resulted in discovery of new mineralized bodies (OB-6 in 2006; OB-7 in 2009; OB-6A in 2010; OB-6B in 2011; OB2B and OB-8 in 2012; OB-5B in 2013; OB3-4 in 2014; OB-8 in 2015; OB-11 in 2016, OB-9, OB-10 in 2017, OB-12 in 2018, OB-13, OB-14 in 2019 and expanding volume of OB-5B and OB-13 in 2020), as well as increasing, and upgrading the classification of, estimated Mineral Resources and Mineral Reserves in previously known mineralized bodies.

5.2 Past Production

A summary of production to date is included in Table 5-1.

Table 5-1: Production History
Nexa Resources S.A. - Cerro Lindo Mine

	Unit	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Tonnage	Mt	0.64	1.97	2.41	2.53	3.14	3.79	5.38	5.93	6.76	7.35	7.30	6.91	6.80	5.48
Zn Grade	%	3.19	4.12	3.51	3.14	3.15	3.08	3.12	3.06	2.83	2.56	2.33	2.07	2.05	1.93
Cu Grade	%	0.4	0.59	0.76	0.79	0.81	0.86	0.77	0.79	0.68	0.66	0.69	0.64	0.64	0.59
Pb Grade	%	0.49	0.58	0.43	0.34	0.34	0.29	0.32	0.33	0.30	0.29	0.27	0.25	0.25	0.29
Ag Grade	g/t	34.2	33.6	28.3	29.9	26.1	23.0	23.3	23.3	23.3	22.7	21.6	21.6	21.6	24.14





Production in 2020 was significantly lower than in 2019 due to the effects of the COVID-19 pandemic and associated production interruptions. On March 15, 2020, the Peruvian Government declared a national emergency and imposed operating business restrictions including on the mining sector. The quarantine period was initially expected to last until the end of March but was subsequently extended up to May 10, 2020. In light of the government restrictions, Nexa suspended production at Cerro Lindo. During this period, mining activities were limited to critical operations with a minimum workforce to ensure appropriate maintenance, safety, and security. On May 6, the Peruvian Government announced the conditions for the resumption of operations for different sectors, including mining operations above 5,000 tpd. Cerro Lindo operations, which were suspended on March 18, restarted production on May 11, 2020, following the end of the quarantine period. After the resumption of operations, Cerro Lindo ramped up production to pre-pandemic levels by June 2020.



Nexa Resources S.A. | Cerro Lindo Mine, SLR Project No: 233.03246.R0000
Technical Report Summary - January 29, 2021



6.0 GEOLOGICAL SETTING, MINERALIZATION, AND DEPOSIT

6.1 Regional Geology

The Cerro Lindo deposit is located in a 30 km by 10 km northwest trending belt of marine volcano-sedimentary rocks of the Middle Albian to Senonian (mid-Cretaceous) Huaranguillo Formation, belonging to the Casma Group (Zalazar and Landa, 1993), which in turn is surrounded by Tertiary intrusions of the Coastal Batholith (Figure 6-1). The Casma Group is dominated by porphyritic andesites, erupted in a failed back-arc basin through an unexposed older basement as a result of extensional tectonics during subduction of oceanic lithosphere. The Casma volcano-sedimentary rocks extend for 1,600 km along the Pacific Ocean, from Ica, Southern Peru, to Piura, Northern Peru.

Upper Cretaceous to Tertiary intrusive rocks of the Coastal Batholith intrude the Casma Group over most of its extent. In the Cerro Lindo region, this intrusive belt is composed of granodiorites, monzogranites, and diorites of calc-alkaline affinity. Emplacement of the batholith occurred episodically over a period of 64 million years between 101 Ma and 37 Ma. The Coastal Batholith is composed of the Catahuasi, Incahuasi, and Tiabaya superunits, which overlie volcanic rocks and are generally of granodioritic to tonalitic composition, with varying granulometry. Andesitic porphyry dikes cross-cut all units in a general north-south orientation. Emplacement of the batholith generated intense contact metamorphism of the adjacent volcano-sedimentary rocks. In the Cerro Lindo area, a medium grade regional andalusite-cordierite metamorphism developed.

The Huaranguillo Formation fills the Canete volcano-sedimentary basin, one of the several similar basins that form the Casma Metallotect at the western side of the Andean Cordillera Occidental. The Huaranguillo Formation is approximately 3,000 m thick; it has intercalated volcanic rocks at its base, intermediate volcanic with some shale intercalations in its upper part, and black calcareous rock in millimetre to centimetre thick layers at the top of the sequence. The Casma Metallotect hosts a number of important volcanogenic massive sulphide (VMS) deposits, including Tambogrande, Perubar, Cerro Lindo, Potrobayo, Totoral, Maria Teresa, Aurora Augusta, and Palma.





Figure 6-1: Regional Geology





6.2 Local and Property Geology

Geological mapping at 1:10,000 scale was completed by Hinostroza (2016). Figure 6-2 shows the resulting map. The Huaranguillo Formation, at the property scale, consists of an approximately 2,250 m thick back-arc basin sequence extending northwest-southeast for approximately 10 km x 5 km. Zalazar and Landa (1993) divided the Huaranguillo Formation in the Cerro Lindo area into two members: a lower member, composed of shales, tuffs and andesites, and an upper member, formed of limestones, shales and volcanic rocks. Hinostroza (2016) later divided the Huaranguillo Formation into three units as described below.

The local stratigraphy of the Cerro Lindo deposit is shown in Figure 6-3 and described as follows:

- 1. Huaranguillo Formation (105 to 106 Ma): This formation is part of the Casma Group, of the lower Cretaceous Albian, and at Cerro Lindo is made up of three members (Hinostroza, 2016):
 - (a) Lower Member: made up of four lithological units: rhyolites, dacites, volcanic gap, and volcanoclastic, named by Canales (2016)
 - (i) Rhyolite: generally occurs as long bodies with northwest-southeast directions, and is structurally controlled. These rocks are white in colour with a pinkish hue, have aphanitic and/or rarely porphyritic texture, have quartz eyes and in some cases spherulites surrounded by quartz (filled vesicles type), and are mostly silicified, with sulphide dissemination.
 - (ii) Dacite: observed encompassing or interspersed with the rhyolites. These rocks are white to brown grey in colour, aphanitic to porphyritic, isotropic to anisotropic, not magnetic. Their texture is variable, the most prominent being the mosaic-like (or toad spine), porphyroblastic texture, due to the presence of cordierites in its composition (product of metamorphism); porphyritic textures are also observed, represented by some phenocrystals of plagioclase wrapped in a matrix. In areas without deformation, the dacite is isotropic, while in areas related to deformations and metamorphism it is anisotropic, showing northwest-southeast foliations and a certain relationship with mineralized bodies.
 - (iii) Volcanic gap: discontinuous rock, a product of the volcanism in rhyolites and dacites, consisting of angular to sub-angular fragments of the massive rhyolite, of centimetre size (<20 cm) and with well-defined edges, wrapped in a fine matrix of dacitic composition. These gaps show gradation in the percentage of rhyolitic fragments, from 1% to approximately 25%.
 - (iv) Volcanoclastic: located in the upper parts of the lower limb (e.g., Cerro Paltarumi). It is made up of elongated sub-rounded monomictic fragments of rhyolite (up to 60 cm in its major axis) of undefined edges in an aphyasic matrix of andesitic composition.





Figure 6-2: Geological Map of the Cerro Lindo Property





Figure 6-3: Local Stratigraphic Column





- (b) Upper Limb Member: consists mainly of an intercalation of shales with massive and vesicular andesites that in some cases have porphyritic texture. It is best exposed along the UMCL road towards Chavin and on Cerro Paltarumi, at an altitude greater than 2,400 MASL, showing an anomaly of reddish colour in satellite images.
- (i) At the base of the member, layers of shales-siltstones with thicknesses of up to two metres, called "guiding shales", are indicative of the contact between acidic and intermediate sequences.
 - (ii) Shales: black shales with thicknesses of up to 10 cm that are interspersed with millimetre thick limolite laminae, forming strata of up to two metres. These strata are rich in iron, which gives reddish colour to the areas of weathering.
 - (iii) Massive andesites: usually grey to greenish grey, with an aphanitic texture, not magnetic. Occasionally they have plagioclase or hornblende crystals smaller than two millimetres.
 - (iv) Vesicular andesites: very similar to the massive, but with the presence of vesicles of up to 15 cm, however, averaging less than three millimetres in size, and filled mainly by calcite and occasionally biotite, and rarely by quartz or amphibole. Occasional plagioclase phenocrysts are observed near or in contact with intrusive bodies.
- (c) Roof Member: characterized by calcareous sedimentary phases, layers of marl-shales interspersed with massive andesites in the lower part, and limestone strata with narrow layers of limolites and hornfels in the upper part.
- (i) Marls-shales: observed as "Roof pendant" in the uppermost zones of the intrusive (mainly in the Catahuasi Superunit). These appear to be strongly silicified, in some cases classified as hornfels with random stratification.
 - (ii) Limestone-hornfels: thicker than one metre, observed at elevations over 2,500 MASL (to the southwest of the town of Chavin), characterized by intercalations of dark, centimetre thick and white, millimetre thick laminae. These laminae are separated by millimetre thick limolite layers and form greater than 400 m thick strata, intensively folded in a northwest-southeast direction and in some sectors cut by rhyolitic dikes.
2. Intrusives: Three main intrusives are identified in the Huaranguillo Formation with ages of Turonian to Campanian: Catahuasi, Incahuasi, and Tiabaya superunits.
- (a) Catahuasi Superunit: located on the Campanario Hill, generally striking northwest-southeast, and has an extension striking northwest-southeast over a distance of no greater than three kilometres, structurally controlled (Ahem Patahuasi Fault). This superunit consists mainly of a white to light grey, isotropic, equigranular fine grained, non-magnetic granodiorite-tonalite with 15% of hornblende (main mafic mineral). Its age by the U-Pb method is on average 93.72 Ma (Meffre and Thompson, 2016).
 - (b) Incahuasi Superunit: located west of the Paltarumi Hill, west of the Pucasalla Creek. It is composed of grey-pink, grey-dark coloured, isotropic to anisotropic, equigranular medium grained granodiorite-granite. The lower limb of the superunit is in contact with the volcanic sequences, where strong deformation and partial fusion produced metavolcanic rocks. Its age by the U-Pb method is on average 82.35 Ma (Meffre and Thompson, 2016).
 - (c) Tiabaya Superunit: located north of the Mesarumi Hill and is characterized by the presence of enclaves of microdiorites and massive andesites. This unit is composed of grey coloured, isotropic, equigranular coarse grained tonalite with hornblende being the main mafic mineral. According to INGEMMET, it has differentiated into five magmatic pulses, forming a structure centred along the San Juan River valley, where it has an average age of 80 ± 8 Ma (Pitcher et al., 1985).
3. Other dikes: There are three different types of dikes, of which the andesitic porphyry is the most abundant.
- (a) Andesitic porphyry: most predominant among the dikes, is greenish grey in colour, has porphyritic texture, and is isotropic with moderate magnetism. Its porphyritic texture is marked by the presence of uhedral phenocrysts of plagioclase and burners of sizes up to five millimetres encompassed in a green fine grained matrix. Its age by the U-Pb method is on average 73.89 Ma (Meffre and Thompson, 2016).





- (b) Rhyodacitic porphyry: cuts the andesitic porphyry dikes, is greenish grey in colour, has porphyritic texture, and is isotropic, non-magnetic. Its texture is marked by the presence of euhedral feldspar phenocrysts of less than three millimetres, anhedral quartz eyes of up to five millimetres, and subhedral hornblende of up to one millimetre; encompassed in a green fine grained matrix.
- (c) Dacitic porphyry: observed on the Quishpi Pata Hill, has a north-northeast to south-southwest orientation and a thickness of up to 5 m. Cuts the upper member of the Huaranguillo Formation, and is cut by the Catahuasi Superunit. It is white in colour, has an aphanitic texture, and demonstrates occasional euhedral quartz phenocrysts in an aphanitic matrix.

6.2.1 Structural Geology

The regional faults in the Cerro Lindo Mine area trend northwest-southeast, north-south, and northeast-southwest, parallel to the Topará Creek. The north-southeast faults are the main controls on volcanic sequences and mineralized bodies.

A number of fault systems are recognized:

- A system of syn-volcanic faults, related to the formation of the deposit, has a northwest to southeast strike.
- A conjugate fault system, striking northeast-southwest, that controls the Topará Fault; the Topará Fault displays right lateral movement.
- Late north-south fault system that controls the emplacement of barren dikes that cut the main mineralized zones.
- Reverse fault along the contact between rhyolite and the rocks of the Coastal Batholith.

These fault systems have defined structural blocks, and the paleosurface on which the deposit was probably formed (Figure 6-4).

Huaranguillo Formation rocks have been moderately to intensely folded and faulted in the Mine area. The structural pattern corresponds to open folds accompanied by a weak to very weak schistosity, however, certain shear zones locally produce intense schistosity.





Figure 6-4: Vertical Section through Mineralized Bodies Showing Mineralization Types





6.2.2 Metamorphism

Intense contact metamorphism of the volcano-sedimentary sequences near the contacts with the Coastal Batholith intrusions reaches the garnet-cordierite-andalusite facies. Most andalusite formed at the footwall, probably as a result of strong sericitization (increased potassium).

Typically, secondary porphyroblastic textures developed in volcanic rocks as a result of contact metamorphism. Granoblastic textures are also common. However, drilling indicates that the intensity of metamorphism is irregular. Nearly 10% of the volcanic rocks still retain the primary flow breccias and banding textures.

Massive sulphides at Cerro Lindo have been recrystallized to grain sizes ranging from two to five millimetres, however, approximately 10% of the sulphides, mainly pyrite-chalcopyrite, show a very weak metamorphism where the grain size rarely exceeds 0.5 mm.

6.3 Deposit Geology

6.3.1 Extrusive Rocks

Rhyolitic to rhyodacitic rocks predominate in the deposit area. Flow, brecciated, and laminated textures exhibiting amygdules are frequent, as are andesitic pillow lavas. Intense thermal metamorphism produced porphyroblastic and granoblastic structures. The main rock-forming minerals are quartz, feldspar, biotite, sericite, andalusite, and pyrite.

Exhalite layers, typical of VMS deposits, are locally observed at the bottom or top of massive sulphide bodies, where they form finely laminated, thin (less than one metre) horizons composed of silica (chert) and various sulphides. These layers are limited to the immediate area of the sulphide deposits.

6.3.2 Intrusive Rocks

Coastal Batholith intrusive rocks, with ages ranging from Upper Cretaceous to Tertiary, were intruded between 101 Ma and 37 Ma. The batholith is primarily composed of granodiorites surrounding roof pendants of the volcano-sedimentary units. Some minor microdiorite, diorite, and gabbro bodies, as well as numerous dikes, cut the volcano-sedimentary sequences. The most common are microdiorite, medium grained diorite, granodiorite, and andesitic porphyry (the latter also cuts the granodioritic intrusion).

Late-stage feldspar porphyritic dikes occur throughout the property, cutting both the Casma Group and Coastal Batholith rocks. At Cerro Lindo, these form a northeast-southwest trending swarm.

6.3.3 Alteration

Along with the formation of massive sulphide bodies, different types of hydrothermal alteration halos developed: silicification at the root, chloritization along the edges of the base, and sericitic alteration, which forms the widest halo (from proximal K-sericite to more distal Mg-sericite). Figure 6-5 shows a cross-section schematic of the massive sulphide at Cerro Lindo with its hydrothermal alteration halos, possible isotherms of hydrothermal fluid at the time of mineralization, and the distribution of chemical elements in the different areas of the deposit.

The metamorphic activity associated with the coastal batholith has overprinted the hydrothermal alteration. Most notable is the development of porphyroblasts of cordierite in the previously altered volcanic rocks.





Figure 6-5: Cross-Section Schematic of the Massive Sulphide at Cerro Lindo





6.4 Mineralization

Mineralization is hosted by a pyroclastic unit composed of ash and lapilli-type polymictic tuffs with subrounded, well classified fragments. Some lapilli have centimetre-scale, pencil-like shapes, due to development of an incipient schistosity.

Eight styles of mineralization were identified at the Cerro Lindo deposit:

1. Pyritic, homogeneous, primary massive sulphide (SPP): This unit includes almost exclusively pyrite, less than 10% barite, and minor interstitial chalcopyrite. Its structure is equigranular, generally coarse grained (3 mm to 6 mm), but with fine-grained areas (0.4 mm to 2 mm)
2. Copper-rich, baritic homogeneous primary sulphides (Cu-SPB): This unit contains more than 50% total sulphides (including barite), and more than 10% barite. Barite is associated with sulphides because it was deposited from the same solution at the same time as the sulphides. Its structure is homogeneous, and it is composed of barite, pyrite, pyrrhotite, chalcopyrite, and brown sphalerite. Sulphides typically occur as intergrowths and patches, and brown sphalerite is included in chalcopyrite grains. There is less pyrite than in the Zn-SPB unit (described below). The Cu-SPB is generally found within or near the contact with Zn-SPB and SPP.
3. Zinc-rich, banded, baritic primary sulphides (Zn-SPB): This unit comprises more than 50% of total sulphides (including barite), and more than 10% barite. The Zn-SPB unit contains variable proportions of pyrite, barite, yellow sphalerite, and galena. It is typically banded and has a coarse grain size (3 mm to 6 mm).
4. Semi-massive sulphides (SSM): This unit contains between 20% and 50% sulphides, which are mostly represented by barren pyrite as disseminations, patches, stringers, and stockworks. This mineralization is generally fine grained as compared to massive sulphides. SSM forms a variable envelope, 20 m to 80 m thick, around the massive sulphide bodies. The sulphide proportion decreases outward. It is better developed in the footwall.
5. Pyritic oxidized sulphides (SOP): This unit comprises bornite and covellite, and is mostly located in the OB2 mining production area.
6. Baritic oxidized sulphides (SOB): This unit comprises bornite, covellite, and oxidized zinc, and it is also located in the OB2 mining production area.
7. Leached massive sulphides (SLB) and leached semi-massive sulphides (SSL): These units are located near surface in the OB2 mining production area.
8. Mineralized volcanic rocks (VM): This unit contains rhyolite and dacite rocks with some chalcopyrite and sphalerite disseminated in veinlets or patches, located on the edge of the mineralized zones.

Cerro Lindo contains 19 mining production areas within the mineralization domains. The mineralized lenses exhibit an irregular elongated geometry. Their longest axis (nearly 500 m) has a northwest-southeast horizontal trend (azimuth 135°). The mineralized bodies are approximately 300 m thick (occurring between 1,600 MASL and 1,980 MASL) and 100 m wide. They are the largest near the edge of the Topará Ravine, beyond which they diminish in size toward the southeast. The mineralized bodies generally dip to the southwest at 65° on average. Locations of the main mineralized bodies within the mining production areas are shown in Figure 6-6. Table 6-1 shows the dimensions of each mineralized body within the mining production areas.





Table 6-1: Dimensions of Main Mineralized Bodies within Mining Production Areas
Nexa Resources S.A. - Cerro Lindo Mine

Description	Unit	OB-1	OB-2	OB-2B	OB-3-	OB-5	OB-5B	OB-5C	OB-5D	OB-6	OB-6A	OB-6B	OB-6C	OB-7	OB-8	OB-9	OB-10	OB-11	OB-12	OB-13	OB-14
					4																
Length	m	350	450	420	150	350	635	200	40	200	460	200	100	170	350	300	400	250	150	500	270
Width	m	200	220	60	20	65	80	15	35	50	70	60	80	50	100	60	70	120	100	100	20
Average thickness	m	100	200	80	40	45	70	35	15	80	80	65	25	60	45	70	85	3	4	50	12
Depth	m	360	330	260	330	400	245	90	110	450	260	245	70	210	70	190	380	25	70	275	275
Top elevation	m	1,850	1,970	1,950	1,950	2,000	1,805	1,780	1,640	2,000	2,020	1,975	1,995	1,940	1,700	1,950	1,670	1,550	1,960	1,970	1,990
Bottom elevation	m	1,490	1,640	1,690	1,620	1,600	1,560	1,690	1,530	1,550	1,760	1,730	1,925	1,730	1,440	1,760	1,290	1,450	1,840	1,780	1,520





Figure 6-6: Main Mineralized Bodies within Mining Production Areas





The majority of these bodies show three types of mineralization. The upper part features the massive mineralization of barite, sphalerite, galena, and pyrite (SPB). The lower part includes massive pyrite (SPP), with two different general grain sizes, one fine grained with a higher chalcopyrite content and the other coarse grained and largely barren. In the lateral portions, mineralization is semi-massive, contains 20% to 50% sulphides, and occurs as disseminations, patches, and stockworks. The base of the system exhibits a cluster of small veins of pyrite, pyrrhotite, and to a lesser extent, chalcopyrite. The mineralization at Cerro Lindo is generally coarse grained, which may be related to recrystallization due to the contact metamorphism, and this improves metallurgical recovery.

The massive sulphide frequently presents a marked banding, which may be related to tectonic deformation. In the contact with the adjacent batholiths, there is a noticeable predominance of remobilized sulphides elongated in banding that runs parallel to the volcanic contact with the intrusives. The rigidity of the batholiths likely fostered the generation of areas of greater sulphide deformation and mobilization, as illustrated in Figure 6-4.

Recently, a new domain termed mineralized volcanic (VM) has been identified, which differs from the other lithologies because it does not contain massive sulphides. The mineralization is scattered or occurs as patches in the volcanic rock and consists of mainly tetrahedrite, freibergite, sphalerite, and galena. Typical metal concentrations in VM are up to 15% Fe; 1% Zn, and greater than 0.25% Cu, 0.50% Pb, and 30 ppm Ag.

Significant barite is present mainly in the upper portions of the deposit. A secondary enrichment zone, composed of chalcocite and covellite, formed near surface. Silver-rich powdery barite remains at surface as a relic from sulphide oxidation and leaching.

The lead content is usually low and is mainly associated with high grade zinc zones, and locally with late quartz veins or small volcanic enclaves. These enclaves represent approximately 2% to 3% of the deposit volume, and commonly measure 0.5 m to 10 m in diameter. Silver grades correlate well with copper and lead.

As is typical of Kuroko-style VMS deposits, Cerro Lindo is characterized by a distinct mineralization zonation. Figure 6-5 shows the chemical zonation patterns in a cross-section schematic. Amec Foster Wheeler Perú S.A. (Amec, 2017) noted that:

Zinc content is higher in the Zn-SPB units.

Copper content is higher in Cu-SPP units. However, copper is also found in the SPB unit.

Lead grades are higher in SPB units and are significantly reduced in SPP units. Some lead is found in SPP associated with SPB or in enclaves. The silver content is significantly higher in SPB, but it is sometimes also important in SPP units. The presence of silver in SPB is due to its affinity for lead.

Zinc, lead, and silver grades are always higher in SPB than in SPP; copper grades are always higher in SPP.

The copper grades tend to decrease from the northwest to the southeast; whereas zinc, lead, and silver grades tend to increase in the same direction

6.5 Deposit Types

This section is largely based on Amec (2017).

Gariépy and Hinostroza (2014) highlighted the similarities between the Cerro Lindo deposit and the Kuroko deposits in Japan. Kuroko deposits have been described by Ishihara (1974), Franklin et al. (1981), Ohmoto and Skinner (1982), and Urabe et al. (1983). Singer (1986) defined the Kuroko VMS descriptive deposit model as copper- and zinc-bearing massive sulphide deposits in marine volcanic rocks of intermediate to felsic composition.

These deposits are hosted by Archean to Cenozoic marine rhyolite, dacite, and subordinate basalt and associated sediments, principally organic-rich mudstone or pyritic, siliceous shale. Lava flows, tuffs, pyroclastic rocks, and breccias are common volcanic rock types. Felsic (rhyolitic) domes are sometimes associated. The depositional environment consists of hot springs related to marine volcanism, probably with anoxic marine conditions. Lead-rich deposits are associated with abundant fine grained volcanogenic sedimentary rocks. Black smokers are analogous modern deposits associated with back arc basins.





Kuroko deposits comprise an upper stratiform massive (>60% sulphide) zone (black ore) containing pyrite + sphalerite + chalcopyrite ± pyrrhotite ± galena ± barite ± tetrahedrite ± tennantite ± bornite with lower stratiform massive zone (yellow ore) - pyrite + chalcopyrite ± sphalerite ± pyrrhotite ± magnetite and a basal stringer (stockwork) zone-pyrite + chalcopyrite (gold and silver).

Following descriptions by AMEC (2002), Gariépy and Hinostroza (2014), Lavado (2015), and Imaña (2015), the general features of the Cerro Lindo deposit are presented in Table 6-2. These features clearly support the classification of Cerro Lindo as a Kuroko-type VMS deposit.

Table 6-2: General Features of the Cerro Lindo Deposit
Nexa Resources S.A. - Cerro Lindo Mine

Type	General Features
Lithologies	Rhyolite, dacite, rhyodacite, minor andesite, microdiorite
Rock textures	Massive, lava flows, breccias and tuffs
Age	Lower Cretaceous
Mineralogy	Pyrite, sphalerite, galena, barite; chalcopyrite mainly in stringer zones
Mineralization	Massive and coarse grained to banded and fine grained; stockworks in stringer zones
Zoning	Sphalerite-rich to pyrite-chalcopyrite-rich zones
Alteration	Sericitization, pyritization, chloritization, silicification
Ore control	Lens-shaped bodies: stringer zones.
Geochemical signature	Zn, Pb, Ba, Ag, Cu mainly in massive and banded portions; Cu also occurs in stringer zones
Depositional environment	Proximity to volcanic centre, volcanic depression with volcano-clastic contribution
Tectonic setting	Graben-like structure within back-arc basin; roof pendant

The Cerro Lindo deposit is altered by thermal metamorphism caused by the adjacent batholiths and slightly deformed, possibly due to the basin’s inversion tectonics. It is a massive sulphide deposit formed by nineteen known mineralized bodies to date, all hosted in dacite and breccia located along the edges of the rhyolite domes. The mineralized bodies have a clear control along the 135° azimuth and are abruptly bounded by a possible structure running parallel to the Topará Ravine, from northeast to southwest.

The mineralized bodies diminish in size with distance from the Topará Ravine, which suggests the hypothesis that the possible structure running parallel to the Topará Ravine is a raised structure and feed zone for the hydrothermal system. The massive sulphide bodies have a well-defined internal architecture (barite and sphalerite at the top and pyrite and chalcopyrite at the base). Around these bodies, well-defined hydrothermal alteration halos are preserved, with silicification and Fe-chlorite at the root, K-sericite to the sides, and Mg-sericite along the outermost edge. Figure 6-7 shows a schematic section transversal to sulphide orebodies and intrusions (Marcelo Imaña, pers. comm.,2019).

Cerro Lindo is a Kuroko-style VMS deposit with economic grades of Zn, Cu, Pb, and Ag.





Figure 6-7: Schematic Section Transversal to Sulphide Orebodies and Intrusions





7.0 EXPLORATION

Nexa has been conducting exploration and development work at Cerro Lindo since 2006. Most of the exploration is generally conducted simultaneously with underground development. This work has included geological mapping, geophysics, diamond core drilling, and channel sampling.

7.1 Exploration

7.1.1 Geological Mapping

Zalazar and Landa (1991) prepared the first geologic map on the region while working for the state-owned Ingenmet. In addition, various geological mapping campaigns and studies were conducted by Phelps Dodge and Milpo during the late 1990s and early 2000s (Amec, 2017).

More recently, Lavado (2015), Canales (2016), and Anglo Peruana Terra (APT) (2017, 2018) conducted detailed geological mapping campaigns on the area:

Lavado (2015) mapped 1,300 ha in the mine area and its immediate vicinity at 1:4,000 scale. The mine stratigraphy and alteration pattern, as well as factors controlling the mineral deposition, were better outlined.

Canales (2016) conducted a 1:10,000 geological mapping program that extended over 13,700 ha. The program included detailed 1:2,000 mapping over 450 ha in the immediate mine area. This program was accompanied by systematic lithogeochemical sampling, and by 8,112 m drilling in 15 drill holes in the Topará North sector. Six holes intercepted mineralized intervals at different elevations.

APT (2017) conducted a 1:5,000 geological mapping program that covered over 2,900 ha at Cerro Lindo Sur. This program was accompanied by systematic lithogeochemical sampling. In 2018, a geological mapping program was conducted at a scale of 1:2,000 that covered over 450 ha at Pucatoro.

The surface mapping of the Pucasalla, Ventanalloc, and Toldo Chico targets has been continued by Nexa’s Brownfield exploration team.

7.1.2 Geochemistry

Geochemical samples were collected at different stages during the project life. Information on sampling methods and results is sparse. Samples were collected from soil (by Phelps Dodge; Milpo, 2016d), core (Imaña, 2015), or from rock outcrops (Canales, 2016). Phelps Dodge carried out geochemical studies in 1996 and 1997 and identified a pronounced zinc anomaly.

Additional details on geochemical sampling and sampling methods were not available.

Imaña (2015) collected 431 rock chip samples from various drill holes located close to OB6 and OB7 as part of a lithogeochemical study oriented at deciphering the chemical and volcanic stratigraphy of the deposit, and chemical modifications that occurred as a result of hydrothermal alteration. Canales (2016) carried out geological mapping and geochemical sampling of rock outcrops in the area of the Mine.

In 2019, Nexa’s Brownfield exploration team collected 14 rock chip samples from the Ventanalloc and three rock chip samples from Toldo Chico targets (Nexa, 2020b). The assay results indicate the following:

- Ventanalloc - Copper results confirmed the surface expression of the mineralized rocks as a possible porphyry system (six out of 13 samples returned 0.3% to 2.38% Cu).
- Ventanalloc - Molybdenum is considered one of the most relevant assays for a porphyry hosted Cu-Mo deposit due to its correlation with Cu (two out of 13 samples returned 105 ppm to 120 ppm Mo).
- Toldo Chico - One out of three samples returned values of 4,867 ppm Ba, confirming the presence of barite outcrops at Toldo Chico.

Table 7-1 and Table 7-2 list the results of the 2019 surface sampling.





At Cerro Lindo, surface geochemical sampling has been largely superseded by drilling.

Table 7-1: 2019 Rock Chip Sampling Results At Ventanalloc Target
Nexa Resources S.A. - Cerro Lindo Mine

Target	East	North	Elevation	Sample Type	Sample ID	Zn (%)	Pb (%)	Cu (%)	Ag (g/t)	Fe (%)	Au (g/t)	Ba (ppm)	Mo (ppm)
Ventanalloc	395,145	8,559,815	3,223	Rock Chip	291867	0.00	0.00	0.00	0.50	0.51	0.02	271	2
Ventanalloc	394,748	8,560,015	3,028	Rock Chip	291868	0.01	0.00	0.01	0.40	5.31	0.01	132	1
Ventanalloc	393,479	8,559,574	2,533	Rock Chip	291869	0.00	0.00	0.02	0.30	1.69	0.01	58	45
Ventanalloc	393,355	8,559,567	2,479	Rock Chip	291870	0.04	0.00	1.31	0.80	2.22	0.01	56	11
Ventanalloc	393,318	8,559,556	2,464	Rock Chip	291871	0.01	0.00	2.38	0.50	2.09	0.01	44	20
Ventanalloc	393,231	8,559,640	2,470	Rock Chip	291872	0.01	0.00	1.16	0.40	2.93	0.01	159	29
Ventanalloc	393,048	8,559,487	2,404	Rock Chip	291873	0.01	0.00	0.40	0.60	2.35	0.01	99	19
Ventanalloc	393,000	8,559,462	2,400	Rock Chip	291874	0.00	0.00	0.12	0.90	2.02	0.01	72	120
Ventanalloc	392,895	8,559,207	2,373	Rock Chip	291875	0.00	0.00	0.71	10.70	5.88	0.08	78	42
Ventanalloc	395,238	8,559,529	3,230	Rock Chip	268605	0.17	0.00	0.00	1.00	2.33	0.02	54	1
Ventanalloc	393,645	8,558,431	2,610	Rock Chip	268601	0.01	0.20	0.31	75.20	5.70	0.07	100	33
Ventanalloc	393,166	8,558,608	2,474	Rock Chip	268602	0.01	0.00	0.16	0.80	3.89	0.01	242	105
Ventanalloc	392,861	8,558,475	2,410	Rock Chip	268603	0.01	0.00	0.20	1.70	2.69	0.01	62	23
Ventanalloc	392,673	8,558,581	2,299	Rock Chip	268604	0.02	0.00	0.11	1.80	2.02	0.01	36	81

Table 7-2: 2019 Rock Chip Sampling Results At Toldo Chico Target
Nexa Resources S.A. - Cerro Lindo Mine

Target	East	North	Elevation	Sample Type	Sample ID	Zn (%)	Pb (%)	Cu (%)	Ag (g/t)	Fe (%)	Au (g/t)	Ba (ppm)
Toldo Chico	386,656	8,558,262	2,514	Rock Chip	291864	0.01	0.00	0.03	0.10	5.27	0.01	4,867
Toldo Chico	386,425	8,558,030	2,632	Rock Chip	291865	0.03	0.01	0.01	1.20	19.19	0.00	570
Toldo Chico	386,414	8,558,072	2,611	Rock Chip	291866	0.02	0.04	0.01	5.00	1.12	0.01	737

7.1.3 Geophysics

In 2012, Quantec performed a Titan 24 direct current induced polarization and magnetotelluric (DCIP & MT) survey over the area of the Cerro Lindo Mine, with approximately 23 line km of data collected. Arce (2014) re-processed and reinterpreted the data.

Imaña (2015) presented various resistivity cross-sections resulting from a magnetotelluric survey. The sections did not include legends or scales, and no details were available. Imaña (2015) recommended the use of magnetotelluric and electromagnetic methods, both from surface and underground, in future exploration campaigns, given the massive nature of the Cerro Lindo mineralization.





Reinterpretation of the Imaña (2015) data resulted in better definition of OB8, and extensions of other deposits.

In 2017, an extensive Titan 24 DCIP & MT survey was carried out by Quantec in an area of 12 km x 6 km at a 500 m line spacing with an objective to reveal new targets under the cover of barren andesitic rocks that overlies the felsic volcanic package. Orcocobre was the main target found, characterized by a combination of anomalous rock chipping, alteration, and low resistivity. This target, however, was discarded as a false positive that was represented by the roots of an eroded VMS system.

In December 2019, a borehole electromagnetic (BHEM) study was carried out by GRM-services Oy Ltd over a length of 836.70 m in hole PECLD04626 drilled from the 1600 level with an inclination of -75° and azimuth of N102°. The purpose of the study was to explore below already known mineralized bodies, in particular OB1. The survey indicated good response in the upper portion of the hole and no apparent presence of conductors at depth.

A helicopter-borne versatile time domain electromagnetic (VTEM) survey was completed from late 2019 to early 2020 over a number of target areas by Geotech Ltd. (Geotech, 2020). A total of 2,176 line-kilometres of VTEM and caesium magnetometer geophysical data were acquired during the survey.

In 2020, Nexa retained Mira Geoscience Ltd. (Mira) to process and interpret the 2017 Titan 24 direct current/induced polarization (DC/IP) and magnetotelluric (MT) survey results and all the geological data (sectional interpretation, surface maps, and drill hole data). The interpretation resulted in a new regional litho-structural model and a 3D geophysical model, highlighting the Cerro Lindo deposit as a conductivity and chargeability anomaly (Mira, 2020). Nexa geologists used the latest model to review the exploration targets, and as a result, an additional seven targets were defined. Interpretations and analysis of the models are continuously updated as new information is incorporated from new holes, and more discussion forums are held.

Figure 7-1 illustrates the Mira 3D Chargeability Model and some of the new targets (blue boxes) at the Cerro Lindo deposit.





Figure 7-1: 3D Chargeability Model and New Targets





7.1.4 Exploration Target

Twenty exploration targets were identified from the integrated assessment of exploration data recorded to date. Targets have been ranked and prioritized using a variety of metrics comprising various geological attributes and modifying factors that have been customized for the mineralization styles most likely to be encountered on the property.

In 2019, the diamond drilling program from surface was completed in the Orcocobre, Toldo Grande, and Pucatoro sectors, determining a positive intercept in the area of Pucasalla approximately 4.5 km northwest of the Mine. In August 2019, a total of 48,448.70 m of drilling was performed, including 83 holes.

In August 2019, a geology workshop was held with the participation of the Nexa exploration team (Brownfield and Greenfield), external consultants such as Thomas Monecke, Marcelo Imaña, and Les Oldham, APT geologists, and corporate Nexa. As a result, 13 exploration targets were defined. A brief description of each target follows.

7.1.4.1 Northwest Extension of OB3-4 and OB12

The Northwest extension of OB3-4 and OB12 represents a northwest continuity of OB2B on the other side of the stream. The lithological control of mineralization in this area is associated with volcanoclastic sequences at the edges of the rhyolitic domes. The zone is structurally controlled by northwest-southeast faults. Further exploration is warranted in this zone north of Cerro Lindo

7.1.4.2 Pucasalla

Pucasalla is located approximately 4.5 km northwest of Cerro Lindo, on the same northwest-southeast trend with the mine. In 2019, drill hole PECLD04226 intersected mineralization with granular barite matrix (SPB) similar to that at Cerro Lindo, which intersected a 6.5 m interval of 3.67% Zn, 0.89% Pb, 0.07% Cu, and 49.47 g/t Ag.

7.1.4.3 Cerro Lindo Southeast Extension

This zone is the southeast extension of OB6 and OB7 mineralization. Given the presence of a probable rhyolitic dome, the edges of volcanoclastic zones make this zone an important target for exploration.

7.1.4.4 Festejo

Festejo is located approximately 0.7 km southeast of Cerro Lindo and is a projection of OB6, OB7, and OB9 that are found on the same northwest-southeast trend with the mine. This target represents a strong geophysical anomaly of low resistivity between the 1800 MASL and 2200 MASL elevations.

7.1.4.5 Cerro Lindo Deeper Stratigraphic Levels

The Cerro Lindo deeper stratigraphic levels are located southwest of OB1. Drill hole PECLDCL-17-2639 intersected a 2.9 m interval of 2.31% Zn and 0.41% Pb at the 1430 m elevation, which indicates that the zone is open to depth. The lithological control is associated with volcanic rocks of dacitic composition.

7.1.4.6 Pucasalla East

Pucasalla East is located approximately one kilometre north of Cerro Lindo, northeast of OB3-4 and OB10, on the same northwest-southeast trend with the mine. The lithological control of the mineralization is associated with volcanoclastic sequences at the edges of the rhyolitic domes.

7.1.4.7 Ventanalloc

Ventanalloc is located approximately 4.5 km north of Cerro Lindo. It has an outcrop of copper oxide (OxCu) and sulphides (pyrite + chalcopyrite). Based on the geological characteristics of the outcrop, Nexa believes Ventanalloc to be porphyry type mineralization. The zone has an area of approximately 1.5 km long by 1.0 km wide and follows the Pucasalla stream to the intersection with the Ventanalloc stream.





7.1.4.8 Patahuasi Millay

Patahuasi Millay is located approximately 1.2 km northeast of Cerro Lindo, upstream the Topará ravine, where colour anomalies mainly correspond to FeOx (jarosite-goethite). The zone is composed of metamorphosed andesitic volcanics in contact with the Catahuasi intrusive. The area shows weak phyllic alteration with intense silicification, sericite-muscovite inclusions, and disseminated pyrite (5%-10%) and micro-veins.

7.1.4.9 Orcocobre

Orcocobre is located approximately two kilometres from Cerro Lindo. The target represents an intense colour anomaly corresponding to OxFe (mainly goethite-hematite (boxwork)) with moderate sericitization.

7.1.4.10 Toldo Grande

Toldo Grande is located approximately four kilometres northwest of Cerro Lindo and is characterized by intense leached silicification and occurrences of barite with a moderate to strong presence of OxFe (goethite-hematite).

7.1.4.11 Pucatoro

Pucatoro is located approximately five kilometres from Cerro Lindo. The zone is characterized by volcanic felsic rocks, with moderate to intense silicification and silicified disseminated pyrite zones (1%-5%) and sericite.

7.1.4.12 Toldo Chico

Toldo Chico is located approximately seven kilometres from Cerro Lindo. It consists of several rhyolitic and volcanoclastic sequences at the base and andesitic volcanic sequences at the top in contact with granite Incahuasi intrusives. The zone is characterized by moderate to strong silicification, sericite-muscovite and local barite occurrences, with OxFe (jarosite-goethite) and traces of OxCu and fine pyrite (1%-5%) disseminations.

7.1.4.13 Chavin del Sur

Chavin del Sul is located approximately seven kilometres southeast of Cerro Lindo. The lithological control of the sphalerite, galena, and chalcopyrite mineralization in this zone is associated with limestone sequences from the upper part of the Huaranguillo Formation. The mineralization is structurally controlled by northeast-southwest and northwest-southeast faults, with the presence of synclines and anticlines. Six historical holes (pre-2009) were completed in this area. Three of them confirmed zinc, lead, and silver mineralization, however, the drill hole database was not available to Nexa.

Exploration work was temporarily suspended from March to June 2020 due to the COVID-19 pandemic. The 2020 exploration diamond drilling confirmed the mineralization continuity of the OB-13 and the OB-14 towards the northwest and also for OB-14 at depth towards the southeast, as well as the upper part of OB-5B between the 1750 and 1950 levels, with an average thickness of 15 m trending northeast. As of December 31, 2020, 62 holes for a total of 23,189 m of diamond drilling were completed during 2020.

In 2020, as a result of the 3D chargeability model, in addition to the thirteen exploration targets defined in 2019, a total of seven targets (Mesa Rumi, Festejo Norte, Festejo Sur, Puca Punta, Pucasalla Norte, OB-14 Upper and Pucasalla Sur) were defined. Nexa has developed a prioritized exploration target plan to expand on current Mineral Resources.

Figure 7-2 shows the location, the priority and the score-ranking of each of the targets relative to the Mine and Figure 7-3 illustrates a plan view and longitudinal section of some of the exploration targets.

Exploration work planned for 2021 includes 35,100 m of diamond core drilling focused on defining Inferred Mineral Resources at six different targets. The main focus of these targets will be the Pucasalla area with a total of 17,100 m of surface drilling and OB-6, OB-5B, OB-12, OB-8, and Patahuasi Millay areas from underground drilling totalling 18,000 m. Work will also include an airborne geophysical VTEM survey, for all the exploration targets, 1:2,000 scale geological surface mapping for Pucasalla, Pucatoro, and Orcocobre over a total of 900 ha, and a geochemical gas





sampling survey with 45 collectors, which aims to identify deeply buried mineral deposits, similar to Cerro Lindo, covered by volcanic rocks up to 300 m in depth.

In addition to the exploration program, the mining geology team plans to drill an additional 48,000 m with a goal of upgrading Inferred Mineral Resources to Indicated or Measured Resources (recategorization drilling) and ultimately convert them into Probable or Proven Mineral Reserves, and for mine planning purposes (infill drilling).

The SLR QP is of the opinion that the geological setting, geophysical studies, surface samples, and geological mapping of the Cerro Lindo area present good exploration potential, as a number of targets have already been identified within a ten kilometre radius of the mining operation. The SLR QP recommends completing the proposed 2021 exploration program including diamond drilling to convert the exploration target to Mineral Resources. The SLR QP is also of the view that there is good potential to increase the Mineral Resource at the Cerro Lindo deposit with more drilling.





Figure 7-2: Brownfield Exploration Targets by Priority





Figure 7-3: Brownfield Exploration Targets - Section and Plan View





7.2 Drilling

7.2.1 Drilling Summary

As of March 2, 2020, the Cerro Lindo drill hole database consists of 4,808 drill holes totalling 654,129.63 m (Table 7-3). All drilling was diamond drilling (DDH), with the majority of the holes (4,609) completed underground, from within the mine, and 199 holes completed from surface. Drilling has been done by various contractors

Geotechnical holes totalling 3,812.55 m, service holes totalling 944.11 m, geometallurgical holes totalling 100 m, and re-drilled holes totalling 448.20 m have been excluded from the Mineral Resource estimate. SLR concurs with Nexa’s list of holes excluded from the Mineral Resource estimate. Table 7-4 lists the drilling excluded from the Mineral Resource estimate, and Table 7-5 lists the drilling included in the Mineral Resource estimate.

In addition to drilling, a total of 1,040 channel samples were completed for a total of 20,682 m between 2000 and 2016 (Table 7-6).

Figure 7-4 illustrates the locations of the drill holes at Cerro Lindo. Figure 7-5 is a cross section illustrating the selected drill holes and related geological interpretation and Figure 7-6 shows channel sampling locations at the Mine (2007-2016).

From March 3, 2020 to December 31, 2020, an additional 52 exploration drill holes for a total of 19,541.4 m of diamond drilling were completed.

Table 7-3: Cerro Lindo Drilling Summary as of March 2, 2020
Nexa Resources S.A. - Cerro Lindo Mine

Year	Surface			Mine			Total		
	No.	Metres	Type	No.	Metres	Type	No.	Metres	Type
1995*	29	3,550.00	DTH						
1996	6	2,207.30	DDH	5	2,077.05	DDH	11	4,284.35	DDH
1999	7	2,722.40	DDH	11	2,156.70	DDH	18	4,879.10	DDH
2000	15	5,054.35	DDH	32	6,503.90	DDH	47	11,558.25	DDH
2001	3	705.5	DDH	60	10,663.03	DDH	63	11,368.53	DDH
2007	2	201.35	DDH	42	3,308.60	DDH	44	3,509.95	DDH
2008	25	6,170.24	DDH	61	9,290.60	DDH	86	15,460.84	DDH
2009	17	3,076.40	DDH	173	15,692.30	DDH	190	18,768.70	DDH
2010				183	21,432.61	DDH	183	21,432.61	DDH
2011	5	2,949.20	DDH	177	20,579.10	DDH	182	23,528.30	DDH
2012	8	5,120.40	DDH	82	17,655.90	DDH	90	22,776.30	DDH
2013	2	1,041.10	DDH	306	36,359.00	DDH	308	37,400.10	DDH
2014				253	39,277.80	DDH	253	39,277.80	DDH
2015	15	8,112.40	DDH	368	40,203.00	DDH	383	48,315.40	DDH
2016	18	12,270.10	DDH	706	73,233.50	DDH	724	85,503.60	DDH
2017	8	6,050.00	DDH	645	88,140.20	DDH	653	94,190.20	DDH
2018	32	14,956.70	DDH	674	83,170.30	DDH	706	98,127.00	DDH
2019	36	22,463.20	DDH	761	84,227.10	DDH	797	106,690.30	DDH





Year	Surface			Mine			Total		
	No.	Metres	Type	No.	Metres	Type	No.	Metres	Type
2020				70	7,058.30	DDH	70	7,058.30	DDH
Total	199	93,100.64		4,609	561,028.99		4,808	654,129.63	

Notes:

1. The down the hole (DTH) drilling carried out in the year 1995 (29 DTH) is not included in the database or estimate because the data is not found.
2. 52 exploration drill holes totalling 19,541.4 m completed after March 2, 2020 were not included in the table.

Table 7-4: Summary of Drilling Excluded from Mineral Resource Estimate as of March 2, 2020
Nexa Resources S.A. - Cerro Lindo Mine

Year	Surface			Mine			Total		
	No.	Metres	Type	No.	Metres	Type	No.	Metres	Type
2007				3	254.85	DDH	3	254.85	DDH
2008				3	296.6	DDH	3	296.6	DDH
2009	2	185.10	DDH	16	750.7	DDH	18	935.80	DDH
2010				24	1,019.41	DDH	24	1,019.41	DDH
2011	1	87.4	DDH	15	917.20	DDH	16	1,004.60	DDH
2012	2	190.70	DDH	6	1,032.30	DDH	8	1,223.00	DDH
2013	1	41.10	DDH			DDH	1	41.10	DDH
2014				2	214	DDH	2	214	DDH
2015				2	100	DDH	2	100	DDH
2016				2	130.5	DDH	2	130.5	DDH
2018				2	85	DDH	2	85	DDH
Total	6	504.30		75	4,800.56		81	5,304.86	

Note:

1. The drilling was excluded due to the absence of assay results, either because this was twin hole drilling, or drilling for geomechanical, metallurgical, and service (installation of pipes, etc.) purposes.

Table 7-5: Summary of Drilling Included in Mineral Resource Estimate as of March 2, 2020
Nexa Resources S.A. - Cerro Lindo Mine

Year	Surface			Mine			Total		
	No.	Metres	Type	No.	Metres	Type	No.	Metres	Type
1996	6	2,207.30	DDH	5	2,077.05	DDH	11	4,284.35	DDH
1999	7	2,722.40	DDH	11	2,156.70	DDH	18	4,879.10	DDH
2000	15	5,054.35	DDH	32	6,503.90	DDH	47	11,558.25	DDH
2001	3	705.5	DDH	60	10,663.03	DDH	63	11,368.53	DDH





Year	Surface			Mine			Total		
	No.	Metres	Type	No.	Metres	Type	No.	Metres	Type
2007	2	201.35	DDH	39	3,053.75	DDH	41	3,255.10	DDH
2008	25	6,170.24	DDH	58	8,994.00	DDH	83	15,164.24	DDH
2009	15	2,891.30	DDH	157	14,941.60	DDH	172	17,832.90	DDH
2010				159	20,413.20	DDH	159	20,413.20	DDH
2011	4	2,861.80	DDH	162	19,661.90	DDH	166	22,523.70	DDH
2012	6	4,929.70	DDH	76	16,623.60	DDH	82	21,553.30	DDH
2013	1	1,000.00	DDH	306	36,359.00	DDH	307	37,359.00	DDH
2014				251	39,063.80	DDH	251	39,063.80	DDH
2015	15	8,112.40	DDH	366	40,103.00	DDH	381	48,215.40	DDH
2016	18	12,270.10	DDH	704	73,103.00	DDH	722	85,373.10	DDH
2017	8	6,050.00	DDH	645	88,140.20	DDH	653	94,190.20	DDH
2018	32	14,956.70	DDH	672	83,085.30	DDH	704	98,042.00	DDH
2019	36	22,463.20	DDH	761	84,227.10		797	106,690.30	
2020				70	7,058.30	DDH	70	7,058.30	DDH
Totals	193	92,596.34		4,534	556,228.43		4,727	648,824.77	

Note:

1. For the Leapfrog model all validated drill holes were used.

**Table 7-6: Channel Sampling Summary at Cerro Lindo
Nexa Resources S.A. - Cerro Lindo Mine**

Year	No. Channels	Metres
<2008	506	10,278.50
2008	13	168.30
2010	108	2,698.30
2011	93	1,301.30
2012	113	2,031.10
2013	58	1,162.50
2014	71	1,487.90
2015	57	1,086.70
2016	21	468.00
Total	1,040	20,682.60





Figure 7-4: Drill Hole Location





Figure 7-5: Schematic of Selected Drilling and Related Geological Interpretation



Nexa Resources S.A. | Cerro Lindo Mine, SLR Project No: 233.03246.R0000
Technical Report Summary - January 29, 2021



Figure 7-6: Location of Channel Sampling (2007-2016)





7.2.2 Drilling Procedures

Drilling procedures are coordinated and supervised by company geologists, and approved by the Geology and Exploration Manager. The drilling procedures are as follows:

- Diamond drilling projects are prepared by geologists. Drill hole collar coordinates and orientation are communicated to a mine surveyor to accurately position the drill hole and are then certified by the surveyor and validated by the responsible geologist. Hole (and channel sample) IDs are generated using a specific format, which includes the following reference codes: country, mining unit, year, and sequential number. All related drill data generated is referenced similarly to the corresponding drill collar. Basic drill hole information must be entered into the database and archived within four days of completing the drill hole.
- Drill hole survey data is collected by the drilling contractor. The survey is generally carried out after the completion of the drill hole. Various survey equipment (i.e., Gyro, Reflex, Flexit, etc.) may be used depending on the drilling contractor and equipment availability.
- Survey data are collected between approximately 5 m and 10 m down hole, depending on the drilling objective (infill or recategorization). Original survey data is delivered to the supervising geologist, signed by the driller in charge. Survey data is validated by the responsible geologist and entered into a master CSV file, subsequently imported into the database and the geological modelling software program.
- Following the completion of a drill hole, logging and core sampling procedures are carried out by a team of geologists. Core logging is carried out using a set of geological, lithological, mineralogical, and alteration terms. Core logs are entered into logging software (Fusion). Core photographs are taken for each drill hole and stored in jpeg. Core sampling for geochemical analysis is generally completed at the same time as core logging. Logging is completed within 48 hours after a drill hole is completed.
- Datamine’s Fusion software (Fusion) managing the database automatically incorporates the core logging and sampling information and continually updates this information with new results. The database administrator is responsible for validating the data and combining it into a master CSV file, for later imports into geological modelling software programs.
- Drilling information is stored in a structured directory and backed up on a central server in Brazil. Data available in the drill hole database includes: hole location (Collar), hole deviation survey (Survey), geochemical sampling and analysis (Assay), and geological characteristics (Lithology, Alteration, Mineralization).

7.2.3 Drill Rigs

At Cerro Lindo, there are two main categories of drilling: exploration and resource definition diamond drilling. Drilling is performed by Explomin contractor.

7.2.3.1 Exploration Diamond Drilling

Exploration drilling is planned by the exploration team and its main objective is to discover new resources. It consists of underground (mine) drilling and surface drilling using Sandvik DE140 and Boart Longyear LF 90 drilling machines respectively. Exploration drilling is carried out with large drill rigs with a depth range of up to 1,000 m and HQ (63.5 mm) and NQ (47.6 mm) core sizes, and as required BQ (36.6 mm), are used.

7.2.3.2 Resource Definition Diamond Drilling

Resource definition drilling is the responsibility of the geological team and has the objective to upgrade known Inferred Mineral Resources to Measured or Indicated and thus increase the Mineral Reserves at Cerro Lindo. This drilling consists of:

- Recategorization, focused on the recategorization and definition of bodies where there is little drilling information.
- Infill, focused on providing additional information for short to long term planning to ensure the reliability of production programs.





Small drill rigs called drillcats are used with depth ranges of up to 400 m. Infill drilling generally uses BQ core size (to a depth of 240 m) and recategorization drilling uses NQ or BQ core size (to a depth of 400 m).

7.2.4 Core Recovery

Core recovery and rock quality designation (RQD) are measured and recorded for each hole. Core runs are 3.0 m for HQ and NQ and 1.5 m for BQ core size. Measurements are reviewed by geologists and the database administrator and then imported to the Fusion database.

Table 7-7 summarizes core recovery by domain in 2019 and 2020.

Table 7-7: Core Recovery by Domain - 2019-2020
Nexa Resources S.A. - Cerro Lindo Mine

Domain	No. Samples	Minimum (%)	Maximum (%)	Mean (%)	Variance	Std. Deviation	CV
SPB	5,053	0.00	100.00	96.795	146.007	12.083	0.125
SPP	11,664	0.00	100.00	96.475	100.099	10.005	0.104
SSM	5,675	10.00	100.00	98.795	20.097	4.483	0.045
VM	3,612	0.00	100.00	98.273	36.446	6.037	0.061
V	1,570	10.00	100.00	97.177	95.379	9.766	0.100
SOP	68	90.00	100.00	97.964	5.469	2.338	0.024
SOB	31	45.00	100.00	95.215	194.915	13.961	0.147
SLB	19	72.22	100.00	95.744	70.013	8.367	0.087
OB11VM	5	96.88	100.00	99.501	1.308	1.144	0.011
OB12VM	74	60.00	100.00	99.523	4.928	2.220	0.022
OB14VM	118	85.00	100.00	98.996	3.131	1.769	0.018
OB5BVM	56	70.56	100.00	99.121	16.561	4.070	0.041
PUCVM	11	98.39	100.00	99.698	0.265	0.515	0.005
DIQUE	8,945	5.33	100.00	98.920	22.964	4.792	0.048

- Notes:
1. Data encoded within the model.
 2. For this analysis, 1,825 of 4,808 drill holes (38%) were used.

Based on core recovery statistics reviewed, and from the inspection of a number of drill holes, the SLR QP is of the opinion that the core recovery at Cerro Lindo is excellent, generally greater than 95%, and provides a reliable reflection of the mineralization in the mining operation.

7.2.5 Drill Hole Spacing

Exploration drilling is generally completed over an 80 m by 80 m grid, whereas infill drilling is designed to cover a 20 m by 20 m grid.





7.2.6 Drill Core Sampling

7.2.6.1 Phelps Dodge

Core was sampled every two metres over the length of the hole and split using a diamond saw. Half of the core was submitted for assaying and the other half was stored at the site.

7.2.6.2 Nexa

The sample interval was initially 1.5 m to 2.0 m, except when encountering lithological, structural, or mineralogical breaks. All sulphide material was sampled, and additional “bracket” samples were taken on either side in the surrounding volcanic rocks, which ensured that the entire mineralized zone was sampled and provided data for dilution analysis (AMEC, 2002).

Drill core sampling is carried out under the supervision of the Sampling Geologist Supervisor and completed after the geotechnical and geological logging, and photographing the whole core. Once the sample length and cut-line have been defined by the supervising geologist, the core is cut longitudinally into two equal parts using an electric diamond drill core saw. If the core is fractured, the sampler separates and removes 50% of the fragmented material for the sample. The fragments are deposited in a pre-coded polyethylene bag and transported to the laboratory.

Current exploration core sampling follows written protocols and consists of half-core sampling of NQ-sized core on (usually systematic) 1.5 m intervals. The remaining half-core is kept as backup. Major mineralized body contacts are respected.

Infill drilling is typically B-sized core and is sampled in its entirety on 1.6 m intervals.

7.2.7 Underground Channel Sampling

Channel sampling was carried out from 2000 to 2016. The channel sampling procedure remained the same over these years, and the procedure is described in formal protocols. Samples were collected from cross-cuts, perpendicular to strike, and from both mineralized and barren zones (footwall and hanging wall).

Sample locations were marked with a paint line on the rib approximately one metre off the drift floor. Channel borders were then cut using an electric diamond saw, after which the samples were collected using a pneumatic or electric hammer or, rarely, a chisel and hammer between the cut borders. Samples were collected in a bucket with minimal loss of sample. Channel samples were 1.5 m long, 6 cm wide and 3 cm deep, with sample weight ranging from 4 kg to 8 kg (in barren zones, less than 4 kg). All cross-cuts were channel sampled, with the exception of those portions covered by shotcrete for safety purposes. In those cases, short infill holes were drilled instead.

AMEC observed channel sampling in early 2016. The channel sampling was discontinued and replaced by additional drilling later in 2016.

7.2.8 Underground Longhole Sampling

Upward oriented blast holes were sampled until late 2016. The drill cuttings produced from every 1.5 m long advance were collected in buckets and submitted to the laboratory for assaying.

Blast hole fans, consisting of 17 holes, were drilled every 2.2 m of drift advance. One in three face advances (every 6.6 m) was fully sampled, and the samples were submitted to the Mine laboratory for preparation and analysis. Underground longhole sampling, together with channel sampling, was used for ore control but was discontinued in 2016.

7.2.9 Drilling and Channel Sampling Results

The results of analysis and interpretation of drilling data, and prior to 2016 channel sampling data, have been continually incorporated into the Cerro Lindo 3D geological model.





The database is used by modelling geologists who work together with the mine/production and exploration geologists to continually construct and update the 3D geological model. The 3D geological models are built in Leapfrog, primarily using geochemical assay results, particularly for Zn, Pb, Cu, and Ag, as well as underground geological level plan maps and interpreted cross-sections and transverse sections.

In the SLR QP’s opinion, the drilling, logging, and drill core and channel sampling procedures meet industry standards. The SLR QP is not aware of any drilling, sampling, or recovery factors that could materially impact the accuracy and reliability of the results.

7.3 Hydrogeology

The Cerro Lindo is a relatively dry mine and does not produce significant quantities of water. Exploration drilling to date has not intersected any water bearing structures that could introduce major inflows in the mine workings.

7.4 Geotechnical Data, Testing, and Analysis

Geotechnical studies have been conducted at the Cerro Lindo Mine to prepare a geotechnical model of ground conditions and to characterize the quality of the rock mass to predict the stope and mine workings stability. Underground geotechnical mapping, geotechnical core logging and laboratory tests are part of Nexa geotechnical procedures. Since 2007, Nexa has performed laboratory testing in combination with geotechnical mapping and since 2015 geotechnical logging to monitor the ground stability and to define parameters for ground support design of the underground workings. Independent geotechnical assessments were performed by AMEC in 2013 and SRK in 2016 and 2017. In 2017, SRK completed a 3D numerical model using the FLAC3D™ 5.01 software (Itasca Consulting Group) as it is described in Section 13.4. The geotechnical logging, mapping, testing and data analysis protocols include industry-standard practices.

7.4.1 Geotechnical Data

As of December 31, 2020, Nexa performed a total of 492 geotechnical drill holes totaling 23,473.20 m (Table 7-8). In addition, geotechnical logging and mapping of the underground workings are also conducted in a routine basis.

The geotechnical logging includes the rock mass rating classification systems developed by Bieniawski (1976 and 1989). These classification systems are widely used empirical methods for classifying the rock mass quality and internationally accepted practice. Data collection of detailed rock mass characteristics (lithology, faulting and shearing, intact rock strength, Rock Quality Designation (RQD), discontinuity characteristics such as openness/aperture, planarity, roughness, infilling/coating and evidence of groundwater staining). During 2020, Nexa transferred the geotechnical database from Excel files to Fusion software.

Table 7-8: Geotechnical Drilling - 2015-2020
Nexa Resources S.A. - Cerro Lindo Mine

Year	No.	Mine Metres	Type
2015	13	808.20	DDH
2016	6	271.60	DDH
2017	48	1765.30	DDH
2018	65	4465.50	DDH
2019	119	6503.60	DDH
2020	241	9659.00	DDH
Total	492	23,473.20	





For the 2017 geotechnical study, SRK re-logged 35 drill holes totaling 2,402 m. Selected drill holes were located on the mining production areas (OB-1, OB-4 and OB-6) and were used to obtain geomechanical characterization, using the RMR₈₉ and the Modified Rock Quality Index (Q') systems, for the modelled lithology units in the mine. In addition, geological mapping was performed to define the main fault systems. Point load testing was also conducted with a portable device during the geotechnical logging and mapping. As the selected holes were drilled for resource estimation purpose, only half of the core was available, so core photographs and software (PhotoLogger and StereoCore PhotoLog) were used to measure fracture frequency and intensity. Figure 7-7 illustrates the RQD and RMR collected from the study.





Figure 7-7: Histograms of RDQ and RMR

7.4.2 Testing and Analysis

In 2017, SRK collected core and rock samples for laboratory strength testing. Testing was performed at the SRK laboratory and comprised: 216 Uniaxial Compressive Strength (UCS) tests, and six physical properties tests including density, granulometry and soil tests. Table 7-9 and Table 7-10 list the results of the physical property and load tests respectively.





Table 7-9: Physical Property Test
Nexa Resources S.A. - Cerro Lindo Mine

No	Lithology	Sample	Dry Density (gr/cm ³)	Saturated Density (gr/cm ³)	Apparent Porosity (%)	Absorption (%)
1	SSM	1	2.64	2.67	2.96	1.12
2	SSM	2	2.64	2.67	2.75	1.04
3	Enclave	1	2.63	2.66	3.6	1.37
4	Enclave	2	2.63	2.66	2.66	1.19
5	SLB	1	2.65	2.69	3.53	1.33
6	SLB	2	2.64	2.68	3.77	1.43

Source: SRK 2017

Table 7-10: Load Testing
Nexa Resources S.A. - Cerro Lindo Mine

Lithology	Is (50)	Conversion Factor	UCS (MPa)
SPP	1.77	19	34
SPB	2.41	35	84
SSM	5.05	24	121
Volcanic Rocks	8.24	21	173
Dike	10.21	15	153
Enclave	2.8	24	67
SLB, SOB, SOP	1.9	24	46

Source: SRK 2017

In 2019 and 2020 Nexa carried out laboratory testing to determine the mechanical properties such as uniaxial compressive strength, triaxial compressive strength, indirect tensile strength, elastic moduli of intact rock, and pulse velocities and ultrasonic elastic constants, to monitor the ground stability and to define parameters for ground support design of the underground workings and main infrastructure. All testing was completed using norms such as the ASTM (American Society of Testing and Materials), IRMS (International Rock Mechanics Society), and AAMR (American Association of Rock Mechanics) in accordance with best practices. The most recent laboratory testing was carried out in 2019 by Geomecánica Latina S.A., with offices in Peru, Bolivia, and Chile.

In the SLR QP's opinion, the geotechnical drilling, logging, mapping and testing procedures meet industry standards. The SLR QP is not aware of any geotechnical drilling, logging, mapping, and testing that could materially impact the accuracy and reliability of the results.





8.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

8.1 Density Determinations

Density and/or specific gravity (SG) data have been collected by Nexa and predecessors throughout the history of the project. It is not clear from the record which data type was actually collected. Density is a measure of the mass per unit volume of a material. In the case of geological materials, SG is the unitless ratio of the density of the sample to the density of water. At a water temperature of 4°C, the numerical value of density and SG for a given sample is exactly equal. At any other temperature, the values are different, however, for temperatures of less than 40°C, the discrepancy is in the third or fourth decimal place and is thus well within anticipated errors of the methodology. For that reason, density in g/cm³ and SG are typically used interchangeably and not reported separately. In the case of Cerro Lindo, both density and SG data have been collected and used as “density” results. The errors introduced are very small and will not affect Mineral Resource estimation. For simplicity, SLR accepts the use of the term “density” for both density and SG data in this discussion.

AMEC (2002) reported that intervals of diamond drill core were used to obtain density information by rock type for approximately 3,000 samples prior to 2002. Bondar Clegg in Lima produced the initial bulk density determinations using the standard water-displacement method on wax-coated core.

Additional sampling and measurements were completed at site by Milpo, using the water-displacement method, but without wax coating. The suitability of these measurements was verified by testing 135 samples previously submitted to Bondar Clegg. Those data were excluded from the current Mineral Resource estimate, as they were later determined by Milpo to be suspect.

Beginning in 2013, a new sampling campaign was initiated to update, and improve, the density database. Milpo and Nexa collected 8,524 samples from underground drill holes and drift walls and submitted them to an external laboratory (Certimin or Inspectorate) for SG determinations using the water-displacement method with wax-coated core. Of these, 4,410 samples were located in the mineralization domains (Figure 8-1) and 4,114 samples were located in the wallrock. A buffer of 20 m was used to select and review the density data in the wallrock totalling 1,215 density measurements.

Table 8-1 summarizes the density measurements by sample type and year. The 2020 mean and median density data by domain are summarized in Section 11, Mineral Resource Estimate (Bulk Density).

Table 8-1: Number of Density Measurements by Sample Type and Year
Nexa Resources S.A. - Cerro Lindo Mine

Phase	Sample Type	No. Samples	No. Samples within Mineralization Zones
CL2013	Drift Walls	84	59
Drill Holes		53	20
CL2014	Drill Holes	197	133
CL2015	Drill Holes	451	353
CL2016	Drill Holes	546	445
CL2017	Drill Holes	1,127	927
CL2018	Drill Holes	3,349	1,286
CL2019	Drill Holes	2,191	882
CL2020	Drill Holes	526	305
Total	Drill Holes	8,524	4,410





Note. In addition, there are 1,215 density measurements in wallrock (20 m buffer zone) used in the resource estimate.





Figure 8-1: Distribution of Density Samples used for 2020 Mineral Resource Estimate by Year Analyzed





8.2 Analytical and Test Laboratories

No details were available regarding laboratory procedures prior to the Milpo 1999 drilling campaign, including the Phelps Dodge drill program.

Samples from drilling and underground sampling programs completed by Milpo from 1999 to 2001 were prepared at the Bondar Clegg facility in Lima and analyzed at the Bondar Clegg laboratory in Bolivia (AMEC, 2002). Bondar Clegg’s laboratories in Lima and Bolivia were not certified; however, both followed protocols set out by Bondar Clegg’s Vancouver laboratory, which had ISO 9001 certification.

The check or umpire laboratory used was SGS Lima (SGS), which was an ISO 9001 certified laboratory.

Starting in 2007 until the beginning of October 2019, all mine samples were processed at the Cerro Lindo Mine laboratory (Mine Laboratory), which was managed by SGS between 2007 and 2011 and since 2011, by Inspectorate. The Mine Laboratory shut down due to lack of capacity at the beginning of October, and since that time, mine samples have been sent to Inspectorate Lima. From 2014 to 2016, exploration samples were processed at Inspectorate Lima, however, that laboratory was replaced in early 2016 by Certimin Lima. In late 2019, ALS Lima was also retained by Nexa to process exploration samples.

During the 2018 to 2019 drilling campaign, ALS Lima was used as a secondary laboratory for external check for mine and exploration samples.

Inspectorate Lima has ISO 9001, ISO 14001, and ISO 19007 certification. Certimin Lima holds ISO 9001 and NTP-ISO/IEC 17025 and 17021 certifications and is accredited by the Organismo Peruano de Acreditación (INACAL). ALS geochemical laboratories are accredited to ISO/IEC 17025:2005 for specific analytical procedures. Both Certimin and ALS laboratories are independent of Nexa.

The Mine Laboratory was neither certified nor accredited.

Table 8-2 summarizes the laboratories used for preparation and analysis of exploration and mine samples at Cerro Lindo since 1999.

Table 8-2: Analytical and Test Laboratories
Nexa Resources S.A. - Cerro Lindo Mine

Laboratory Name	Location	Period of Use	Comments	Certified/Accredited	Independent
Bondar Clegg	Lima	1999-2001	Preparation of drilling and underground samples. Protocols set out by Bondar Clegg Vancouver, which is ISO 9001 accredited.	Not accredited	Yes
Bondar Clegg	Bolivia	1999-2001	Drilling and underground sample analyzed. Protocols set out by Bondar Clegg Vancouver which is ISO 9001 accredited	Not accredited	Yes
SGS	Lima	1999-2001	Check laboratory	ISO 9001	Yes
Mine Laboratory	Cerro Lindo site	2007-2011	Processing of all mine samples. Managed by SGS.	No	No
Mine Laboratory	Cerro Lindo site	2011-2020	Processing of all mine and process samples. Managed by Inspectorate Lima.	No	No
Inspectorate	Lima	2014-2016	Processing of exploration samples	ISO 9001 ISO 14001 ISO 19007	Yes





Laboratory Name	Location	Period of Use	Comments	Certified/Accredited	Independent
Certimin	Lima	2016-2019	Processing of exploration samples	ISO 9001 NTP-ISO/IEC 17025 and 17021 Accredited by Organismo Peruano de Acreditación INACAL	Yes
Inspectorate	Lima	2019- 2020	Primary laboratory for mine samples	ISO 9001 ISO 14001 ISO 19007	Yes
ALS	Lima	2019-2020	Processing of exploration samples	ISO 9001	Yes

8.3 Sample Preparation and Analysis

8.3.1 Geochemical Samples

Lithogeochemical samples collected by Imaña (2015) were analyzed at ACME Laboratories Vancouver using lithium metaborate fusion and inductively coupled plasma mass spectrometry (ICP-MS) for major oxides and for refractory and rare-earth elements. An ICP-MS package with multi-acid digestion was used to analyze other elements. Additional details regarding geochemical sample preparation and assaying during this study were not available.

8.3.2 Exploration Samples

The sample preparation procedure at Bondar Clegg Lima involved the following steps (Figure 8-2; AMEC, 2002):

- Jaw-crushing to 2 mm (10 mesh ASTM)
- Homogenization and splitting to obtain a 250 g sub-sample using a Jones splitter
- Pulverizing the sub-sample to 90% minus 0.106 mm (150 mesh Tyler).

Samples were assayed at Bondar Clegg Bolivia for silver, copper, lead, zinc, and gold. No details were available regarding the assay methods.





Note: Figure prepared by AMEC, 2002.

Figure 8-2: Sample Preparation and Quality Control Flowsheet (Milpo 2000-2001 Program)

Since 2007, exploration samples sent to Certimin, Inspectorate, and ALS Lima have been prepared using the same procedure used by the Mine Laboratory discussed in the following section. Analyses of silver, zinc, copper, and lead are performed by four-acid digestion followed by atomic absorption spectroscopy (AAS). A four-acid digestion followed by ICP optical emission spectrometry (ICP-OES) analysis is used for multielement analyses on all samples.

8.3.3 Mine Samples

Since 2007, sample preparation of geological samples at the Mine Laboratory and currently Inspectorate Lima has followed the procedure:

- Drying at 105°C ± 5°C in stainless steel trays.
- Primary crushing to 3/4" using a Rhino jaw crusher.
- Secondary crushing to better than 85% minus 2 mm (10 mesh ASTM) using a RockLabs jaw crusher. A Boyd crusher with a dedicated rotary splitter was acquired in 2016 and is now in service.
- Homogenization and splitting to obtain a 200 g to 250 g sub-sample using a Jones splitter with 28 one-centimetre wide chutes. The dedicated rotary splitter attached to the Boyd crusher is now used.
- Pulverizing the collected sub-sample to 95% minus 0.105 mm (140 mesh ASTM) in a TM Andina™ ring pulverizer.

Geological samples average 3 kg to 5 kg. All preparation workstations are provided with compressed air hoses for cleaning and dust extraction. Sieve checks are conducted on 3% of randomly chosen crushed and pulverized samples, however, only one set of checks (the first one) is formally recorded every day. Results are posted in the laboratory for all personnel to review.

Geological samples are assayed for silver, copper, lead, zinc, and iron using 0.25 g aliquots, aqua regia digestion, and AAS determination. Detection limits for the Mine Laboratory, Inspectorate Lima, Certimin Lima, and ALS Lima are summarized in Table 8-3.





**Table 8-3: Detection Limits at Mine Laboratory, Inspectorate Lima and Certimin Lima
Nexa Resources S.A. - Cerro Lindo Mine**

Laboratory	Detection Limit				
	Ag (ppm)	Cu (%)	Pb (%)	Zn (%)	Fe (%)
Mine Laboratory	0.4	0.01	0.01	0.01	0.01
Inspectorate Lima	1.0	0.01	0.01	0.01	0.01
Certimin Lima	0.2	0.00005	0.0002	0.00005	0.01
ALS Lima	0.01	0.00002	0.001	0.0002	0.01

Laboratory personnel collect samples manually from various positions in the process flow to determine the head, concentrate, and tailing grades in 12-hour composites. The high grade concentrate samples are prepared at separate facilities from the exploration samples to avoid possible contamination of lower grade samples. Tailings are assayed using procedures similar to those for geological samples with concentrates requiring the use of volumetric methods for copper, lead, and zinc due to the higher grades.

The Mine Laboratory used a proprietary Global Laboratory Information Management System (GLOBAL LIMS) for digitally registering all measurements (including scale weights), without any human intervention in the data flow. The LIMS determines the position where control samples must be inserted, and assesses the results of the QC, indicating if those results are acceptable or not. Acceptable results are then directly transferred into the mine database.

8.4 Sample Security

Core boxes are transported every day to the core shed by personnel from the drilling company. Analytical samples are transported by company or laboratory personnel using corporately owned vehicles. Core boxes and samples are stored in safe, controlled areas.

Chain-of-custody procedures are followed whenever samples are moved between locations, to and from the laboratory, by filling out sample submittal forms.

In the SLR QP's opinion, the sample preparation, analysis, and security procedures at Cerro Lindo are adequate for use in the estimation of Mineral Resources.

8.5 Quality Assurance and Quality Control

Quality assurance (QA) consists of evidence to demonstrate that the assay data has precision and accuracy within generally accepted limits for the sampling and analytical method(s) used in order to have confidence in the resource estimation. Quality control (QC) consists of procedures used to ensure that an adequate level of quality is maintained in the process of sampling, preparing, and assaying the drill core samples. In general, QA/QC programs are designed to prevent or detect contamination and allow analytical precision and accuracy to be quantified. In addition, a QA/QC program can disclose the overall sampling - assaying variability of the sampling method itself.

At Cerro Lindo, QC samples have been inserted into the sample stream since 1996 and channel samples since 2012. The Mine routinely sends in-house certified reference materials (CRMs), blanks, field (twin), coarse reject, and pulp duplicates, and external checks for analysis. Prior to Nexa's drilling campaigns, standard reference materials (SRM) were used, however, during 2017, Nexa replaced SRMs with CRMs. No SRMs or blanks were submitted during the 1999-2001 Phase 1 drilling campaign. In 2018, Nexa incorporated systematic external checks into the QA/QC program, and pulps have since been sent to external laboratories for analysis. Currently, Inspectorate Lima analyzes samples from infill drilling and Certimin and ALS Lima analyze samples from brownfield exploration drilling.

8.5.1 Phelps Dodge, 1996-1997

This section has mostly been taken from AMEC (2017).





The Phelps Dodge drilling campaign included a thorough QC program, including the use of blanks, standards, and duplicates. AMEC (2002) reviewed the results for all zinc values greater than 1% and concluded that this work was completed to an acceptable industry standard.

8.5.2 Milpo, 1999-2016

This section has mostly been taken from AMEC (2017).

From 1999 to 2001, a QC program was put in place during the feasibility study (AMEC, 2002). During Phase 1, the program did not include SRMs or blanks, however, samples were submitted for external control to SGS. Zinc data showed acceptable analytical performance.

During Phases 2 and 3, the program included the insertion of SRMs and coarse blanks as well as coarse reject and pulp duplicates. AMEC (2002) summarized the results as follows:

- Copper and zinc SRMs were submitted with every batch and results were within control limits. The copper accuracy was adequately controlled.
- Check assays of copper and zinc show satisfactory agreement and no apparent bias.
- No significant copper and/or zinc contamination during sample preparation and assaying was identified.
- Coarse duplicate samples met acceptable criteria. The sample preparation protocol appeared to be adequate.

From 2007 to 2012, AMEC (2010, 2012, and 2013) and Snowden (2008 and 2011) reviewed the QC protocol implemented at the time. The protocol included the insertion of quarter-core twin samples, twin channel samples, coarse and pulp duplicates, two SRMs for core samples and one SRM for channel samples, and coarse blanks. The insertion rates were not specified. AMEC (2013) concluded that:

- Sampling precision for zinc, copper, lead, and silver was within or close to acceptable limits, however, AMEC (2013) recommended that twin samples be collected from the remaining half-core rather than quarter-core.
- Sub-sampling precision for zinc, lead, and silver was within acceptable limits, while the copper error rate exceeded the limits.
- Analytical precision was poor for zinc, copper, and silver, and acceptable for lead.
- Accuracy was monitored using SRMs documented on a limited inter-laboratory test. Although biases appeared to be reasonable for the two SRMs used on core sample submissions, AMEC (2013) recommended that SRMs be better documented by analysis at additional laboratories. Data from the SRM used for channel sample submissions were not presented.
- Blank samples did not indicate the presence of significant contamination during preparation and/or assaying.

During the 2014 and 2015 drilling campaigns, Milpo (2016a, 2016b) implemented a QC program for channel and core samples, which was similar to the program implemented in 2012 and 2013 (AMEC, 2013). During 2015, 975 channel samples (including 183 control samples) were submitted to the laboratory. The overall insertion rate for QC samples was 19.2%. Conclusions included:

- Sampling and sub-sampling precision for lead and silver were within acceptable limits (10%), however, failure rates for copper for all duplicates and for zinc for twin samples and coarse duplicates considerably exceeded the acceptable limits. This may be the result of poor sampling practices, although Milpo (2016a) suggested that the practical lower detection limit was actually higher than believed by the laboratory. If so, the actual failure rates could be lower.
- Most SRMs exhibit bias values within or relatively close to the acceptable limits (±5%). Only MCL-03 Certimin for copper produced a very high positive bias, however, due to the very low copper grade of the MCL-03 SRM for copper (0.04%), AMEC recommended not using it as an SRM for copper. Low coefficients of variation (not exceeding 2.3%) suggest good analytical precision at those grade levels for all elements.
- Based on the results of the coarse blank data, no significant contamination during preparation or assaying occurred.





The 2016 QA/QC protocol included inserting one coarse blank, one SRM, one twin sample, one coarse duplicate, and one pulp duplicate in every 25-sample batch. The coarse blank material is obtained from a nearby granodiorite pit. A total of 4,934 QA/QC samples were inserted into the sample stream at an overall insertion rate of 17.50%. AMEC reviewed the monthly reports and QC data and concluded the following:

- Duplicate failure rates were usually below or very close to the industry accepted limits. Therefore, sampling, sub-sampling, and analytical precisions were generally within acceptable limits.
- Most bias values lay within the acceptable $\pm 5\%$ range, however, high grade zinc values were, on average, underestimated by approximately 8% from January to March 2017. The underestimation returned to an acceptable level in April 2017.
- Most coefficients of variations were below 5% suggesting good analytical precision. This was in agreement with pulp duplicate data.
- No significant contamination during preparation or assaying was identified for any of the studied elements.

QA/QC sample insertion rates from 2014 to 2016 are listed in Table 8-4. The 2014 to 2016 QA/QC program details, for the Mine, Inspectorate Lima, and Certimin laboratories, are summarized in Table 8-5. The method of analysis used was aqua regia with an AAS finish (Ag, Cu, Pb, and Zn).

Table 8-4: QA/QC Sample Insertion Rates, 2014-2016
Nexa Resources S.A. - Cerro Lindo Mine

Control Sample Type		No. Samples	Insertion Rate (%)
Blanks	Coarse	1,765	3.69%
	Low grade (STD1-STD4)	471	0.99%
	Medium grade (STD2)	409	0.86%
Duplicates	High grade (STD3-STD5)	837	1.75%
	Field Duplicate	1,749	3.66%
	Coarse Duplicate	1,792	3.75%
	Fine Duplicate	1748	3.66%
Total		8,771	18.35%

Table 8-5: 2014-2016 QA/QC Program Summary
Nexa Resources S.A. - Cerro Lindo Mine

Laboratory	QA/QC Sample	Type	No. Samples	Failure Limit (%)	Bias (%)			
					Ag	Cu	Pb	Zn
Mine Laboratory	Blanks	Coarse	1751	<5%	0.04%	0.18%	0.22%	0.22%
	Standards	STD1,2,3	1626	<5%	0.43%	0.81%	-3.61%	-4.51%
	Duplicates	Field Dups	1706	<10%	2.10%	6.34%	3.40%	5.39%
		Coarse Dupl	1749	<10%	3.71%	6.15%	3.60%	7.69%
		Fine Dupl	1706	<10%	1.85%	2.76%	1.54%	4.35%





Laboratory	QA/QC Sample	Type	No. Samples	Failure Limit (%)	Bias (%)			
					Ag	Cu	Pb	Zn
Inspectorate (Lima)	Blanks	Coarse	41	<5%	0.00%	0.00%	0.00%	0.00%
	Standards	STD4,5	66	<5%	7.90%	2.00%	2.20%	-2.40%
	Duplicates	Field Dupl	43	<10%	0.00%	0.00%	0.00%	0.00%
		Coarse Dupl	43	<10%	0.00%	0.00%	0.00%	0.00%
		Fine Dupl	42	<10%	0.00%	0.00%	0.00%	0.00%
Certimin	Standards	STD4,5	43	<5%	3.90%	2.80%	-6.40%	0.70%
Total			8,771					

8.5.3 Nexa, 2017-2020

The following QA/QC protocols are in place at the Mine. Currently, the primary laboratory for preparation and analysis of the infill drilling (mine) samples is Inspectorate Lima. Prior to October 2019, the mine samples were prepared and analyzed at the Mine Laboratory (Inspectorate Mine). For brownfield exploration drilling (exploration) samples, the primary laboratories have been Certimin and ALS Lima. The secondary laboratories, used for external check for mine and exploration samples during the 2018 to 2019 drilling campaign, was ALS. During the 2019 to 2020 drilling campaign (Nexa, 2020c), Nexa collected part of the check samples, however, these were not sent to the secondary laboratory as mining activities were interrupted due to COVID-19 restrictions.

8.5.3.1 QA/QC Protocols

Nexa has the following QA/QC protocols in place.

For infill drilling, each batch of 50 samples submitted for sample preparation and analysis includes 42 regular samples, two CRM samples, two coarse blank samples, two coarse duplicates, and two pulp duplicates. For exploration drilling, each batch of 35 samples submitted for sample preparation and analysis includes 30 regular samples, one CRM sample, one coarse blank sample, one field duplicate sample (second half of a split core sample for HQ or NQ core size), one coarse duplicate, and one pulp duplicates. Field duplicates are inserted directly following the original sample, coarse blank material samples are inserted following a mineralized zone, and CRM samples are inserted randomly.

All QA/QC sample insertions maintain consecutive numerical order. Pulp reject duplicates, an additional split of material taken after the pulverizing stage, are saved and then resubmitted to the secondary laboratory at a later date at a rate of approximately 2% of the total samples submitted.

Each batch of check samples (pulp rejects) submitted to the secondary laboratory includes one CRM sample.

QA/QC samples represent approximately 20% of the total samples. A QA/QC report is prepared monthly, by the onsite Database Administrator, and reviewed by the Resource Geologist and the Nexa corporate QA/QC coordinator in San Paulo. Batches of samples identified by a QA/QC review as an anomalous result are repeated by the laboratory at the request of the Geology team. Table 8-6 shows the control sample insertion rate and the acceptance criteria followed during Nexa's QA/QC program for Cerro Lindo.

**Table 8-6: Control Sample Insertion Rate and Failure Criteria
Nexa Resources S.A. - Cerro Lindo Mine**

Control Sample	Type	Insertion Rate	Failure Criteria	Expected/allowed % Failures
Blanks		1 in 20 (5%)	5 x DL	<5%
CRMs		1 in 20 (5%)	Outside 3 STD	<10%
Duplicates	Twin	1 in 100 (1%)	<±30% relative error	<10%
	Coarse	1 in 100 (1%)	<±20% relative error	<10%
	Pulp	1 in 20 (5%)	<±10% relative error	<10%
External checks	Pulp	1 in 20 (5%)	<5% bias	<10%





A QA/QC relational database is maintained in Fusion. A summary of QA/QC submittals from 2017 to 2020 is presented in Table 8-7.

Table 8-7: Summary of QA/QC Submittals from 2017 to 2020
Nexa Resources S.A. - Cerro Lindo Mine

Sample Type		2017-Aug.18		Set.18 - Abr.19		May.19 - Mar.20	
		Count	Insertion Rate	Count	Insertion Rate	Count	Insertion Rate
Regular Samples		34,963		46,420		71,546	
Blanks	Coarse	1,214	3.5%	1,794	3.9%	2,624	3.7%
CRMs	Low grade	621	1.8%	761	1.6%	859	1.2%
	Medium grade	—	—	306	0.7%	832	1.2%
	High grade	598	1.7%	656	1.4%	823	1.2%
Field Duplicates	Twin Samples	1,221	3.5%	1,234	2.7%	1,695	2.4%
	Coarse	1,212	3.5%	2,069	4.5%	3,017	4.2%
	Pulp	1,208	3.5%	1,843	4.0%	2,684	3.8%
External Check		569	1.5%	572	1.2%	—	—
			19.0%		19.9%		17.5%

The SLR QP has reviewed the raw data provided by Nexa, as well as annual QA/QC reports prepared by Nexa for 2017 through February 2020, and is of the opinion that the procedures meet industry standards and the conclusions of the analysis support the Mineral Resource database at the Mine.

8.5.3.2 Certified Reference Material

The regular submission of CRMs, prepared in-house and certified by accredited laboratories, for analysis help identify issues with specific sample batches and long term biases associated with the assay laboratories. CRMs were inserted into the sample stream by technicians trained in quality control procedures. Four CRMs using in-house material (MCL 04, MCL 05, MCL 06, and MCL 07) were prepared by Target Rocks Peru S.A.C. and certified by Smee & Associates Consulting Ltd. and three CRMs (PECLSTD001, PECLSTD002, PECLSTD003) were prepared and certified by Target Rocks Peru S.A.C.

Table 8-8 lists the certified values of the CRMs for Zn, Cu, Pb, and Ag and Table 8-9 summarizes Nexa’s in-house CRM performance.

The conventional approach to setting reference standard acceptance limits is to use the mean assay ±2 standard deviations as a warning limit and ±3 standard deviations as a failure limit. Figure 8-3 and Figure 8-4 show examples of zinc and copper CRM results from the Mine and Certimin laboratories for 2017-2018. Figure 8-5 illustrates the zinc and copper CRM results from the Mine for the 2018-2020 period.

SLR reviewed the results returned from the CRMs and offers the following comments:

- Results for the CRMs are generally within acceptable limits with a small percentage of failures.
- Some biases are observed in some CRMs as described below.





- o Zinc: The control charts show a small negative zinc bias (-3% to -4%) for MCL-06, MCL-07, and PECLSTD003 for the Mine Laboratory (Figure 8-6), and a small positive bias (+3%) for PECLSTD002 and PECLSTD003 for Certimin for 2018-2019 period.
- o Copper: A small positive copper bias (5%) for MCL-04 and a small negative bias (-3% to -4%) for PECLSTD003 for the Mine Laboratory.
- o Silver: A small positive silver bias (3% to 5%) for MCL-06 for the 2017-2018 period and MCL-04 for the 2018-2019 period, and a small negative bias (-4% to -5%) for PECLSTD003 for the Mine Laboratory. A small positive bias (4%) for MCL-04 for Certimin during the 2018-2019 period.
- o Lead: A systematic relatively small negative lead bias (-3% to -8%) for MCL-04, MCL-06, MCL-07, PECLSTD002, and PECLSTD003 for the Inspectorate Mine and Inspectorate Lima laboratories. A small positive bias (3%) for MCL-07 for Certimin. During December 2019 to January 2020, the lead failure rate for the PECLSTD001, PECLSTD002, and PECLSTD003 in the ALS laboratory was high due to the four acid digestion method used in samples with high iron content, however, sample batches related to this issue are mostly outside the Cerro Lindo mineralization domains and are not material for resource estimates purpose. ALS has changed from the four acid digestion to aqua regia digestion method resulting in failure rate within acceptable limits.
- o Overall, there is a small percentage of failures, however, the percentage of failure for lead for PECLSTD002 and PECLSTD003 exceeded the tolerance limit (20% to 36%) for the Mine Laboratory during the 2018-2019 period. For silver, the failure percent for PECLSTD002 was exactly equal to the tolerance limit for this same period.
- o Nexa should investigate the systematic relatively small negative bias observed for the lead at Inspectorate Mine and Inspectorate Lima, and should incorporate controls to reduce failure rates observed for some lead and silver CRMs.
- o All biases observed should continue to be monitored on an on-going basis.





Table 8-8: 2017-2020 Cerro Lindo In-House CRM Values
Nexa Resources S.A. - Cerro Lindo Mine

Certification Laboratory	Analytical Method	Type Standard	Element	Best Value	SD
Smee & Associates Consulting Ltd.	Aqua Regia Digestion + AAS or ICP finish	Low grade (MCL-04)	Ag Oz/t	0.46	
			Cu %	0.36	
			Pb %	0.157	
			Zn %	1.691	
		High grade (MCL-05)	Ag Oz/t	1.74	
			Cu %	0.791	
			Pb %	1.07	
			Zn %	4.92	
	Aqua Regia Digestion + ICP-OES or AAS finish	Low grade (MCL-06)	Ag g/t	30.6	
			Cu %	0.387	
			Pb %	0.416	
			Zn %	2.18	
		High grade (MCL-07)	Ag g/t	56.4	
			Cu %	0.641	
			Pb %	1.145	
			Zn %	5.4	
		Medium grade (PECLSTD002)	Cu %	0.429	0.01
			Pb %	0.53	0.021
			Zn %	1.04	0.017
			Ag g/t	51.1	1.839
		High grade (PECLSTD003)	Cu %	0.738	0.019
			Pb %	0.65	0.014
			Zn %	2.35	0.05
			Ag g/t	109	2.637
			Cu %	1.454	0.035
			Pb %	1.6	0.029
			Zn %	5.19	0.151





Table 8-9: 2017-2020 Cerro Lindo In-House CRM Performance
Nexa Resources S.A. - Cerro Lindo Mine

Period	Laboratory	Analytical Method	Type Standard	Element	No. Samples	Best Value	Mean	Bias	No. Samples outside 3SD	Failure Rate
Oct. 2017- Aug 2018	Inspectorate Mine	AAS	Low grade (MCL-04)	Ag Oz/t	20	0.46	0.47	1%	0	0%
				Cu %	20	0.36	0.38	5%	0	0%
				Pb %	20	0.16	0.14	-8%	0	0%
				Zn %	20	1.69	1.70	0%	0	0%
			High grade (MCL-05)	Ag Oz/t	19	1.74	1.74	0%	0	0%
				Cu %	19	0.79	0.80	1%	1	5%
				Pb %	19	1.07	1.06	-1%	0	0%
				Zn %	19	4.92	4.91	0%	0	0%
			Low grade (MCL-06)	Ag g/t	457	30.60	31.73	5%	0	0%
				Cu %	457	0.39	0.40	2%	0	0%
				Pb %	457	0.42	0.39	-5%	2	0%
				Zn %	457	2.18	2.11	-3%	8	2%
			High grade (MCL-07)	Ag g/t	444	56.40	57.54	2%	11	2%
				Cu %	444	0.64	0.64	0%	5	1%
				Pb %	444	1.15	1.11	-3%	12	3%
				Zn %	444	5.40	5.21	-3%	8	2%
	Certimin	ICP-OES + AAS finish	Low grade (MCL-06)	Ag g/t	312	30.60	0.99	0%	1	0%
				Cu %	312	0.39	0.39	2%	21	7%
				Pb %	312	0.42	0.41	-1%	14	4%
				Zn %	312	2.18	2.18	0%	2	1%
			High grade (MCL-07)	Ag g/t	270	56.40	1.85	2%	7	3%
				Cu %	270	0.64	0.65	1%	2	1%
				Pb %	270	1.15	1.17	3%	0	0%





Period	Laboratory	Analytical Method	Type Standard	Element	No. Samples	Best Value	Mean	Bias	No. Samples outside 3SD	Failure Rate
Sep. 2018 - Apr.2019	Inspectorate Mine	AAS	Low grade (MCL-04)	Ag Oz/t	319	0.46	0.47	3%	0	0%
				Cu %	319	0.36	0.37	2%	0	0%
				Pb %	319	0.16	0.14	-8%	0	0%
				Zn %	319	1.69	1.70	0%	0	0%
			High grade (MCL-05)	Ag Oz/t	254	1.74	1.75	1%	0	0%
				Cu %	254	0.79	0.79	0%	0	0%
				Pb %	254	1.07	1.05	-2%	0	0%
				Zn %	254	4.92	4.92	0%	0	0%
			Low grade (PECLSTD001)	Ag g/t	224	42.50	42.70	0%	0	0%
				Cu %	224	0.43	0.43	0%	5	2%
				Pb %	224	0.53	0.51	-2%	2	1%
				Zn %	224	1.04	1.06	1%	9	4%
			Medium grade (PECLSTD002)	Ag g/t	223	51.10	51.71	1%	0	0%
				Cu %	223	0.74	0.74	0%	0	0%
				Pb %	223	0.65	0.62	-5%	45	20%
				Zn %	223	2.35	2.38	1%	2	1%
			High grade (PECLSTD003)	Ag g/t	200	109.00	103.57	-5%	20	10%
				Cu %	200	1.45	1.40	-4%	2	1%
				Pb %	200	1.60	1.49	-7%	71	36%
				Zn %	200	5.19	5.02	-4%	0	0%
Certimin	ICP-OES + AAS finish	AAS finish	Low grade (MCL-04)	Ag Oz/t	132	0.46	0.48	4%	0	0%
				Cu %	132	0.36	0.36	-1%	0	0%
				Pb %	132	0.16	0.15	-2%	0	0%
				Zn %	132	1.69	1.66	-2%	0	0%
			High grade (MCL-05)	Ag Oz/t	127	1.74	1.75	1%	0	0%
				Cu %	127	0.79	0.81	2%	0	0%
				Pb %	127	1.07	1.09	2%	0	0%
				Zn %	127	4.92	4.93	0%	0	0%
			Low grade (PECLSTD001)	Ag g/t	86	42.50	42.69	0%	0	0%
				Cu %	86	0.43	0.44	2%	0	0%
				Pb %	86	0.53	0.53	0%	0	0%
				Zn %	86	1.04	1.05	1%	0	0%
			Medium grade (PECLSTD002)	Ag g/t	83	51.10	51.31	0%	0	0%
				Cu %	83	0.74	0.75	2%	0	0%
				Pb %	83	0.65	0.66	0%	0	0%
				Zn %	83	2.35	2.43	3%	0	0%
			High grade (PECLSTD003)	Ag g/t	75	109.00	108.76	0%	0	0%
				Cu %	75	1.45	1.48	2%	0	0%
				Pb %	75	1.60	1.61	1%	0	0%
				Zn %	75	5.19	5.33	3%	0	0%





Period	Laboratory	Analytical Method	Type Standard	Element	No. Samples	Best Value	Mean	Bias	No. Samples outside 3SD	Failure Rate
May 2019 - Feb.2020	Inspectorate Mine	AAS	Low grade (PECLSTD001)	Ag g/t	299	42.50	42.42	0%	0	0%
				Cu %	299	0.43	0.43	0%	0	0%
				Pb %	299	0.53	0.52	-2%	7	2%
				Zn %	299	1.04	1.05	1%	0	0%
			Medium grade (PECLSTD002)	Ag g/t	271	51.10	51.33	0%	4	1%
				Cu %	271	0.74	0.75	1%	7	3%
				Pb %	271	0.65	0.63	-3%	5	2%
				Zn %	271	2.35	2.38	1%	3	1%
			High grade (PECLSTD003)	Ag g/t	268	109.00	103.9	-5%	0	0%
				Cu %	268	1.45	1.41	-3%	0	0%
				Pb %	268	1.60	1.50	-7%	2	1%
				Zn %	268	5.19	5.04	-3%	3	1%
	Certimin	ICP-OES + AAS finish	Low grade (PECLSTD001)	Ag g/t	182	42.50	42.42	0%	0	0%
				Cu %	182	0.43	0.43	1%	0	0%
				Pb %	182	0.53	0.53	1%	0	0%
				Zn %	182	1.04	1.05	1%	0	0%
			Medium grade (PECLSTD002)	Ag g/t	200	51.10	51.52	1%	0	0%
				Cu %	200	0.74	0.75	2%	0	0%
				Pb %	200	0.65	0.66	1%	0	0%
				Zn %	200	2.35	2.43	3%	1	1%
			High grade (PECLSTD003)	Ag g/t	187	109.00	108.91	0%	0	0%
				Cu %	187	1.45	1.50	3%	5	3%
				Pb %	187	1.60	1.61	1%	0	0%
				Zn %	187	5.19	5.33	3%	0	0%
	ALS		Low grade (PECLSTD001)	Ag g/t	88	42.50	42.84	1%	1	1%
				Cu %	88	0.43	0.43	1%	3	3%
				Pb %	32	0.53	0.52	0%	0	0%
				Zn %	88	1.04	1.05	0%	4	5%
			Medium grade (PECLSTD002)	Ag g/t	79	51.10	51.20	0%	1	1%
				Cu %	79	0.74	0.74	0%	1	1%
				Pb %	27	0.65	0.64	-1%	1	4%
				Zn %	79	2.35	2.39	2%	2	3%
			High grade (PECLSTD003)	Ag g/t	73	109.00	108.39	-1%	4	5%
				Cu %	73	1.45	1.47	1%	1	1%
				Pb %	26	1.60	1.55	-3%	0	0%
				Zn %	73	5.19	5.26	1%	0	0%
	Inspectorate Lima		Low grade (PECLSTD001)	Ag g/t	289	42.50	42.27	-1%	1	0%
				Cu %	289	0.43	0.424	-1%	0	0%





Period	Laboratory	Analytical Method	Type Standard	Element	No. Samples	Best Value	Mean	Bias	No. Samples outside 3SD	Failure Rate		
			Medium grade (PECLSTD002)	Pb %	289	0.53	0.51	-4%	0	0%		
				Zn %	289	1.04	1.05	1%	2	0%		
				Ag g/t	282	51.10	51.32	0%	1	0%		
				Cu %	282	0.74	0.75	1%	4	1%		
				Pb %	282	0.65	0.61	-7%	3	0%		
				Zn %	282	2.35	2.40	2%	5	1%		
			High grade (PECLSTD003)	Ag g/t	295	109.00	105.4	-3%	2	1%		
				Cu %	295	1.45	1.42	-2%	9	3%		
				Pb %	295	1.60	1.51	-6%	1	0%		
				Zn %	295	5.19	5.18	0%	3	1%		
				0 - 5% bias	Excellent							
				5 - 10% bias	Attention							
				>10% bias	Reject		STD Bias % = (mean average/ certified value) - 1					





Figure 8-3: CRM “MCL06” Results for Zinc - Mine and Certimin Laboratories - (2017-2018)





Figure 8-4: CRM “MCL07” Results for Copper - Mine and Certimin Laboratories - (2017-2018)





Figure 8-5: Cerro Lindo CRM Zn Performance for PECLSDT003 (2018-2020)





Figure 8-6: Cerro Lindo CRM “PECLSDT003 (2018-2020)” Results for Copper - Inspectorate Mine Laboratory

In the SLR QP’s opinion, the CRMs cover a reasonable range of grades with respect to the overall grade population of the deposit and the bias observed in the CRMs is not material.

8.5.3.3 Blanks

The regular submission of blank material is used to assess contamination during sample preparation and to identify sample numbering errors. The coarse blank material is obtained from a nearby granodiorite pit that have grades that are less than the detection limits.

From December 2019 to January 2020, there was some evidence of contamination for the Mine Laboratory due to non-compliance with cleaning procedure during sample preparation at the crusher machine. Sample batches were not re-analyzed as there were no core samples remaining (BQ infill core drilling is completely sampled). The laboratory prepared a report and took corrective action to comply with the cleaning preparation procedure. After this incident, no contamination was observed. Results of the blanks are illustrated in Figure 8-7 with Nexa’s tolerance limit set at approximately five times the detection limits.

SLR reviewed charts prepared by Nexa plotting annual assay results of sterile (granodiorite) zinc, copper, silver, and lead grades against an error limit of five times the lower detection limit of the assay technique. Results indicate a negligible amount of sample contamination associated with samples from the Mine. SLR recommends monitoring more actively the blanks results to correct any contamination issues immediately, especially for the mine samples that do not have any core samples remaining to prepare more samples and be re-analyzed. Table 8-10 summarizes blank performance in 2017 to 2020.





Table 8-10: 2017-2020 Cerro Lindo Blanks Performance
Nexa Resources S.A. - Cerro Lindo Mine

Period	Laboratory	QA/QC Sample	Type	No. Samples	Failure Limit (%)	Bias (%) / Failure rate (%)						
						Ag		Cu		Pb		Zn
Oct. 2017- Aug 2018	Mine											
	Laboratory	Blanks	Coarse	583	<5%	0.0	%	0.0	%	0.0	%	0.0%
Sep. 2018 - Apr.2019	Certimin	Blanks	Coarse- ICP	452	<5%	0.0	%	1.8	%	0.0	%	0.2%
	Mine											
	Laboratory	Blanks	Coarse	1293	<5%	0.0	%	0.0	%	0.0	%	0.0%
	Certimin	Blanks	Coarse	501	<5%	0.0	%	0.0	%	0.0	%	0.1%
May 2019 - Feb.2020	Mine											
	Laboratory	Blanks	Coarse	1805	<5%	0.1	%	0.2	%	0.0	%	1.3%
	Certimin	Blanks	Coarse	581	<5%	0.0	%	0.0	%	0.0	%	0.0%
	ALS	Blanks	Coarse	238	<5%	0.0	%	0.0	%	0.0	%	0.0%





Figure 8-7: 2019-2020 Cerro Lindo Blank Zn and Cu Assays - Inspectorate Mine Laboratory





8.5.3.4 Field, Coarse Reject, and Pulp Duplicates

Duplicate samples help monitor preparation and assay precision and grade variability as a function of sample homogeneity and laboratory error. The field duplicate includes the natural variability of the original core sample, as well all levels of error including core splitting, sample size reduction in the preparation laboratory, sub-sampling of the pulverized sample, and the analytical error. Coarse reject and pulp duplicates provide a measure of the sample homogeneity at different stages of the preparation process (crushing and pulverizing).

SLR found that the duplicate results for zinc, copper, silver, and lead compare very well. The duplicates at Cerro Lindo for zinc, copper, silver, and lead fall inside the 10% relative hard value threshold. Pulp duplicate performance is summarized in Table 8-11 and shown in Figure 8-8.

SLR agrees with Nexa's conclusion that data sets show a high level of precision at the Mine primary laboratory.

**Table 8-11: 2017-2020 Cerro Lindo Duplicate Performance
Nexa Resources S.A. - Cerro Lindo Mine**

Period	Laboratory	QA/QC Sample	Type	No. Samples	Failure Limit (%)	Failure rate (%)							
						Ag		Cu		Pb		Zn	
Oct. 2017 - Aug 2018	Mine Laboratory	Duplicates	Twin sample	586	<30%	3.9	%	5.5	%	5.1	%	6.7	%
			Coarse	589	<20%	0.2	%	0.5	%	0.0	%	0.2	%
			Pulps	588	<10%	0.3	%	0.2	%	0.3	%	0.5	%
	Certimin	Duplicates	Twin sample	635	<30%	6.9	%	7.6	%	6.1	%	7.2	%
			Coarse	623	<20%	0.3	%	0.0	%	0.0	%	0.0	%
			Pulps	620	<10%	3.4	%	0.2	%	0.3	%	0.3	%
Sep. 2018 - Apr.2019	Mine Laboratory	Duplicates	Twin sample	920	<30%	0.0	%	0.2	%	0.2	%	1.7	%
			Coarse	2,069	<20%	0.1	%	0.1	%	0.2	%	0.2	%
			Pulps	1,843	<10%	0.0	%	0.2	%	0.1	%	0.1	%
	Certimin	Duplicates	Twin sample	1,234	<30%	0.1	%	0.7	%	0.7	%	2.2	%
			Coarse	2,067	<20%	0.3	%	0.4	%	0.3	%	0.3	%
			Pulps	1,843	<10%	1.0	%	0.2	%	0.2	%	0.2	%
May 2019 - Feb.2020	Mine Laboratory	Duplicates	Twin sample	899	<30%	4.4	%	5.7	%	4.6	%	6.0	%
			Coarse	2,178	<20%	0.2	%	0.2	%	0.0	%	0.3	%
			Pulps	1,861	<10%	3.7	%	2.6	%	0.1	%	0.2	%
	Certimin	Duplicates	Twin sample	559	<30%	0.5	%	0.2	%	0.5	%	1.1	%
			Coarse	590	<20%	0.0	%	0.0	%	0.0	%	0.0	%
			Pulps	583	<10%	0.0	%	0.3	%	0.0	%	0.0	%
	ALS	Duplicates	Twin sample	237	<30%	0.4	%	0.4	%	0.8	%	0.4	%
			Coarse	249	<20%	0.0	%	0.0	%	0.0	%	0.0	%
			Pulps	240	<10%	0.0	%	0.0	%	0.0	%	0.0	%





Figure 8-8: 2019-2020 Cerro Lindo Pulp Duplicates Zn and Cu Assays - Inspectorate Mine Laboratory

8.5.3.5 Check Assays

Submitting assays to a secondary laboratory helps monitor bias at the principal laboratory. Reference materials and blanks were inserted in the check assay batches.

Overall, the check assay results are reasonable. The results for zinc, copper, lead, and copper showed a good correlation with the secondary laboratory (Table 8-12). The check assays indicated that the primary laboratory had a low bias for copper (-4%). An example of zinc and copper assay performance for the check assays is shown in Figure 8-9.





Table 8-12: ALS Lima Versus Primary Laboratory Check Results - October, 2017 to April, 2019
Nexa Resources S.A. - Cerro Lindo Mine

Period	Secondary Laboratory	Primary Laboratory	Element	No.	Bias%
Oct. 2017 - Aug.2018	ALS Lima	Mine Laboratory	Ag ppm	400	2.1%
			Cu %	400	-3.9%
			Pb %	400	2.5%
			Zn %	400	-3.8%
			Ag ppm	498	3.0%
			Cu %	498	0.3%
			Pb %	498	-1.7%
			Zn %	498	-2.5%
	Sep. 2018 - Apr.2019	Mine Laboratory	Ag ppm	273	-4.9%
			Cu %	352	-3.9%
			Pb %	255	-4.4%
		Certimin	Zn %	350	0.8%
			Ag ppm	41	-4.0%
			Cu %	208	0.0%
			Pb %	71	0.0%
			Zn %	222	4.6%





Figure 8-9: 2018-2019 2020 Cerro Lindo Zn and Cu External Check Assays - Inspectorate Mine Laboratory

8.6 QA/QC Recommendations

SLR's QA/QC recommendations are as follows:

- Investigate the potential 5% negative bias for lead at Inspectorate Lima observed on the CRM results.
- Incorporate controls to reduce failure rates observed for some lead and silver CRMs.
- Monitor more actively blank results to correct immediately any contamination issues, especially for the mine samples that do not have any core samples remaining to prepare more samples and be re-analyzed.

In the SLR QP's opinion, the QA/QC program as designed and implemented by Cerro Lindo is adequate, and the assay results within the database are suitable for use in a Mineral Resource estimate.





9.0 DATA VERIFICATION

During the last quarter of 2017, Nexa transferred the drill database from Excel files to Fusion. Nexa performed an exhaustive number of checks to confirm the accuracy of the data migration. The SLR QP reviewed the resultant Excel summary and is of the opinion that Nexa performed the data migration with sufficient checks and documentation. Nexa has also implemented regular data verification workflows to ensure the collection of reliable data. Coordinates, core logging, surveying, and sampling are monitored by exploration, mine geologists, and verified routinely for consistency.

9.1 Databases

Mine data are stored in the Fusion database, which is located in the Mine server at Cerro Lindo. Nexa performs regular backups to a remote server in Lima and central server in Brazil. Access to the database is strictly controlled.

Logging and sampling data are digitally entered into the database by downloading the information from the logging tablets.

Collar coordinates are digitally entered by the surveyors in Excel files to a server managed by the Survey group. Every Friday, the database administrator e-mails the Survey group a special empty form, which is completed by the surveyors and then stored in the Survey group server. The completed form is returned to the database administrator in PDF format. Using internal routines, the database administrator later captures this information from the Survey group server and saves it in the mine server.

Assay data are captured from the Global LIMS server using custom routines, and this information is then entered into the Fusion database. The laboratory also issues *.csv and pdf-format certificates, however, only the information that is digitally captured from the server is considered to be the true record.

Personnel from the Geology department conduct daily quality control checks on the data entry. A first check consists of identifying duplicate sample numbers or lack of information for certain intervals. Every month, all the assay data entered in the server are compared with a compilation of individual *.csv files issued by the laboratory. Paper records are stored at a safe location at the mine.

The SLR QP is of the opinion that the data collection, import, and validation workflows are consistent with industry standards, and are of sufficient quality to support Mineral Reserve and Mineral Resource estimation.

9.2 Internal Verification

The updated database includes all historic data (drill holes and channels) and new drill holes completed to March 2, 2020. Prior to using this database for Mineral Resource estimation, the data was reviewed for geologic consistency and checked against the original information. The Cerro Lindo resource database is regularly maintained and validated by the database administrator using Fusion validation routines and by regularly checking the drill hole data on-screen.

The updated and validated database was exported from Fusion and sent to Lima, for an additional internal validation which involved cross-checks and consistency checks on approximately 5% of the data. The database was then transferred to a central master server (backup for all Nexa projects). Nexa prepared “The Informe de Validación de Base de Datos Cerro Lindo” report containing additional detail regarding data validation.

9.3 External Verification 2003-2017

AMEC conducted five separate verification exercises from 2003 to 2017. These exercises included:

- site visits to review and confirm findings by site geologists (2003)
- drill core data, logging, and sampling reviews with site geologists (2003, 2013, 2016)
- review of density measurement equipment and procedures (2003)
- checks on 10% of the assay and geological data from drilling campaigns (2003)





- high-level review of Milpo’s operational procedures and QC program (2013)
- signed assay certificate spot checks (2016)
- reviews of geological interpretation using wireframes, drilling, selected plans, and sections (2016, 2017)
- spot collar and downhole survey record checks (2016)
- a thorough audit of the 2010–2017 portion of the Cerro Lindo database (2017)
- review of the integrity of downhole surveys (2017)

Amec (2017) generally concluded that the above aspects of the project were reasonable, acceptable, and adequate to support Mineral Resource estimation and mine planning. A few errors identified by Amec during data validation were immediately corrected by Cerro Lindo staff.

9.4 SLR Verification

During SLR’s site visit from June 4 to 7, 2019, SLR reviewed plans and sections, visited the core shack, examined drill core and mineralized exposures at the underground mine, reviewed core logging and QA/QC procedures and database management system and held discussions with Nexa personnel.

As part of the data verification process, SLR inspected the drill holes in section and plan view to review geological interpretation related to the drill hole and channel database and found good correlation. SLR queried the database for unique headers, unique samples, duplicate holes, overlapping intervals, blank and zero grade assays, and long sample intervals. SLR also reviewed QA/QC data collected by Nexa. SLR did not identify any significant discrepancies.

9.4.1 Assay Certificate Verification

SLR performed checks on the Cerro Lindo Mineral Resource database by converting approximately 164,000 assay certificate results spanning August 2017 to February 2020 from original PDF and Excel formats to reformatted comma delimited text (CSV) files, compiled and imported them to a database, and then compared the compiled certificate assays to the assay table in the Mineral Resource drill and sample database. The work matched approximately 135,000 sample IDs to the assay database for Zn, Cu (112k), Pb, Ag, and Fe. Results of the exercise are shown in Table 9-1. No significant errors were found. There were 260 samples for Ag where the values in the database ranged from 25 g/t Ag to 285 g/t Ag lower than the certificate assays. This is likely a result of choosing the lower value of multiple re-assays, and shows a conservative approach since all mis-matched values were lower in the Mineral Resource database. Assay certificates pre-2001 were not available, however, Nexa and RPA reviewed this data in sections and plan views. Overall, the data compared well with recent drilling. Based on SLR’s review, there is no reason to believe there is any significant issue related to this data, furthermore, Nexa is planning to drill during 2021 and 2022 in these areas to confirm assay values.

Table 9-1: SLR Assay Certificate Verification Results
Nexa Resources S.A. - Cerro Lindo Mine

Element	Count Assays	Count Certificate IDs	Certificates Start	Certificates End	% of Assays in DB	SampleID Matches	Abs. Diff. Threshold	Num Outside of Threshold	Notes
ZN (%)	299,888	163,839	2017-08-12	2020-02-28	55%	134,832	1	6	All overlimit samples.
CU (%)	299,888	135,864	2017-08-12	2020-02-18	45%	112,391	0.001	0	Exercise captured less Cu samples than other elements
PB (%)	299,888	163,786	2017-08-12	2020-02-28	55%	134,811	1	1	Overlimit sample





Element	Count Assays	Count Certificate IDs	Certificates Start	Certificates End	% of Assays in DB	SampleID Matches	Abs. Diff. Threshold	Num Outside of Threshold	Notes
AG (PPM)	299,888	163,786	2017-08-12	2020-02-28	55%	134,811	25	260	DH assays 25-285 g/t lower than certificates
FE (%)	299,888	163,786	2017-08-12	2020-02-28	55%	134,811	1	4	Diff 3-4% higher in drill hole

SLR found that the assay database is well maintained, and generally exceeds industry standards. The SLR QP is of the opinion that the assay database and database verification procedures for Cerro Lindo comply with industry standards, and are adequate for the estimation of Mineral Resources and Mineral Reserves.

9.4.2 Density Verification

SLR converted 3,553 density measurement certificates spanning 2013 to 2020 from original PDF and Excel formats to reformatted CSV text files, compiled and imported them to a database, and compared them to the density table in the Mineral Resource drill and sample database. There were 1,575 certificate ID matches out of 4,410 in the Mineral Resource database, resulting in a comparison rate of 36% spanning all years. SLR notes that there were no discrepancies between the certificate data and the Mineral Resource database. SLR considers this to be an excellent result. Spatial coverage of the density samples relative to Mineral Resources (blue) and Mineral Reserves (orange) are shown in Figure 9-1.

SLR found that the density database is well maintained, and generally exceeds industry standards. The SLR QP is of the opinion that the density database and verification procedures for Cerro Lindo comply with industry standards, and are adequate for the estimation of Mineral Resources and Mineral Reserves.





Figure 9-1: Density Sampling Coverage Relative to Mineral Resources and Mineral Reserves



Nexa Resources S.A. | Cerro Lindo Mine, SLR Project No: 233.03246.R0000
Technical Report Summary - January 29, 2021



10.0 MINERAL PROCESSING AND METALLURGICAL TESTING

The Cerro Lindo processing plant has been in operation since 2007 and uses a conventional polymetallic flotation scheme to produce zinc, lead, and copper concentrates with silver content. The processing plant has a capacity of approximately 20,000 tpd. The concentrates are relatively clean and high grade, and in general do not contain penalizable concentrations of deleterious elements. A small penalty does result from the lead and zinc in the copper concentrate, which since 2016 has contained lead and zinc in the approximate range of 4.8% to 5.6%. Silver in the feed is mostly recovered to the copper and lead concentrates, resulting in silver credits for these two concentrates.

10.1 Recent Test Work

In 2018, Nexa began a program of test work to be used in the development of a geometallurgical model that would provide information that could be used to predict metallurgical response during future processing at Cerro Lindo. The work was conducted under the supervision of Transmin Metallurgical Consultants (Transmin) at the Certimin Laboratory (an independent laboratory with ISO 9001 certification and NTP-ISO/IEC 17025 Accreditation) in Lima, Peru. Test work included comminution (abrasion index (Ai) and Bond work index (BWi) determinations) and flotation tests. Results and interpretation of the third and final phase of the test work were reported in the report Estudio Geometalurgico Fase 3 para Unidad Minera Cerro Lindo (Transmin, 2020).

Individual samples were selected to represent the major lithologies identified in the block model, as well as specific areas as shown in Figure 10-1 and Figure 10-2. Forty-two samples were selected for comminution test work and 35 samples for flotation test work. The lithologies comprising the deposit are:

- SPP - Pyritic, homogeneous, primary massive sulphide
- SPB - Baritic homogeneous primary sulphides
- SSM - Semi-massive sulphides
- VM - Mineralized volcanic rock

Results of the comminution test work are summarized in Table 10-1. The BWi design value used in the 2017 design criteria for the expansion to 21,000 tpd (Cesel, 2017) was 12.4 kWh/t, and therefore, there should be no grinding capacity limitations when processing ore represented by these samples.



Source: Transmin, 2020

Figure 10-1: Sample Representation of Major Lithologies





Source: Transmin, 2020

Figure 10-2: Sample Representation of Orebodies



Nexa Resources S.A. | Cerro Lindo Mine, SLR Project No: 233.03246.R0000
Technical Report Summary - January 29, 2021



Figure 10-3: Location of Individual Samples in the Block Model





Table 10-1: Comminution Test Work Results for 2019 Geometallurgical Samples
Nexa Resources S.A. - Cerro Lindo Mine

	Ai (g)	BWi (kWh/t)
Minimum	0.036	5.07
Maximum	0.63	18.0
Average	0.237	11.6
75 th Percentile	0.374	12.1

Locked cycle flotation tests were conducted on three composites made up of the individual samples representing groups of orebodies; the composite make-up is summarized in Table 10-2. The flowsheet for the locked cycle tests is shown in Figure 10-4.

Table 10-2: Flotation Composite Constituents
Nexa Resources S.A. - Cerro Lindo Mine

Composite ID	Orebodies	Lithology
LDFC-01	OB2, OB2B	SPP
LDFC-02	OB5, OB5B, OB6	SPP, SSM, SPB
LDFC-03	OB9, OB13	SPB, VM, SSM

Source: Transmin, 2020



Source: Transmin, 2020

Figure 10-4: Locked Cycle Flotation Test Flowsheet





Results from the locked cycle tests are summarized in Table 10-3, showing the average bulk and zinc concentrate grades achieved in the last two cycles of the tests.

Table 10-3: Average of Locked Cycle Test Concentrate Analyses for the Last Two Cycles
Nexa Resources S.A. - Cerro Lindo Mine

Sample ID	Stream	Analyses							
		Ag g/t	Cu %	Pb %	Zn %	Fe %	S %	Hg ppm	As %
LDFC-01	Bulk Conc	470	32.8	0.76	0.74	28.0	34.4	14	0.71
	Zinc Conc	135	6.4	0.1	46.4	10.7	34.8	182	0
LDFC-02	Bulk Conc	768	19.1	12.2	2.6	28.7	32.8	10	0
	Zinc Conc	35	0.5	0.1	56.8	6.4	34.0	131	0

Variability flotation test work was conducted by completing open cycle rougher tests to produce bulk rougher and zinc concentrates. Results are presented in Table 10-4 and Table 10-5.

Table 10-4: Bulk Rougher Concentrates from Variability Tests
Nexa Resources S.A. - Cerro Lindo Mine

Sample ID	Bulk Concentrate Grade				Recovery			
	Ag g/t	Cu %	Pb %	Zn %	Ag %	Cu %	Pb %	Zn %
LDS-01	2,369	4.19	41.5	10.7	93.9	86.2	98.2	16.0
LDS-02	1,074	4.61	35.5	13.2	86.0	82.2	96.1	23.7
LDS-03	267	1.74	7.97	5.58	71.7	79.7	84.2	17.6
LDS-04	505	1.64	5.38	3.74	80.0	68.8	86.3	6.80
LDS-05	108	10.0	0.061	0.31	31.8	65.3	17.1	14.5
LDS-06	70.5	4.87	0.033	0.26	25.4	35.4	2.91	9.04
LDS-07	212	15.3	0.020	0.68	53.8	79.8	8.42	13.4
LDS-08	206	15.4	0.041	0.56	51.3	77.1	39.6	11.9
LDS-09	252	16.8	0.015	0.45	46.2	72.0	20.7	15.5
LDS-10	47.2	5.21	0.0065	0.77	56.2	84.1	32.1	10.4
LDS-11	64.8	6.28	0.038	0.26	40.8	78.1	18.7	17.0
LDS-12	75.9	6.70	0.033	0.18	35.2	64.2	18.3	20.4
LDS-13	886	9.05	3.07	1.38	89.8	92.3	75.5	55.8
LDS-14	205	13.2	0.021	0.60	47.2	68.7	21.0	9.94
LDS-17	100	9.64	0.047	0.54	42.7	65.0	15.3	8.73
LDS-18	97.4	4.08	0.44	0.54	48.1	48.9	37.4	5.52
LDS-19	115	7.08	0.080	0.92	43.6	55.9	19.6	10.6
LDS-20	34.5	3.37	0.056	0.69	34.0	60.0	39.1	2.22





Sample ID	Bulk Concentrate Grade				Recovery			
	Ag g/t	Cu %	Pb %	Zn %	Ag %	Cu %	Pb %	Zn %
LDS-21	137	3.96	2.18	2.01	46.2	57.0	51.7	2.43
LDS-22	112	0.31	0.74	0.19	70.4	76.4	63.3	23.6
LDS-24	114	3.43	0.79	3.43	49.2	22.3	62.5	2.13
LDS-26	39.2	0.60	0.16	2.34	59.1	73.9	41.3	7.08
LDS-27	859	0.63	28.0	8.61	72.8	29.4	98.5	3.70
LDS-28	2,307	1.11	31.6	11.7	69.9	30.3	96.5	4.65
LDS-29	577	12.7	18.6	7.89	88.2	78.4	98.5	3.39
LDS-31	230	13.3	0.016	0.27	44.7	68.4	18.4	9.61
LDS-37	260	4.89	0.58	0.27	81.4	87.9	67.0	26.2
LDS-38	397	16.1	0.30	0.56	60.1	85.7	59.5	11.7
LDS-39	399	11.7	0.31	1.07	85.4	93.0	66.7	10.4
LDS-40	338	0.49	20.5	5.97	76.4	17.7	95.7	3.02
LDS-41	358	8.82	9.65	4.49	61.0	47.3	92.8	2.71
LDS-42	204	4.84	1.26	0.18	81.3	91.3	89.3	17.5
LDS-43	593	19.6	3.34	0.89	66.2	86.4	90.1	8.25
LDS-44	301	1.48	5.23	2.42	62.9	27.3	84.5	2.19
LDS-45	400	0.23	12.8	1.99	85.1	19.5	94.9	2.09

Source: Transmin, 2020

Table 10-5: Zinc Rougher Concentrates from Variability Tests
Nexa Resources S.A. - Cerro Lindo Mine

Sample ID	Zinc Concentrate Grade				Recovery			
	Ag g/t	Cu %	Pb %	Zn %	Ag %	Cu %	Pb %	Zn %
LDS-01	46.6	0.23	0.23	27.4	3.78	9.52	1.12	83.2
LDS-02	42.0	0.51	0.36	41.4	3.43	9.21	1.00	75.6
LDS-03	30.4	0.20	0.36	29.4	7.02	8.07	3.28	79.7
LDS-04	28.9	0.17	0.11	35.3	6.18	9.90	2.43	86.7
LDS-05	218	8.34	0.11	4.33	16.1	13.7	7.77	50.0
LDS-06	84.9	8.54	0.037	2.63	21.3	43.2	2.25	62.7
LDS-07	128	3.86	0.014	8.97	13.3	8.31	2.44	72.5
LDS-08	123	3.59	0.031	9.62	10.3	6.04	10.0	68.8
LDS-09	152	5.14	0.018	4.83	9.61	7.63	8.66	57.2
LDS-10	62.7	2.60	0.0090	30.3	15.7	8.82	9.39	85.6





Sample ID	Zinc Concentrate Grade				Recovery			
	Ag g/t	Cu %	Pb %	Zn %	Ag %	Cu %	Pb %	Zn %
LDS-11	103	4.09	0.065	4.26	13.1	10.2	6.52	55.3
LDS-12	75.1	4.72	0.045	0.90	15.8	20.4	11.4	44.7
LDS-13	58.1	0.45	0.31	0.56	3.84	3.03	5.01	14.9
LDS-14	106	4.31	0.019	7.46	13.9	12.7	10.8	69.4
LDS-17	70.4	4.11	0.045	9.97	14.9	13.7	7.26	79.1
LDS-18	51.8	3.74	0.17	13.4	15.9	27.9	8.73	86.0
LDS-19	54.1	3.74	0.051	7.77	18.0	25.9	10.9	78.3
LDS-20	31.4	1.38	0.032	35.3	19.4	15.4	13.9	71.2
LDS-21	25.9	0.68	0.30	40.4	11.9	13.3	9.63	66.4
LDS-22	31.7	0.075	0.20	1.42	7.42	6.98	6.37	67.5
LDS-24	21.4	2.70	0.021	38.3	37.7	71.6	6.74	96.9
LDS-26	12.6	0.13	0.033	38.0	15.1	12.3	6.79	91.1
LDS-27	76.7	0.29	0.080	56.0	25.9	54.0	1.12	95.9
LDS-28	198	0.49	0.16	53.2	26.8	60.0	2.16	94.9
LDS-29	16.2	0.78	0.050	54.5	10.2	19.8	1.08	96.1
LDS-31	260	7.70	0.032	5.88	17.0	13.3	12.6	69.9
LDS-37	45.8	0.78	0.10	1.23	7.56	7.36	6.12	62.9
LDS-38	276	4.41	0.12	13.6	11.3	6.35	6.32	77.1
LDS-39	19.7	0.24	0.016	4.62	8.11	3.65	6.47	86.0
LDS-40	19.4	0.45	0.16	50.3	16.5	61.3	2.80	95.9
LDS-41	33.4	1.88	0.11	45.3	20.0	35.4	3.79	95.8
LDS-42	132	1.73	0.28	6.48	6.20	3.85	2.37	75.7
LDS-43	182	2.89	0.18	21.2	9.07	5.68	2.21	87.8
LDS-44	38.1	1.27	0.088	44.8	18.6	54.5	3.35	94.8
LDS-45	20.9	0.32	0.20	49.5	8.30	50.8	2.74	96.5

Source: Transmin, 2020

Transmin used the test work results to derive relationships for throughput, grinding media consumption, recovery, and concentrate grade that could be used in a geometallurgical model.

Key conclusions derived from the test work included the following:

- Abrasiveness and hardness are related to lithology with the VM material being the hardest and most abrasive.
- Additional comminution test work should be carried out to characterize VM material.
- Zinc recovery depends on zinc head grade and the presence of soluble copper.
- Higher levels of soluble copper in the feed may negatively affect the recovery of zinc and copper.





- Arsenic concentration in the bulk concentrate from OB2 and OB2B material was affected by the presence of tennantite and was 0.7%.
- Zinc concentrates contained mercury between 100 ppm and 300 ppm.

10.2 LOM Plan

The current LOM plan continues to 2029, with a peak processing rate of approximately 21,000 tpd. Table 10-6 presents historical and forecast processing rates, head grades, and recoveries for the LOM. Analysis of historical production demonstrates that recoveries of copper, lead, and zinc are related to their head grades, while silver recoveries to the copper and lead concentrates tend to follow the copper and lead head grades. Average LOM planned head grades of copper, lead, and silver for the next three years are similar to those experienced from 2016 to 2020 at 0.48%, 0.25%, and 0.70 oz/t, respectively, while the planned head grades of zinc decrease steadily after 2020. Head grades towards the end of the LOM are anticipated to decrease, particularly those of zinc. Forecast recoveries and concentrate grades are initially in line with those of recent years, and then are predicted to fall as head grades decrease. Apart from decreasing head grades, no fundamental changes to the concentrator feed are anticipated, and in the SLR QP's opinion, based on recent processing plant performance, the forecast recoveries and concentrate qualities for the near future are reasonable. With end of LOM zinc and lead head grades being well below the historical ranges, however, there is a risk that actual recoveries may be lower than forecasted due to the lack of data on processing material with these low head grades.

Production in 2020 was significantly lower than in 2019 due to the effects of the COVID-19 pandemic and associated production interruptions. On March 15, 2020, the Peruvian Government declared a national emergency and imposed operating business restrictions including on the mining sector. The quarantine period was initially expected to last until the end of March but was subsequently extended up to May 10, 2020. In light of the government restrictions, Nexa suspended production at Cerro Lindo. During this period, mining activities were limited to critical operations with a minimum workforce to ensure appropriate maintenance, safety, and security. On May 6, the Peruvian Government announced the conditions for the resumption of operations for different sectors, including mining operations above 5,000 tpd. Cerro Lindo operations, which were suspended on March 18, restarted production on May 11, 2020, following the end of the quarantine period. After the resumption of operations, Cerro Lindo ramped up production to pre-pandemic levels by June 2020.

A small amount of transition or supergene ore has been identified in two stopes. Large quantities of this ore fed to the concentrator could negatively affect recoveries and concentrate quality. Currently, this supergene material does not form part of the feed blend, and test work is underway to determine economical alternatives for processing the ore, e.g., by campaigning the supergene material through the processing plant using conditions and reagents optimized specifically for this material.

Process control and metallurgical accounting samples are collected automatically by cross stream (grinding mill feed) and in-line pipe samplers (slurry samples), and the samples are analyzed on site by a third-party laboratory operator, Bureau Veritas. Filtered concentrate is also sampled during truck loading by taking samples from the front-end loader bucket using a pipe sampler according to a pre-determined pattern. Duplicate samples are regularly sent to the laboratory operator's Lima laboratory for analysis and comparison with the Cerro Lindo laboratory. Concentrator feed mass is measured by belt weigh scales on the two mill feed belts, and concentrates are weighed by truck scale on despatch from site. Tails mass is calculated as the difference.

Nexa used historical performance to estimate future recoveries and concentrate grades. In the SLR QP's opinion, this is a common and reasonable approach, and is an adequate method of predicting future performance.

In the SLR QP's opinion the metallurgical testwork is adequate for the estimation of Mineral Resources and Mineral Reserves.





Table 10-6: Summary of Historical Performance and LOM Plan
Nexa Resources S.A. - Cerro Lindo Mine

			Actual					LOM Plan								
		Units	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Plant Throughput		t	7,345,202	7,297,624	6,914,653	6,799,747	5,482,211	7,000,001	7,000,000	6,500,000	6,500,000	5,000,000	5,000,001	5,000,000	5,000,000	5,101,213
		tpd	20,069	19,993	18,944	18,629	17,628	19,800	19,800	18,400	18,400	14,100	14,100	14,100	14,400	
Head Grades																
	Ag	oz/t	0.73	0.69	0.69	0.69	0.78	0.61	0.71	0.78	0.74	0.90	0.61	0.56	0.63	0.57
	Pb	%	0.29	0.27	0.25	0.25	0.29	0.23	0.25	0.26	0.22	0.28	0.18	0.13	0.13	0.10
	Cu	%	0.66	0.69	0.64	0.64	0.59	0.44	0.48	0.52	0.59	0.75	0.68	0.73	0.73	0.75
	Zn	%	2.57	2.33	2.07	2.05	1.93	1.77	1.56	1.50	1.38	1.70	1.51	1.34	1.12	0.87
Cu Concentrate		t	154,362	166,595	145,685	144,568	107,283	142,861	156,213	146,070	145,387	73,479	82,194	86,950	95,163	
Pb Concentrate		t	24,526	22,792	19,929	19,147	17,880	22,481	19,871	15,699	11,978	5,450	7,208	7,543	4,492	
Zn Concentrate		t	295,082	264,377	221,001	216,823	165,179	175,498	146,757	144,886	146,757	70,332	71,274	72,330	72,795	
Cu Concentrate	Recovery															
	Cu	%	84.1	86.1	86.7	86.8	85.7	85.9	86.8	86.1	86.1	84.7	85.9	86.5	87.6	
	Ag	%	37.4	41.6	42.6	40.4	39.1	39.9	39.9	39.9	39.9	39.9	39.9	39.9	39.9	
	Grade															
	Cu	%	26.3	26.2	26.3	26.1	26.0	25.9	25.9	25.9	25.9	25.9	25.9	%	25.9	25.9
	Ag	oz/t	12.6	12.5	13.7	13.0	13.77	14.65	14.36	14.23	12.13	12.26	12.38	12.29	10.38	
	Zn	%	4.3	4.1	3.6	3.7										
	Pb	%	1.3	1.1	1.2	1.3										





		Actual						LOM Plan								
		Units	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Pb Concentrate	Recovery															
	Pb	%	74.3	76.0	73.8	73.3	74.1	73.8	72.0	68.6	64.9	61.9	65.5	66.1	59.9	
	Ag	%	31.6	30.1	28.8	29.4	32.1	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	
	Grade															
	Pb	%	64.6	65.1	64.0	64.0	65.0	63.8	63.8	63.8	63.8	63.8	63.8	63.8	63.8	
Zn Concentrate	Ag	oz/t	67.1	64.5	67.6	71.5	66.79	67.53	81.85	95.98	106.74	119.84	102.41	102.69	159.42	
	Recovery															
	Zn	%	92.2	91.5	90.9	90.5	90.2	88.9	87.7	87.6	87.7	86.5	86.5	86.6	86.8	
	Grade															
	Zn	%	58.9	59.0	59.0	58.3	57.8	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	

Source: Nexa, 2021





11.0 MINERAL RESOURCE ESTIMATES

11.1 Summary

The Mineral Resource estimate for the Cerro Lindo Mine, as of December 31, 2020, using all data available as of March 2, 2020 was completed by Cerro Lindo staff (Nexa, 2020d) and reviewed by SLR.

The Mineral Resource estimate was completed using Datamine Studio RM and Leapfrog Geo software. Wireframes for geology and mineralization were constructed in Leapfrog Geo based on geology sections, assay results, lithological information, underground mapping, and structural data. Assays were capped to various levels based on exploratory data analysis and then composited to 2.5 m lengths. Wireframes were filled with blocks and sub-celling at wireframe boundaries. Blocks were interpolated with grade using ordinary kriging (OK) and inverse distance cubed (ID³) interpolation algorithms. Block estimates were validated using industry standard validation techniques. Classification of blocks used distance-based and other criteria. The Mineral Resource estimate was reported using all the material within resource shapes generated in Deswik Stope Optimizer (DSO) software, satisfying minimum mining size, continuity criteria, and using a net smelter return (NSR) cut-off value of US\$33.56/t for sub-level stoping (SLS) resource shapes and US\$49.90/t for cut and fill (C&F) resource shapes.

A summary of the Cerro Lindo underground Mineral Resources, exclusive of Mineral Reserves, for the Cerro Lindo deposit, is shown in Table 11-1. Table 11-2 shows the Mineral Resources sub-divided into mineralization domains. NSR cut-off values for the Mineral Resources were established using a zinc price of US\$1.30/lb, a lead price of US\$1.02/lb, a copper price of US\$3.37/lb, and a silver price of US\$19.38/oz.

Mineral Resources have been classified in accordance with the definitions for Mineral Resources in S-K 1300, which are consistent with Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (CIM (2014) definitions).

Table 11-1: Summary of Mineral Resources - December 31, 2020
Nexa Resources S.A. - Cerro Lindo Mine

Category	Tonnage (Mt)	Grade				Contained Metal			
		(% Zn)	(% Pb)	(% Cu)	(g/t Ag)	(000 t Zn)	(000 t Pb)	(000 t Cu)	(000 oz Ag)
Measured	3.53	2.00	0.20	0.67	19.61	70.38	7.10	23.55	2,223.7
Indicated	2.77	1.37	0.25	0.45	24.96	37.93	7.05	12.46	2,225.2
Total M+I	6.30	1.72	0.22	0.57	21.96	108.31	14.15	36.01	4,448.9
Inferred	6.98	1.28	0.35	0.33	31.23	89.07	24.52	23.33	7,012.4

Notes:

- 1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources which are consistent with CIM (2014) definitions.
- 2. Mineral Resources are reported on an 80.16% Nexa attributable ownership basis.
- 3. Mineral Resources are estimated at a net smelter return (NSR) cut-off value of US\$33.56/t for sub-level open stoping (SLS) and US\$49.90/t for cut and fill (C&F).
- 4. Mineral Resources are estimated using average long term metal prices of Zn: US\$2,869.14/t (US\$1.30/lb), Pb: US\$2,249.40/t (US\$1.02/lb), Cu: 7,426.59/t (US\$3.37/lb), and Ag: US\$19.38/oz.
- 5. Metallurgical recoveries are accounted for in the NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average head grades are 86.3% for Cu, 88.1% for Zn, 68.6% for Pb, and 68.8% for Ag.





6. A minimum mining width of 5.0 m and 4.0 m was used to create SLS and C&F resource shapes respectively.
7. Bulk density varies depending on mineralization domain.
8. Mineral Resources are exclusive of Mineral Reserves.
9. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
10. Numbers may not add due to rounding.

Table 11-2: Mineral Resource Estimate by Mineralization Domains - December 31, 2020
Nexa Resources S.A. - Cerro Lindo Mine

Category	Domain	Tonnage (Mt)	Grade				Contained Metal			
			(% Zn)	(% Pb)	(% Cu)	(g/t Ag)	(000 t Zn)	(000 t Pb)	(000 t Cu)	(000 oz Ag)
Measured	SPB	1.37	4.01	0.39	0.56	21.33	55.02	5.33	7.66	940.32
	SPP	2.13	0.71	0.08	0.75	18.45	15.10	1.70	15.85	1,261.00
	SSM	0.02	0.63	0.19	0.17	18.37	0.12	0.04	0.03	11.32
Indicated	VM	0.01	1.30	0.25	0.17	31.04	0.14	0.03	0.02	11.08
	SPB	0.66	2.94	0.40	0.47	26.14	19.26	2.65	3.06	551.20
	SPP	1.17	0.69	0.08	0.59	15.58	8.04	0.90	6.94	586.66
Total M&I	SSM	0.64	1.13	0.34	0.30	29.66	7.21	2.18	1.88	606.66
	VM	0.31	1.10	0.42	0.19	48.32	3.42	1.31	0.58	480.63
	SPB	2.03	3.66	0.39	0.53	22.89	74.28	7.99	10.71	1,491.52
Inferred	SPP	3.30	0.70	0.08	0.69	17.43	23.14	2.60	22.78	1,847.66
	SSM	0.66	1.12	0.34	0.29	29.33	7.33	2.22	1.91	617.99
	VM	0.32	1.11	0.42	0.19	47.72	3.56	1.34	0.60	491.72
Inferred	SLB	0.11	0.05	0.28	0.06	24.75	0.05	0.32	0.07	90.08
	SOB	0.53	0.70	0.14	0.99	18.18	3.68	0.72	5.23	307.86
	SOP	0.12	0.22	0.03	0.52	11.77	0.26	0.04	0.63	45.50
Inferred	SPB	0.21	3.54	0.55	0.35	30.62	7.31	1.14	0.73	203.32
	SPP	0.59	0.62	0.04	0.62	11.79	3.61	0.24	3.64	222.61
	SSM	2.21	1.38	0.33	0.34	31.19	30.47	7.38	7.50	2,220.79
Inferred	V	0.10	0.51	0.24	0.22	26.28	0.49	0.23	0.21	81.51
	VM	3.12	1.38	0.46	0.17	38.31	43.19	14.44	5.34	3,840.73

Notes:

1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources which are consistent with CIM (2014) definitions.
2. Mineral Resources are reported on an 80.16% Nexa attributable ownership basis.
3. Mineral Resources are estimated at a net smelter return (NSR) cut-off value of US\$33.56/t for SLS and US\$49.90/t for C&F.
4. Mineral Resources are estimated using average long term metal prices of Zn: US\$2,869.14/t (US\$1.30/lb), Pb: US\$2,249.40/t (US\$1.02/lb), Cu: 7,426.59/t (US\$3.37/lb), and Ag: US\$19.38/oz.





5. Metallurgical recoveries are accounted for in the NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average head grades are 86.3% for Cu, 88.1% for Zn, 68.6% for Pb, and 68.8% for Ag.
6. A minimum mining width of 5.0 m and 4.0 m was used to create SLS and C&F resource shapes respectively.
7. Bulk density varies depending on mineralization domain.
8. Mineral Resources are exclusive of Mineral Reserves.
9. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
10. Numbers may not add due to rounding.

The SLR QP reviewed the Mineral Resource assumptions, input parameters, geological interpretation, and block modelling and reporting procedures, and is of the opinion that the Mineral Resource estimate is appropriate for the style of mineralization and that the block model is reasonable and acceptable to support the December 31, 2020 Mineral Resource estimate.

The SLR QP is of the opinion that, with consideration of the recommendations summarized in Section 1 and Section 23, any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.

11.2 Resource Database

Nexa maintains the entire database in Studio RM-Fusion. The resource database contains drilling information and analytical results up to March 2, 2020. Information received after this date was not used in the Mineral Resource estimate. The database comprises 4,808 drill holes for a total of 654,130 m and 1,040 underground channels for a total of 20,682 m.

The Mineral Resource estimate is based on the WGS-84 coordinate system, and two B-Level National Grid points are used as a reference for all topographical measurements.

SLR received data from Nexa in Microsoft Excel format. A Datamine database was also provided and extracted in CSV format. Data were amalgamated, parsed as required, and imported by SLR into Maptek's Vulcan Version 10.1.5 (Vulcan) software and Sequent Limited's Leapfrog software version 5.0 (Leapfrog) for review.

The drill hole and channel database comprise coordinate, length, azimuth, dip, lithology, density, and assay data. For grade estimation, unsampled intervals within mineralization wireframes were replaced with zero grades. Detection limit text values (e.g., "<0.05") were replaced with numerical values that were half of the analytical detection limit. The channel sample data was converted into drill hole data for use in interpretation and Mineral Resource estimation.

For the purpose of the Mineral Resource estimate, the drill hole data were limited to those assays located inside the mineralization wireframes. This includes 4,124 drill holes containing 146,470 samples totalling 192,894 m, and 1,026 underground channels containing 12,994 samples totalling 20,110 m. A total of 81 drill holes were excluded from the Mineral Resource database (Table 11-3) as they either were drilled for geotechnical or geometallurgical purposes, or had missing assay values outside the mineralization zones; however, all drill holes were used for geological modelling purposes. The 29 DTH holes completed during 1995 were also excluded from the modelling and estimation processes as the historical information was not available to Nexa.

illustrates the drill hole location in relation with the mineralization solid.

The SLR QP conducted a number of checks on the Mineral Resource database as discussed in Section 9, Data Verification. The SLR QP is of the opinion that the database is of high quality and generally exceeds industry standards and is appropriate to support Mineral Resource estimation.





Table 11-3: Excluded Holes
Nexa Resources S.A. - Cerro Lindo Mine

Comments	Total Metres	Hole ID
Parallel re-drilled holes	448.20	PECLD03447, PECLD03452, PECLDCL-09-406, PECLDCL-09-431, PECLDCL-10-563, PECLDCL-13-968, PECLDCL-14-1453, PECLDCL-16-1930, PECLDCL-16-2533
Geometallurgical drill holes	100.00	PECLDCL-15-1702, PECLDCL-15-1703
Services drill holes	944.11	PECLDCL-10-486, PECLDCL-10-487, PECLDCL-10-488, PECLDCL-10-489, PECLDCL-10-490, PECLDCL-10-494, PECLDCL-10-495, PECLDCL-10-549, PECLDCL-10-551, PECLDCL-10-552, PECLDCL-10-553, PECLDCL-10-555, PECLDCL-10-557, PECLDCL-10-558, PECLDCL-10-561, PECLDCL-10-562, PECLDCL-10-586, PECLDCL-10-588, PECLDCL-10-590, PECLDCL-10-599, PECLDCL-10-601, PECLDCL-10-602
Drill holes for geomechanical purpose	3,812.55	PECLDCL-07-165, PECLDCL-07-172, PECLDCL-07-194, PECLDCL-08-199, PECLDCL-08-200, PECLDCL-08-230, PECLDCL-09-297, PECLDCL-09-301, PECLDCL-09-303, PECLDCL-09-320, PECLDCL-09-323, PECLDCL-09-326, PECLDCL-09-328, PECLDCL-09-333, PECLDCL-09-334, PECLDCL-09-355, PECLDCL-09-359, PECLDCL-09-449, PECLDCL-09-453, PECLDCL-09-454, PECLDCL-09-457, PECLDCL-09-470, PECLDCL-10-528, PECLDCL-11-668, PECLDCL-11-671, PECLDCL-11-672, PECLDCL-11-674, PECLDCL-11-678, PECLDCL-11-722, PECLDCL-11-723, PECLDCL-11-727, PECLDCL-11-728, PECLDCL-11-772, PECLDCL-11-774, PECLDCL-11-776, PECLDCL-11-778, PECLDCL-11-779, PECLDCL-11-782, PECLDCL-11-787, PECLDCL-12-882, PECLDCL-14-1477, PECLDCL-12-842, PECLDCL-12-843, PECLDCL-12-884, PECLDCL-12-903, PECLDCL-12-906, PECLDCL-12-931, PECLDCL-12-932
Total	5,304.86	





Figure 11-1: 3D View of Cerro Lindo Mineralized Solid and Drill holes





11.3 Geological Interpretation

Nexa changed its modelling approach based on geological continuity review since 2019. Previous models were prepared by separating geological solids into individual mining operation areas (called "OB"), creating artificial mineralization islands. The updated geological wireframes are based on the geological interpretation of lithological description, mineralization type (massive sulphide, semi-massive sulphide, sulphide, oxidized, leached, and mineralized volcanic units), and a reference assay threshold for the semi-massive and mineralized volcanic units. Some drill hole intercepts below cut-off grade were included to maintain geological continuity.

Structural data was used to help define the orientation of the mineralization. Structural trends were interpreted in low and high temperature areas based on Knuckey ratios model. Ratios were defined as: (cu/(cu+zn))*100.

The overall mineralization strikes at approximately 310° azimuth, closely follows the main fault (NW), and extends over a 1,850 m strike length. It is hosted mostly in volcanic rocks and consists of 14 interpreted geological domains, with twelve mineralization domains and two barren domains (Table 11-4).

Table 11-4: Geological Domains
Nexa Resources S.A. - Cerro Lindo Mine

Geological Domain	CLI Code	CGEOCD Code	Assay Threshold Criteria					Lithology Logging	Description
			Fe (%)	Zn (%)	Cu (%)	Ag (g/t)	Pb (%)		
SPB	1	9	—	—	—	—	—	SPB	Mineralized baritic massive sulphides (Zn rich unit)
SPP	2	6	—	—	—	—	—	SPP	Mineralized pyritic massive sulphides (barren and Cu rich units)
SSM	3	5	>15	and>1	or >0.25	—	—	SSM	Mineralized semi-massive sulphides
VM	4	28	—	>=1	or >=0.25	>=30	or >=0.5	Volc. rock	Mineralized felsic volcanic rocks
Enclave	5	29	—	—	—	—	—	Volc. rock	Barren felsic volcanic - internal waste
SOP	6	7	—	—	—	—	—	SOP	Mineralized oxidized massive sulphides
SOB	7	10	—	—	—	—	—	SOB	Mineralized oxidized massive sulphides baritic zone
SLB	8	11	—	—	—	—	—	SLB	Mineralized leached massive sulphide baritic zone
Dike	10	3	—	—	—	—	—	Dike	Barren porphyry andesite dike
OB11VM	11	28	—	—	—	—	—	Volc. rock	Mineralized felsic volcanic rocks (in OB11)
OB12VM	12	28	—	—	—	—	—	Volc. rock	Mineralized felsic volcanic rocks (in OB12)
OB5BVM	13	28	—	—	—	—	—	Volc. rock	Mineralized felsic volcanic rocks (in OB5B)
OB14VM	14	28	—	—	—	—	—	Volc. rock	Mineralized felsic volcanic rocks (in OB14)
PUCVM	15	28	—	—	—	—	—	Volc. rock	Mineralized felsic volcanic rocks (in Pucasalla area)





11.4 Geological Modelling

Nexa performed geological modelling of the Cerro Lindo deposit using Leapfrog. All contact surfaces were modelled based on the drilling and channel sampling assay results, as well as the structural and lithological controls observed in underground workings and drill core logging data. Nexa adjusted the chronology sequence interaction to mimic sectional and plan interpretation. The interaction from oldest to youngest was performed as follows: VM>>SSM>>SPP>>SPB>>V(enclave), where the wall rock was the VM and the inner domain was the enclave. The model is divided into two structural areas, West (Block 1) and East (Block 2). Both areas are modelled based on mineralization and geological trends. A total of 33 trends were interpreted and modelled (Figure 11-2). Each area then was sub-divided by geological domains, using the SSM domain as the background host rock. A total of 40 interpreted sections and 17 levels with underground mapping were used to guide the modelling, and polylines were used to better control contacts where data was sparse.

The dikes were modelled as vein objects and grouped using the vein system tool, with no consideration of external lithologies. Extra boundary control was imposed using polylines if necessary. The modelled mineralized zones were then clipped by the dike solids and exported to Datamine software to encode the block model.

Figure 11-3 shows the geological model in plan view with and without dikes.





Figure 11-2: Structural Trends





Figure 11-3: Geological Model Shown with and without Dikes





11.5 Domain Modelling

11.5.1 Grade Domains

Nexa prepared grade domain models for the SPP, SPB, SSM, and VM geological domains by creating grade shell indicator wireframes based on grade assays and structural trend surfaces. Grade threshold limits used to outline grade shells, and to define high and low grade domains, were determined by assessing probability plots and histograms to identify different populations, and by also considering spatial grade continuity. Examples of grade distributions in SPP, SPB, SSM, and VM are shown in Figure 11-4, Figure 11-5, and Figure 11-6.

Indicator solids were built for each element within the geological domains, based on the radial basis function (RBF) interpolants, which interpolate all samples above a defined cut-off grade. As a result, high and low grade domains were created for each element. Silver and lead used the same grade domains as they were found statistically and spatially correlated.

The purpose of building high grade and low grade domains was to control the internal dilution and limit the smearing of high grade values into low grade values and vice versa, during the grade estimation. Table 11-5 lists the zinc, copper, silver, and lead grade domains and Figure 11-7, Figure 11-8, Figure 11-9, Figure 11-10, Figure 11-11, and Figure 11-12 illustrate plan views of the grade domains in SPP, SPB, SSM, and VM.

For the SOP, SOB, SLB, OB11VM, OB12VM, OB5BVM, OB14VM, and PUCVM domains, grade domains were not built due to their small volume and poor grade continuity. Geological models in combination with grade domains were used to prepare the estimation domains

Table 11-5: Zn, Cu, Ag and Pb Grade Domains
Nexa Resources S.A. - Cerro Lindo Mine

	Grade Shell Code	Grade Domain	Grade Shell Indicator	Geological Domain
Zinc Grade Domains	SPBHZN	High Grade	Inside 2.5% Zn Grade Shell	SPB
	SPBLZN	Low Grade	Outside 2.5 % Zn Grade Shell	
	SPPHZN	High Grade	Inside 0.3% Zn Grade Shell	SPP
	SPPLZN	Low Grade	Outside 0.3 % Zn Grade Shell	
	SSMHZN	High Grade	Inside 0.5% Zn Grade Shell	SSM
	SSMLZN	Low Grade	Outside 0.5 % Zn Grade Shell	
	VMHZN	High Grade	Inside 0.4% Zn Grade Shell	VM
	VMLZN	Low Grade	Outside 0.4 % Zn Grade Shell	
Copper Grade Domains	SPBHCU	High Grade	Inside 0.2% Cu Grade Shell	SPB
	SPBLCU	Low Grade	Outside 0.2% Cu Grade Shell	
	SPPHCU	High Grade	Inside 0.25% Cu Grade Shell	SPP
	SPPLCU	Low Grade	Outside 0.25% Cu Grade Shell	
	SSMHCU	High Grade	Inside 0.25% Cu Grade Shell	SSM
	SSMLCU	Low Grade	Outside 0.25% Cu Grade Shell	
	VMHCU	High Grade	Inside 0.15% Cu Grade Shell	VM
	VMLCU	Low Grade	Outside 0.15% Cu Grade Shell	
Silver and Lead Grade Domains	SPBHAG	High Grade	Inside 30 g/t Ag Grade Shell	SPB
	SPBLAG	Low Grade	Outside 30 g/t Ag Grade Shell	
	SPPHAG	High Grade	Inside 9 g/t Ag Grade Shell	SPP





Grade Shell Code	Grade Domain	Grade Shell Indicator	Geological Domain
SPPLAG	Low Grade	Outside 9 g/t Ag Grade Shell	
SSMHAG	High Grade	Inside 20 g/t Ag Grade Shell	SSM
SSMLAG	Low Grade	Outside 20 g/t Ag Grade Shell	
VMHAG	High Grade	Inside 35 g/t Ag Grade Shell	VM
VMLAG	Low Grade	Outside 35 g/t Ag Grade Shell	





Figure 11-4: Zn Distribution in SPB and SSM Domains





Figure 11-5: Cu Distribution in SPB and SPP Domains





Figure 11-6: Ag Distribution in SSM and VM Domains





Figure 11-7: SPB and SPP High and Low Grade Zn Domains - Plan View





Figure 11-8: SSM and VM High and Low Zn Domains - Plan View





Figure 11-9: SPB and SPP High and Low Grade Cu Domains - Plan View





Figure 11-10: SSM and VM High and Low Grade Cu Domains - Plan View





Figure 11-11: SPB and SPP High and Low Grade AG-Pb Domains - Plan View





Figure 11-12: SSM and VM High and Low Grade Ag-Pb Domains - Plan View





11.5.2 Estimation Domains

Based on observations of the drill core and underground mineralization exposures, discussions with the geologists on site, a review of the data in 3D, and statistical analysis, the mineralization at Cerro Lindo is considered to be lithologically and structurally controlled. The bulk of the mineralization is located in the SPP and SPB domains, with some mineralization in the SSM domain, and lesser mineralization in the VM, SOB, SOP, SLB, OB11VM, OB12VM, OB5BVM, OB14VM, and PUCVM domains. High grade zones usually present more massive mineralization, with higher grade Zn and Cu zones.

Nexa created 33 estimation domains using a number of geological parameters, which include: geological domains (lithological control and mineralization type), grade domains (high grade and low grade domains), and the anisotropy and orientation of the estimation domains. Table 11-6 summarizes the estimation domains.

Table 11-6: Estimation Domains
Nexa Resources S.A. - Cerro Lindo Mine

Estimation Domain	Geological Domain	CLI	GEOCD	Grade Shell Code	C Shell
Mineralized baritic massive sulphides High Grade Domain Zn	SPB	1	9	SPBHZN	101
Mineralized baritic massive sulphides Low Grade Domain Zn	SPB	1	9	SPBLZN	1
Mineralized baritic massive sulphides High Grade Domain Cu	SPB	1	9	SPBLCU	201
Mineralized baritic massive sulphides Low Grade Domain Cu	SPB	1	9	SPBLCU	1
Mineralized baritic massive sulphides High Grade Domain Ag	SPB	1	9	SPBLAG	301
Mineralized baritic massive sulphides Low Grade Domain Ag	SPB	1	9	SPBLAG	1
Mineralized pyritic massive sulphides High Grade Domain Zn	SPP	2	6	SPPHZN	102
Mineralized pyritic massive sulphides Low Grade Domain Zn	SPP	2	6	SPPLZN	2
Mineralized pyritic massive sulphides High Grade Domain Cu	SPP	2	6	SPPLCU	202
Mineralized pyritic massive sulphides Low Grade Domain Cu	SPP	2	6	SPPLCU	2
Mineralized pyritic massive sulphides High Grade Domain Ag	SPP	2	6	SPPLAG	302
Mineralized pyritic massive sulphides Low Grade Domain Ag	SPP	2	6	SPPLAG	2
Mineralized semi-massive sulphides High Grade Domain Zn	SSM	3	5	SSMHZN	103
Mineralized semi-massive sulphides Low Grade Domain Zn	SSM	3	5	SSMLZN	3





Estimation Domain	Geological Domain	CLI	GEOCD	Grade Shell Code	C Shell
Mineralized semi-massive sulphides High Grade Domain Cu	SSM	3	5	SSMLCU	203
Mineralized semi-massive sulphides Low Grade Domain Cu	SSM	3	5	SSMLCU	3
Mineralized semi-massive sulphides High Grade Domain Ag	SSM	3	5	SSMLAG	303
Mineralized semi-massive sulphides Low Grade Domain Ag	SSM	3	5	SSMLAG	3
Mineralized volcanic rocks High Grade Domain Zn	VM	4	28	VMHZN	104
Mineralized volcanic rocks Low Grade Domain Zn	VM	4	28	VMLZN	4
Mineralized volcanic rocks High Grade Domain Cu	VM	4	28	VMLCU	204
Mineralized volcanic rocks Low Grade Domain Cu	VM	4	28	VMLCU	4
Mineralized volcanic rocks High Grade Domain Ag	VM	4	28	VMLAG	304
Mineralized volcanic rocks Low Grade Domain Ag	VM	4	28	VMLAG	4
Mineralized oxidized sulphides zone	SOP	6	7	—	—
Mineralized oxidized baritic sulphides zone	SOB	7	10	—	—
Mineralized leached zone	SLB	8	11	—	—
Mineralized volcanic rocks inside OB11	OB11VM	11	28	—	—
Mineralized volcanic rocks inside OB12	OB12VM	12	28	—	—
Mineralized volcanic rocks inside OB5B	OB5BVM	13	28	—	—
Mineralized volcanic rocks inside OB14	OB14VM	14	28	—	—
Mineralized volcanic rocks inside PUC	PUCVM	15	28	—	—

With respect to the geological and domain modelling used to support the Mineral Resource estimate, SLR offers the following conclusions and recommendations:

- Overall, the mineralization wireframes are adequate for the style of mineralization.
- The wireframes and estimation domains are suitable to support Mineral Resource and Mineral Reserve estimation.
- Nexa significantly improved the Cerro Lindo geological model which is good representation of the geology of the deposit.
- Continue improving the geological model and estimation domains.
- Model the volcanic rocks (wall rock) and use this domain as a background lithology to enhance the contact of the wall rock with the mineralized domains, and incorporate VM intervals that were not modelled. This will help generate more realistic estimation domains, and grade and density estimates.





- Build a more detailed litho-structural model with the main lithologies/stratigraphy, dikes, faults, and folds, to better define the geometry and boundaries of the mineralization and customize local search anisotropies and directions. In cross section looking northwest, folding is observed, and in longitudinal section looking northeast, some dikes appear to behave like faults. Some mineralization domains appear to have mineralization trending in various directions due to local faulting and folding so further sub-domaining may be warranted.
- Nexa incorporated high and low grade domains to control the mix of populations and smearing of grades across domains. SLR concurs with this approach, however, based on visual validation, the high grade continuity appears to be affected as a result of modelling the high grade domains individually for each domain. SLR recommends that Nexa not separate the grade domains by geological domains to maintain grade continuity, evaluate incorporating mineralogy data, and review the geometry and trends of the grade domains.
- Nexa created mineralization trend surfaces based on a ratio of Cu / (Cu+Zn). These surfaces were used to create the geological domains, grade envelopes, and dynamic anisotropy (DA) angles. Overall, the surfaces follow the mineralization trends, however, the DA angle results for some areas (OB1) do not follow grade trends. This does not have a significant impact on Mineral Resource estimation as composite grades have been estimated within their respective grade domain and there is sufficient drilling to control grade interpolation. SLR recommends reviewing the DA angle results using grade trends and structural interpretations.
- Post-mineralization dike modelling should continuous be improved to capture more of the logged intercepts and core angles, as well as contacts based on the underground mapping. Dikes are important to delimit internal waste and to guide the local interpolation strategy as some of them are controlling the mineralization trends behaving like faults.
- Model east and west blocks as a continuous mineralization solid. This is a minor issue and was addressed in some domains.

11.6 Resource Assays

Nexa performed exploratory data analysis (EDA) for each estimation domain, including univariate statistics, histograms, cumulative probability plots; box plots to compare geology domain statistics, and contact plots to investigate grade profiles between estimation domains and determine the extent of sample sharing across the geology contacts within the rock type domains. Hard boundaries were determined for each of the estimation variables (zinc, copper, lead, and silver).

Table 11-7 lists composited univariate statistics for zinc, copper, lead, and silver by estimation domain. The majority of the zinc is contained in four estimation domains: SPBHZN, SPBLZN, SPPHZN, and SSMHZN. The majority of the copper is contained in three estimation domains: SPPHCU, SPBHCU, and SSMHCU.

Table 11-7: Estimation Domain Raw Assay Statistics
Nexa Resources S.A. - Cerro Lindo Mine

Estimation Domain	Geological Domain	Grade Domain	Grade	No. Samples	Uncapped values					
					Minimum	Maximum	Mean	Variance	Std. Dev.	CV
SPBHAG	SPB	HG	Ag (g/t)	14,451	0.50	1,892.02	68.56	6,443.05	80.27	1.17
SPBLAG		LG	Ag (g/t)	27,605	0.50	1,911.00	13.78	351.37	18.74	1.36
SPBHCU		HG	Cu (%)	24,819	0.01	22.43	0.80	1.11	1.05	1.31
SPBLCU		LG	Cu (%)	17,237	0.01	11.65	0.14	0.07	0.26	1.81
SPBHFE		HG	Fe (%)	24,819	0.05	52.79	20.27	178.17	13.35	0.66





Estimation Domain	Geological Domain	Grade Domain	Grade	No. Samples	Uncapped values					
					Minimum	Maximum	Mean	Variance	Std. Dev.	CV
SPBLFE	SPP	LG	Fe (%)	17,237	0.05	60.00	18.25	119.07	10.91	0.60
SPBHPB		HG	Pb (%)	14,451	0.01	42.59	1.28	2.92	1.71	1.34
SPBLPB		LG	Pb (%)	27,605	0.01	23.92	0.30	0.43	0.66	2.17
SPBHZN		HG	Zn (%)	29,516	0.01	66.92	6.82	27.94	5.29	0.77
SPBLZN		LG	Zn (%)	12,540	0.01	33.97	1.52	4.29	2.07	1.36
SPPHAG		HG	Ag (g/t)	46,691	0.50	10,398.51	24.71	3,617.39	60.14	2.43
SPPLAG		LG	Ag (g/t)	22,328	0.50	528.76	4.69	42.42	6.51	1.39
SPPHCU		HG	Cu (%)	48,190	0.01	33.36	0.97	0.99	1.00	1.03
SPPLCU		LG	Cu (%)	20,829	0.01	12.14	0.11	0.02	0.14	1.33
SPPHFE		HG	Fe (%)	48,190	0.05	62.68	32.92	192.48	13.87	0.42
SPPLFE	SSM	LG	Fe (%)	20,829	0.05	54.74	32.76	177.06	13.31	0.41
SPPHPB		HG	Pb (%)	46,691	0.01	63.70	0.11	0.38	0.62	5.89
SPPLPB		LG	Pb (%)	22,328	0.01	4.95	0.02	0.01	0.10	4.59
SPPHZN		HG	Zn (%)	28,169	0.01	40.70	1.41	6.17	2.48	1.76
SPPLZN		LG	Zn (%)	40,850	0.01	29.79	0.13	0.15	0.38	2.93
SSMHAG		HG	Ag (g/t)	8,513	0.50	1,939.00	59.97	9,226.04	96.05	1.60
SSMLAG		LG	Ag (g/t)	16,865	0.50	1,042.99	8.81	267.24	16.35	1.86
SSMHCU		HG	Cu (%)	9,296	0.01	12.39	0.66	0.61	0.78	1.19
SSMLCU		LG	Cu (%)	16,082	0.01	4.42	0.10	0.02	0.13	1.37
SSMHFE		HG	Fe (%)	9,296	0.05	52.53	19.70	117.73	10.85	0.55
SSMLFE	VM	LG	Fe (%)	16,082	0.05	49.83	19.16	107.89	10.39	0.54
SSMHPB		HG	Pb (%)	8,513	0.01	30.52	0.57	1.40	1.18	2.07
SSMLPB		LG	Pb (%)	16,865	0.01	13.84	0.07	0.05	0.23	3.35
SSMHZN		HG	Zn (%)	8,001	0.01	40.81	2.54	9.56	3.09	1.22
SSMLZN		LG	Zn (%)	17,377	0.01	30.22	0.12	0.21	0.46	3.73
VMHAG		HG	Ag (g/t)	4,318	0.50	2,792.16	98.23	23,169.54	152.22	1.55
VMLAG		LG	Ag (g/t)	6,553	0.50	538.71	19.23	638.27	25.26	1.31
VMHCU		HG	Cu (%)	5,895	0.01	14.87	0.54	0.54	0.74	1.37
VMLCU		LG	Cu (%)	4,976	0.01	3.07	0.07	0.01	0.11	1.48
VMHFE		HG	Fe (%)	5,895	0.05	50.61	11.62	83.50	9.14	0.79





Estimation Domain	Geological Domain	Grade Domain	Grade	No. Samples	Uncapped values					
					Minimum	Maximum	Mean	Variance	Std. Dev.	CV
VMLFE		LG	Fe (%)	4,976	0.05	49.41	7.81	49.02	7.00	0.90
VMHPB		HG	Pb (%)	4,318	0.01	36.60	0.88	2.54	1.59	1.81
VMLPB		LG	Pb (%)	6,553	0.01	11.46	0.18	0.16	0.39	2.15
VMHZN		HG	Zn (%)	5,982	0.01	36.14	1.98	7.38	2.72	1.37
VMLZN		LG	Zn (%)	4,889	0.01	36.86	0.22	0.72	0.85	3.94
V	V		Ag (g/t)	9,453	0.50	2,810.51	37.00	8,665.31	93.09	2.52
			Cu (%)	9,453	0.01	15.08	0.40	0.69	0.83	2.05
		—	Fe (%)	9,453	0.05	49.40	9.16	95.47	9.77	1.07
			Pb (%)	9,453	0.01	45.00	0.36	1.43	1.19	3.29
			Zn (%)	9,453	0.01	26.65	0.66	3.18	1.78	2.71
SOP	SOP		Ag (g/t)	807	0.50	816.00	12.86	1,044.52	32.32	2.51
			Cu (%)	807	0.01	14.65	0.74	1.15	1.07	1.45
		—	Fe (%)	807	0.05	50.42	27.21	315.96	17.78	0.65
			Pb (%)	807	0.01	7.10	0.06	0.07	0.27	4.82
			Zn (%)	807	0.01	18.03	0.26	0.34	0.59	2.24
SOB	SOB		Ag (g/t)	540	0.50	335.00	25.12	799.35	28.27	1.13
			Cu (%)	540	0.01	10.32	1.37	2.08	1.44	1.05
		—	Fe (%)	540	0.05	50.60	22.07	163.77	12.80	0.58
			Pb (%)	540	0.01	2.48	0.20	0.14	0.37	1.89
			Zn (%)	540	0.01	14.38	1.20	2.95	1.72	1.44
SLB	SLB		Ag (g/t)	227	0.50	240.43	29.47	2,437.84	49.37	1.68
			Cu (%)	227	0.01	6.71	0.19	0.56	0.75	3.88
		—	Fe (%)	227	0.05	40.00	3.77	94.81	9.74	2.59
			Pb (%)	227	0.01	5.02	0.46	0.91	0.96	2.07
			Zn (%)	227	0.01	5.26	0.16	0.37	0.61	3.88
OB11VM	OB11VM		Ag (g/t)	37	2.00	76.00	12.25	174.35	13.20	1.08
			Cu (%)	37	0.01	0.52	0.12	0.01	0.12	0.97
		—	Fe (%)	37	3.88	20.01	8.87	10.00	3.16	0.36
			Pb (%)	37	0.01	2.66	0.17	0.11	0.33	1.91
			Zn (%)	37	0.03	41.86	4.51	97.17	9.86	2.19





Estimation Domain	Geological Domain	Grade Domain	Grade	No. Samples	Uncapped values					
					Minimum	Maximum	Mean	Variance	Std. Dev.	CV
OB12VM	OB12VM	—	Ag (g/t)	293	0.50	436.00	32.54	2,848.00	53.37	1.64
			Cu (%)	293	0.01	3.38	0.15	0.07	0.27	1.82
			Fe (%)	293	1.30	31.70	10.66	38.19	6.18	0.58
			Pb (%)	293	0.01	2.55	0.21	0.14	0.37	1.81
OB5BVM	OB5BVM	—	Zn (%)	293	0.01	6.42	0.68	0.81	0.90	1.32
			Ag (g/t)	133	0.50	115.00	15.18	406.68	20.17	1.33
			Cu (%)	133	0.01	0.89	0.02	0.00	0.07	2.74
			Fe (%)	133	0.05	18.15	3.32	6.63	2.58	0.78
OB14VM	OB14VM	—	Pb (%)	133	0.01	2.29	0.30	0.16	0.40	1.32
			Zn (%)	133	0.01	14.88	2.48	10.05	3.17	1.28
			Ag (g/t)	562	0.50	1,705.99	50.87	17,545.37	132.46	2.60
			Cu (%)	562	0.01	1.72	0.10	0.03	0.18	1.79
PUCVM	PUCVM	—	Fe (%)	562	0.05	40.00	7.90	54.04	7.35	0.93
			Pb (%)	562	0.01	8.92	0.68	1.17	1.08	1.59
			Zn (%)	562	0.01	18.20	1.73	5.26	2.29	1.32
			Ag (g/t)	38	0.50	153.00	40.10	1,573.72	39.67	0.99
		—	Cu (%)	38	0.01	1.78	0.23	0.11	0.33	1.44
			Fe (%)	38	2.89	20.70	8.14	17.60	4.20	0.52
			Pb (%)	38	0.01	6.57	0.68	1.19	1.09	1.60
			Zn (%)	38	0.03	10.94	1.11	5.52	2.35	2.12

11.7 Treatment of High Grade Assays

Where the assay distribution is skewed positively or approaches log-normal, erratic high grade values can have a disproportionate effect on the average grade of a deposit. One method of treating these outliers in order to reduce their influence on the average grade is to cut or cap them at a specific grade level.

Nexa applied high grade capping to Zn, Pb, Cu, Ag, and Fe assays in order to limit the influence of a small amount of outlier values located in the upper tail of the metal distributions (Figure 11-13, Figure 11-14, and Figure 11-15). Raw assays were capped prior to compositing. A summary of final capping levels is shown in Table 11-8. A summary of capped grade statistics is provided in Table 11-9.

Grade plots commonly show outliers at the 98th to 99th percentile. The final outlier threshold was selected at lower percentiles to adjust the capping levels with grade reconciliation with the mine and process, and to reduce global bias.





Table 11-8: Grade Capping Levels
Nexa Resources S.A. - Cerro Lindo Mine

Geological Domain	CLI	Grade Domain	Zn(%)	Pb(%)	Cu(%)	Ag(g/t)	Fe(%)
SPB	1	HG	25.00	7.00	4.00	300.00	45.00
		LG	8.00	4.50	1.00	100.00	45.00
SPP	2	HG	10.00	2.00	5.00	200.00	45.00
		LG	1.70	0.20	1.20	30.00	45.00
SSM	3	HG	15.00	5.00	3.50	300.00	45.00
		LG	1.50	1.50	1.10	90.00	45.00
VM	4	HG	8.00	5.00	3.00	400.00	40.00
		LG	2.00	2.00	0.50	100.00	40.00
V	5	—	2.00	1.00	1.00	100.00	40.00
SOP	6	—	1.70	0.35	2.50	80.00	40.00
SOB	7	—	5.30	0.90	4.20	78.00	45.00
SLB	8	—	0.70	2.50	0.90	130.00	40.00
OB11VM	11	—	4.50	0.50	0.35	45.00	12.00
OB12VM	12	—	1.20	0.60	0.60	150.00	25.00
OB5BVM	13	—	5.80	1.10	0.11	60.00	8.00
OB14VM	14	—	7.50	3.20	0.50	200.00	25.00
PUCVM	15	—	4.00	2.50	0.50	120.00	15.00





Figure 11-13: Capping Analysis for SPB Zn High Grade Mineralization





Figure 11-14: Capping Analysis for SPB Cu High Grade Mineralization





Figure 11-15: Capping Analysis for SPB Ag High Grade Mineralization





Table 11-9: Capped Assay Statistics
Nexa Resources S.A. - Cerro Lindo Mine

Estimation Domain	Geological Domain	Grade Domain	Grade (units)	No. Samples	Capped Values					
					Minimum	Maximum	Mean	Variance	Std. Dev.	CV
SPBHAG	SPB	HG	Ag (g/t)	14,451	0.50	300.00	65.20	3,322.56	57.64	0.88
SPBLAG		LG	Ag (g/t)	27,605	0.50	100.00	13.44	168.57	12.98	0.97
SPBHCU		HG	Cu (%)	24,819	0.01	4.00	0.76	0.57	0.76	1.00
SPBLCU		LG	Cu (%)	17,237	0.01	1.00	0.13	0.02	0.15	1.15
SPBHFE		HG	Fe (%)	24,819	0.05	45.00	20.26	177.83	13.34	0.66
SPBLFE		LG	Fe (%)	17,237	0.05	45.00	18.25	118.89	10.90	0.60
SPBHPB		HG	Pb (%)	14,451	0.01	7.00	1.23	2.02	1.42	1.15
SPBLPB		LG	Pb (%)	27,605	0.01	4.50	0.30	0.35	0.60	2.00
SPBHZN		HG	Zn (%)	29,516	0.01	25.00	6.77	25.23	5.02	0.74
SPBLZN		LG	Zn (%)	12,540	0.01	8.00	1.44	2.71	1.65	1.14
SPPHAG	SPP	HG	Ag (g/t)	46,691	0.50	200.00	23.57	645.28	25.40	1.08
SPPLAG		LG	Ag (g/t)	22,328	0.50	30.00	4.54	12.49	3.53	0.78
SPPHCU		HG	Cu (%)	48,190	0.01	5.00	0.95	0.71	0.84	0.89
SPPLCU		LG	Cu (%)	20,829	0.01	1.20	0.11	0.01	0.11	1.04
SPPHFE		HG	Fe (%)	48,190	0.05	45.00	32.78	188.51	13.73	0.42
SPPLFE		LG	Fe (%)	20,829	0.05	45.00	32.62	172.92	13.15	0.40
SPPHPB		HG	Pb (%)	46,691	0.01	2.00	0.09	0.07	0.27	3.11
SPPLPB		LG	Pb (%)	22,328	0.01	0.20	0.02	0.00	0.03	1.49
SPPHZN		HG	Zn (%)	28,169	0.01	10.00	1.32	3.66	1.91	1.45
SPPLZN		LG	Zn (%)	40,850	0.01	1.70	0.12	0.02	0.14	1.15
SSMHAG	SSM	HG	Ag (g/t)	8,513	0.50	300.00	54.54	3,560.40	59.67	1.09
SSMLAG		LG	Ag (g/t)	16,865	0.50	90.00	8.51	84.91	9.21	1.08
SSMHCU		HG	Cu (%)	9,296	0.01	3.50	0.63	0.39	0.62	0.98
SSMLCU		LG	Cu (%)	16,082	0.01	1.10	0.10	0.01	0.12	1.21
SSMHFE		HG	Fe (%)	9,296	0.05	45.00	19.70	117.53	10.84	0.55
SSMLFE		LG	Fe (%)	16,082	0.05	45.00	19.16	107.81	10.38	0.54
SSMHPB		HG	Pb (%)	8,513	0.01	5.00	0.53	0.77	0.88	1.64
SSMLPB		LG	Pb (%)	16,865	0.01	1.50	0.06	0.01	0.12	1.84
SSMHZN		HG	Zn (%)	8,001	0.01	15.00	2.49	7.66	2.77	1.11
SSMLZN		LG	Zn (%)	17,377	0.01	1.50	0.11	0.04	0.19	1.83





Estimation Domain	Geological Domain	Grade Domain	Grade (units)	No. Samples	Capped Values					
					Minimum	Maximum	Mean	Variance	Std. Dev.	CV
VMHAG	VM	HG	Ag (g/t)	4,318	0.50	400.00	88.62	8,337.99	91.31	1.03
VMLAG		LG	Ag (g/t)	6,553	0.50	100.00	18.34	292.57	17.10	0.93
VMHCU		HG	Cu (%)	5,895	0.01	3.00	0.51	0.31	0.56	1.09
VMLCU		LG	Cu (%)	4,976	0.01	0.50	0.07	0.01	0.08	1.10
VMHFE		HG	Fe (%)	5,895	0.05	40.00	11.60	82.39	9.08	0.78
VMLFE	V	LG	Fe (%)	4,976	0.05	40.00	7.79	48.02	6.93	0.89
VMHPB		HG	Pb (%)	4,318	0.01	5.00	0.80	1.14	1.07	1.34
VMLPB		LG	Pb (%)	6,553	0.01	2.00	0.17	0.07	0.27	1.55
VMHZN		HG	Zn (%)	5,982	0.01	8.00	1.80	3.29	1.81	1.00
VMLZN		LG	Zn (%)	4,889	0.01	2.00	0.17	0.10	0.31	1.79
V	V		Ag (g/t)	9,453	0.50	100.00	25.09	949.86	30.82	1.23
			Cu (%)	9,453	0.01	1.00	0.28	0.11	0.33	1.17
		—	Fe (%)	9,453	0.05	40.00	9.12	93.32	9.66	1.06
			Pb (%)	9,453	0.01	1.00	0.21	0.09	0.30	1.42
			Zn (%)	9,453	0.01	2.00	0.40	0.39	0.62	1.57
SOP	SOP		Ag (g/t)	807	0.50	80.00	11.62	261.35	16.17	1.39
			Cu (%)	807	0.01	2.50	0.66	0.45	0.67	1.02
		—	Fe (%)	807	0.05	40.00	27.02	309.86	17.60	0.65
			Pb (%)	807	0.01	0.35	0.04	0.01	0.08	2.02
			Zn (%)	807	0.01	1.70	0.24	0.14	0.38	1.58
SOB	SOB		Ag (g/t)	540	0.50	78.00	23.51	388.91	19.72	0.84
			Cu (%)	540	0.01	4.20	1.29	1.42	1.19	0.92
		—	Fe (%)	540	0.05	45.00	21.99	160.02	12.65	0.58
			Pb (%)	540	0.01	0.90	0.17	0.07	0.26	1.55
			Zn (%)	540	0.01	5.30	1.12	2.01	1.42	1.26
SLB	SLB		Ag (g/t)	227	0.50	130.00	26.46	1,600.15	40.00	1.51
			Cu (%)	227	0.01	0.90	0.10	0.06	0.24	2.49
		—	Fe (%)	227	0.05	40.00	3.77	94.81	9.74	2.59
			Pb (%)	227	0.01	2.50	0.40	0.52	0.72	1.82
			Zn (%)	227	0.01	0.70	0.07	0.03	0.17	2.55
OB11VM	OB11VM		Ag (g/t)	37	2.00	45.00	11.69	123.39	11.11	0.95
			Cu (%)	37	0.01	0.35	0.11	0.01	0.10	0.88
		—	Fe (%)	37	3.88	12.00	8.47	4.41	2.10	0.25
			Pb (%)	37	0.01	0.50	0.14	0.02	0.15	1.07
			Zn (%)	37	0.03	4.50	1.81	2.03	1.42	0.79
OB12VM	OB12VM		Ag (g/t)	293	0.50	150.00	29.20	1,384.82	37.21	1.27
			Cu (%)	293	0.01	0.60	0.13	0.02	0.13	1.04





Estimation Domain	Geological Domain	Grade Domain	Grade (units)	No. Samples	Capped Values					
					Minimum	Maximum	Mean	Variance	Std. Dev.	CV
OB5BVM	OB5BVM	—	Fe (%)	293	1.30	25.00	10.54	34.05	5.84	0.55
			Pb (%)	293	0.01	0.60	0.15	0.02	0.15	0.99
			Zn (%)	293	0.01	1.20	0.52	0.11	0.33	0.64
			Ag (g/t)	133	0.50	60.00	14.28	289.30	17.01	1.19
OB14VM	OB14VM	—	Cu (%)	133	0.01	0.11	0.02	0.00	0.03	1.39
			Fe (%)	133	0.05	8.00	3.18	4.60	2.15	0.67
			Pb (%)	133	0.01	1.10	0.28	0.11	0.33	1.18
			Zn (%)	133	0.01	5.80	1.98	3.21	1.79	0.91
PUCVM	PUCVM	—	Ag (g/t)	562	0.50	200.00	35.17	2,706.18	52.02	1.48
			Cu (%)	562	0.01	0.50	0.09	0.01	0.12	1.37
			Fe (%)	562	0.05	25.00	7.52	36.92	6.08	0.81
			Pb (%)	562	0.01	3.20	0.62	0.64	0.80	1.30
			Zn (%)	562	0.01	7.50	1.64	3.72	1.93	1.18
			Ag (g/t)	38	0.50	120.00	38.75	1,321.00	36.35	0.94
			Cu (%)	38	0.01	0.50	0.17	0.03	0.17	0.99
			Fe (%)	38	2.89	15.00	7.96	14.27	3.78	0.47
			Pb (%)	38	0.01	2.50	0.61	0.63	0.80	1.31
			Zn (%)	38	0.03	4.00	0.79	1.63	1.28	1.61

SLR performed an independent capping analysis on some elements for four of the largest domains (SPB, SPP, SSM, and VM), as well as a visual validation of the block model in section and plan view. Log probability plots were inspected for each of these domains and SLR applied a capping grade using a combination of histograms, probability plots, and decile analyses. SLR found that most of the coefficients of variation (CV) after applying capping were low, with the exception of the CV values of more than 1.8 for lead in the SPB low grade, SPP high grade, SSM low grade, and SOP domains, for zinc in the SSM LG, VM LG, and SLB domains, and for copper in the SLB domain. Most of these domains are low grade domains with many very low grade values, and as a result, the CV is high. For the SLB, SLR recommends using an additional yield restriction during estimation to limit the spatial influence of the small population of high grade samples. In the SLR QP's opinion, this is a minor issue that will not have a significant impact on the resource estimate as these domains represent less than one percent of the Mineral Resources. The SLR QP also noticed that Cu capping values for the SPB and SPP high grade domains could be slightly conservative and is of the opinion that there is an opportunity to increase the contained Cu by 2% to 4%. Figure 11-16 shows a probability plot, decile analysis, histogram, and disintegration analysis for Cu grades in the SPB high grade domain.





Figure 11-16: Copper Decile Analysis, Probability Plot, Histogram and Desintegration Analysis for Domain SPB HG





SLR considers that the capping levels selected are appropriate. SLR offers the following conclusions and recommendations:

- In general, the capping levels are reasonable, and suitable for the estimation of Mineral Resources.
- Revisit copper capping levels for the SPB and SPP high grade domains with reconciliation data. There could be an opportunity to increase the contained Cu by 2% to 4%.
- Report the metal loss as a result of capping high grades and assess the amount of metal in the upper decile and percentiles of the distribution to gain a better understanding of the amount of risk associated with the extreme values in each capping domain.
- Investigate incorporating an additional yield restriction for SLB during estimation to limit the spatial influence of the small population of high grade samples.
- Adjust capping values with production data when an accurate reconciliation process is established.

11.8 Compositing

Nexa composited the capped assays to 2.5 m with a 1.25 m tolerance, beginning at the collars. Small intervals were merged with the previous interval. Sample lengths range from 1.25 m to 3.75 m. Composites were tagged with rock type codes from the drill hole geology data. The majority of samples (93%) had a length from 90 cm to 1.5 m. Unsourced core intervals were set to zero for all elements. The composite length corresponds to half of the parent block size height for the deposit. Figure 11-17 illustrates a comparison of the mean relative error between length-weighted composites at different composite lengths versus assay means by mineralization domain. Based on this analysis, the two and half metre composites result in the best correlation between assay data and composites. Nexa generated statistics of the composites (Table 11-10).



Figure 11-17: Composite Length Comparisons

Table 11-10: Estimation Domain Composite Statistics
Nexa Resources S.A. - Cerro Lindo Mine

Estimation Domain	Geological Domain	Grade Domain	Grade (units)	No. Samples	Composited Values					
					Minimum	Maximum	Mean	Variance	Std. Dev.	CV
SPBHAG	SPB	HG	Ag (g/t)	7,955	0.50	300.00	65.00	2,121.44	46.06	0.71
SPBLAG		LG	Ag (g/t)	15,868	0.50	100.00	13.51	108.06	10.39	0.77
SPBHCU	SPB	HG	Cu (%)	14,077	0.01	4.00	0.76	0.40	0.63	0.83
SPBLCU		LG	Cu (%)	9,823	0.01	1.00	0.13	0.01	0.12	0.90
SPBHFE	SPB	HG	Fe (%)	14,077	0.05	45.00	20.26	159.37	12.62	0.62





Estimation Domain	Geological Domain	Grade Domain	Grade (units)	No. Samples	Composited Values					
					Minimum	Maximum	Mean	Variance	Std. Dev.	CV
SPBLFE		LG	Fe (%)	9,823	0.05	45.00	18.26	104.76	10.24	0.56
SPBHPB		HG	Pb (%)	7,955	0.01	7.00	1.23	1.44	1.20	0.98
SPBLPB		LG	Pb (%)	15,868	0.01	4.50	0.30	0.26	0.51	1.71
SPBHZN		HG	Zn (%)	16,656	0.01	25.00	6.76	19.58	4.42	0.65
SPBLZN		LG	Zn (%)	7,352	0.01	8.00	1.50	2.24	1.50	1.00
SPPHAG	SPP	HG	Ag (g/t)	25,845	0.50	200.00	23.60	425.03	20.62	0.87
SPPLAG		LG	Ag (g/t)	12,474	0.50	30.00	4.57	8.04	2.83	0.62
SPPHCU		HG	Cu (%)	26,801	0.01	5.00	0.94	0.53	0.73	0.77
SPPLCU		LG	Cu (%)	11,499	0.01	1.07	0.11	0.01	0.09	0.82
SPPHFE		HG	Fe (%)	26,801	0.05	45.00	32.70	164.38	12.82	0.39
SPPLFE		LG	Fe (%)	11,499	0.05	45.00	32.50	148.90	12.20	0.38
SPPHPB		HG	Pb (%)	25,845	0.01	2.00	0.09	0.05	0.22	2.55
SPPLPB		LG	Pb (%)	12,474	0.01	0.20	0.02	0.00	0.02	1.24
SPPHZN		HG	Zn (%)	15,646	0.01	10.00	1.31	2.51	1.58	1.20
SPPLZN		LG	Zn (%)	22,743	0.01	1.70	0.12	0.01	0.11	0.92
SSMHAG	SSM	HG	Ag (g/t)	4,426	0.50	300.00	54.17	2,170.47	46.59	0.86
SSMLAG		LG	Ag (g/t)	8,744	0.50	90.00	8.62	54.02	7.35	0.85
SSMHCU		HG	Cu (%)	4,918	0.01	3.50	0.63	0.26	0.51	0.80
SSMLCU		LG	Cu (%)	8,272	0.01	1.10	0.10	0.01	0.09	0.95
SSMHFE		HG	Fe (%)	4,918	0.05	45.00	19.70	94.47	9.72	0.49
SSMLFE		LG	Fe (%)	8,272	0.05	45.00	19.15	88.92	9.43	0.49
SSMHPB		HG	Pb (%)	4,426	0.01	5.00	0.53	0.48	0.69	1.31
SSMLPB		LG	Pb (%)	8,744	0.01	1.50	0.06	0.01	0.09	1.47
SSMHZN		HG	Zn (%)	4,103	0.01	15.00	2.47	5.19	2.28	0.92
SSMLZN		LG	Zn (%)	8,983	0.01	1.50	0.11	0.03	0.16	1.49
VMHAG	VM	HG	Ag (g/t)	2,244	0.50	400.00	87.27	4,779.79	69.14	0.79
VMLAG		LG	Ag (g/t)	3,42	0.50	100.00	18.38	175.45	13.25	0.72
VMHCU		HG	Cu (%)	3,027	0.01	3.00	0.51	0.19	0.44	0.87
VMLCU		LG	Cu (%)	2,56	0.01	0.50	0.07	0.00	0.06	0.86
VMHFE		HG	Fe (%)	3,027	0.05	40.00	11.70	62.60	7.91	0.68
VMLFE		LG	Fe (%)	2,56	0.05	40.00	7.99	40.98	6.40	0.80
VMHPB		HG	Pb (%)	2,244	0.01	5.00	0.79	0.68	0.82	1.05
VMLPB		LG	Pb (%)	3,42	0.01	2.00	0.17	0.05	0.22	1.28
VMHZN		HG	Zn (%)	3,021	0.01	8.00	1.81	2.09	1.44	0.80
VMLZN		LG	Zn (%)	2,571	0.01	2.00	0.18	0.06	0.25	1.41
V	V		Ag (g/t)	5,181	0.50	100.00	25.06	693.60	26.34	1.05
			Cu (%)	5,181	0.01	1.00	0.28	0.08	0.29	1.01





Estimation Domain	Geological Domain	Grade Domain	Grade (units)	No. Samples	Composited Values					
					Minimum	Maximum	Mean	Variance	Std. Dev.	CV
SOP	SOP	-	Fe (%)	5,181	0.05	40.00	9.20	71.83	8.48	0.92
		Pb (%)	5,181	0.01	1.00	0.21	0.07	0.26	1.22	
		Zn (%)	5,181	0.01	2.00	0.40	0.31	0.56	1.40	
		Ag (g/t)	472	0.50	80.00	11.64	220.10	14.84	1.27	
		Cu (%)	472	0.01	2.50	0.66	0.40	0.63	0.96	
		-	Fe (%)	472	0.05	40.00	26.85	294.28	17.15	0.64
		Pb (%)	472	0.01	0.35	0.04	0.01	0.07	1.82	
		Zn (%)	472	0.01	1.70	0.24	0.11	0.34	1.41	
		Ag (g/t)	305	0.50	78.00	23.55	301.14	17.35	0.74	
		Cu (%)	305	0.01	4.20	1.29	1.13	1.07	0.83	
SOB	SOB	-	Fe (%)	305	0.05	45.00	21.86	144.54	12.02	0.55
		Pb (%)	305	0.01	0.90	0.17	0.05	0.23	1.37	
		Zn (%)	305	0.01	5.30	1.12	1.71	1.31	1.17	
		Ag (g/t)	199	0.50	130.00	26.59	1,415.80	37.63	1.42	
		Cu (%)	199	0.01	0.90	0.10	0.05	0.23	2.29	
		-	Fe (%)	199	0.05	40.00	3.92	95.68	9.78	2.49
		Pb (%)	199	0.01	2.50	0.39	0.46	0.68	1.72	
		Zn (%)	199	0.01	0.70	0.07	0.02	0.16	2.34	
		Ag (g/t)	17	2.00	27.31	11.66	53.06	7.28	0.62	
		Cu (%)	17	0.03	0.33	0.11	0.01	0.09	0.84	
OB11VM	OB11VM	-	Fe (%)	17	6.67	12.00	8.75	2.78	1.67	0.19
		Pb (%)	17	0.01	0.47	0.16	0.02	0.13	0.82	
		Zn (%)	17	0.46	3.89	1.72	1.21	1.10	0.64	
		Ag (g/t)	77	2.69	149.89	28.88	1,024.43	32.01	1.11	
		Cu (%)	77	0.01	0.51	0.13	0.01	0.11	0.84	
		-	Fe (%)	77	2.09	24.38	10.38	25.46	5.05	0.49
		Pb (%)	77	0.02	0.60	0.15	0.01	0.11	0.71	
		Zn (%)	77	0.03	1.20	0.52	0.06	0.24	0.47	
		Ag (g/t)	46	0.50	55.62	14.16	202.80	14.24	1.01	
		Cu (%)	46	0.01	0.10	0.02	0.00	0.02	1.19	
OB5BVM	OB5BVM	-	Fe (%)	46	0.05	8.00	3.21	3.70	1.92	0.60
		Pb (%)	46	0.01	0.99	0.28	0.08	0.28	1.01	
		Zn (%)	46	0.01	5.80	1.96	2.35	1.53	0.78	
		Ag (g/t)	224	0.50	200.00	35.81	2,111.82	45.95	1.28	
		Cu (%)	224	0.01	0.49	0.09	0.01	0.10	1.14	
		-	Fe (%)	224	0.05	25.00	7.51	31.09	5.58	0.74
		Pb (%)	224	0.01	2.87	0.62	0.42	0.65	1.05	





Estimation Domain	Geological Domain	Grade Domain	Grade (units)	No. Samples	Composited Values					
					Minimum	Maximum	Mean	Variance	Std. Dev.	CV
PUCVM	PUCVM		Zn (%)	224	0.01	6.67	1.65	2.35	1.53	0.93
			Ag (g/t)	13	4.72	87.89	40.00	745.71	27.31	0.68
			Cu (%)	13	0.01	0.49	0.17	0.03	0.16	0.97
			Fe (%)	13	3.31	14.05	7.82	10.44	3.23	0.41
	-		Pb (%)	13	0.01	2.06	0.62	0.42	0.65	1.05
			Zn (%)	13	0.05	3.50	0.80	1.00	1.00	1.25

SLR reviewed the composites and offers the following conclusions and recommendations:

- The composite length is appropriate given the dominant sampling length and the 5 m block height, and is suitable to support Mineral Resource and Mineral Reserve estimation.
- SLR recommends investigating density-weighted compositing.

11.9 Trend Analysis

11.9.1 Variography

Two-structure and three-structure spherical models in three directions were developed with experimental variograms for Zn, Pb, Cu, Ag, and Fe in Supervisor software. The variograms were calculated using the composites for the SPB, SPP, SSM, and VM domains. Figure 11-18 and Figure 11-19 show examples of variograms for Zn in SPB and Cu in SPP, respectively.





Figure 11-18: Zn Variogram for Mineralization SPB Domain





Figure 11-19: Cu Variogram for Mineralization SPP Domain

Table 14-11 shows variogram parameters for the SPB and SPP domains





Table 11-11: Variogram Parameters
Nexa Resources S.A. - Cerro Lindo Mine

Geological		Datamine Angles			Datamine Axes			NUGGET	Structure 1				Structure 2			
Domain	Element	VANGLE1	VANGLE2	VANGLE3	VAXIS1	VAXIS2	VAXIS3		ST1PAR1	ST1PAR2	ST1PAR3	C1	ST2PAR1	ST2PAR2	ST2PAR3	C2
SPB	Zn	-141.03	14.48	74.496	3	2	1	0.19	31	27	15	0.31	204	123	98	0.5
	Cu, Fe	-145.00	0.00	75	3	2	1	0.199	14	12	13	0.496	61	54	49	0.305
	Ag, Pb	-141.03	14.48	74.496	3	2	1	0.244	26	23	15	0.447	135	92	74	0.309
SPP	Zn	-141.03	14.48	74.496	3	2	1	0.19	11	16	15	0.37	117	91	68	0.44
	Cu, Fe	-145.00	0.00	75	3	2	1	0.09	21	23	18	0.49	131	75	46	0.42
	Ag, Pb	-141.03	14.48	74.496	3	2	1	0.249	42	23	18	0.442	161	137	77	0.309





11.10 Search Strategy and Grade Interpolation Parameters

Grades were interpolated into blocks on a parent cell basis using OK for the SPB and SPP domains. For all the other domains, ID³ interpolation method was used. All the variables, Zn, Cu, Pb, Ag and Fe, were interpolated, and estimates were not density weighted. All directions were based on Datamine’s dynamic anisotropy, which varies search ellipsoid orientations according to the trend of the mineralization domain.

The grade estimation was completed in three passes. Pass 1 uses a search radius equal to the variogram range; Pass 2 uses a search radius equal to 1.5 times the range of Pass 1; and Pass 3 uses a search radius of 10 times the range of Pass 1.

The search criteria are listed in Table 11-12 for zinc estimates and in Table 11-13 for copper estimates.

Table 11-12: Zinc Estimation Parameters
Nexa Resources S.A. - Cerro Lindo Mine

Estimation Domain	Method	Rotation System AXIS			Search Ellipse DIST			Pass 1	# Comp		Pass 2	# Comp		Pass 3	# Comp	
		1	2	3	1	2	3	S-Vol	Min	Max	S-Vol	Min	Max	S-Vol	Min	Max
spbhzn	OK	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
spblzn	OK	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
spphzn	OK	3	2	1	35	25	15	1	8	12	1.5	5	10	10	1	4
spplzn	OK	3	2	1	35	25	15	1	8	12	1.5	5	10	10	1	5
ssmhzn	IDW3	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
ssmlzn	IDW3	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
vmhzn	IDW3	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
vmlzn	IDW3	3	2	1	35	25	15	1	8	10	1.5	5	10	10	1	4
v	IDW3	3	2	1	25	10	10	1	8	12	1.5	5	10	10	1	4
sop	IDW3	3	2	1	25	20	10	1	8	12	1.5	5	10	10	1	4
sob	IDW3	3	2	1	30	15	10	1	6	10	1.5	4	7	10	1	4
slb	IDW3	3	2	1	30	15	10	1	6	8	1.5	4	5	10	1	3
ob11vm	IDW3	3	2	1	35	20	10	1	6	8	1.5	4	6	10	1	3
ob12vm	IDW3	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
ob5bvm	IDW3	3	2	1	25	20	10	1	8	12	1.5	5	10	10	1	4
ob14vm	IDW3	3	2	1	25	15	10	1	10	14	2	5	8	10	1	4
pucvm	IDW3	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6





Table 11-13: Copper Estimation Parameters
Nexa Resources S.A. - Cerro Lindo Mine

Estimation Domain	Method	Rotation System AXIS			Search Ellipse DIST			Pass 1	# Comp		Pass 2	# Comp		Pass 3	# Comp	
		1	2	3	1	2	3	S-Vol	Min	Max	S-Vol	Min	Max	S-Vol	Min	Max
sphhcu	OK	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
spblcu	OK	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
spphcu	OK	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
splcu	OK	3	2	1	35	25	15	1	9	12	1.5	5	10	10	1	4
ssmhcu	IDW3	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
ssmlcu	IDW3	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
vmhcu	IDW3	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
vmlcu	IDW3	3	2	1	35	25	15	1	10	14	1.5	6	12	15	1	6
v	IDW3	3	2	1	25	20	10	1	8	12	1.5	5	10	10	1	4
sop	IDW3	3	2	1	25	20	10	1	8	12	1.5	5	10	10	1	4
sob	IDW3	3	2	1	30	15	10	1	6	8	1.5	4	6	10	1	4
slb	IDW3	3	2	1	30	15	10	1	6	8	1.5	4	5	10	1	3
ob11vm	IDW3	3	2	1	35	20	15	1	6	10	1.5	4	8	10	1	3
ob12vm	IDW3	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
ob5bvm	IDW3	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
ob14vm	IDW3	3	2	1	35	15	10	1	10	14	2	5	8	10	1	4
pucvm	IDW3	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6

11.11 Bulk Density

The Cerro Lindo deposit has 4,410 density determinations in the mineralization domains and 4,114 samples in the wallrock that were used for resource estimates. A summary of the density measurements taken by geological domains is presented in Table 11-14 and the density sample location is shown in Figure 11-20. A buffer of 20 m was used to select and review the density data, totalling 1,215 density measurements, in the wallrock. Nexa interpolated the density values for the SPP, SPB, SSM, VM, and V domains and assigned an average density value for SOP, SOB, SLB, and wallrock as shown in Table 11-15.

Density measurements were not available for the SOP, SOB, and SLB domains. Nexa applied the lower quartile of the SPP and SPB density measurements assuming a lower density as a result of the oxidization and leaching processes. SLR recommends generating density data for the SOP, SOB, and SLB domains that currently do not have density tests available. In the SLR QP's opinion, this will not have a significant impact on the resource estimate as these domains represent less than one percent of the Mineral Resources.





Table 11-14: Density Data
Nexa Resources S.A. - Cerro Lindo Mine

Geological Domain	No. Samples	Uncapped values			Variance	Std. Dev.	CV
		Minimum	Maximum	Density (t/m³)			
SPB	915	1.78	6.74	4.23	0.32	0.56	0.13
SPP	2,031	1.90	5.21	4.36	0.29	0.54	0.12
SSM	883	2.34	4.93	3.39	0.20	0.45	0.13
VM	382	2.14	4.87	3.11	0.18	0.42	0.14
V	118	1.89	4.90	3.02	0.23	0.48	0.16
DIKE	81	2.35	4.87	3.32	0.61	0.78	0.24
Total	4,410						

Table 11-15: Assigned Density Values
Nexa Resources S.A. - Cerro Lindo Mine

Geological Domain	Density (t/m³)
SOP	3.50
SOB	3.50
SLB	3.00
Wallrock	2.89





Figure 11-20: Density Sample Location by Geological Domains





11.11.1Treatment of High Density Values

Nexa applied low and high capping values to density measurements in the SPB, SPP, SSM, VM, V, and Dike geological domains in order to limit the influence of a small amount of outlier values located in the lower and upper tail of the density distributions (Figure 11-21). A summary of the capping levels is shown in Table 11-16.

Table 11-16: Density Capping Values
Nexa Resources S.A. - Cerro Lindo Mine

Geological Domain	CLI	Lower Capping Value	Upper Capping Value
		Density (t/m ³)	Density (t/m ³)
SPB	1	2.70	4.90
SPP	2	2.70	5.00
SSM	3	2.70	4.00
VM	4	2.70	3.60
V	5	2.70	3.50
DIKE	10	2.50	2.85



Figure 11-21: Density Capping Analysis for SPB Domain

For the SPP, SPB, SSM, VM, and V geological domains, Nexa interpolated the density values using an ID³ method. The search ellipsoids for density generally have a sub-vertical pancake shape with the same orientation as the mineralization and the grade estimate. The average density value is 4.42 t/m³ for the SPB blocks and 4.49 t/m³ for the SPP blocks.

Block estimation parameters for bulk density are shown in Table 11-17.





Table 11-17: Block Estimation Parameters for Bulk Density
Nexa Resources S.A. - Cerro Lindo Mine

Pass Name	Domain	Type	Search X (m)	Search Y (m)	Search Z (m)	Min Samples	Max Samples	Max Samples Per Hole	Lower Sample Cap (t/m³)	Upper Sample Cap (t/m³)
1	SPB	ID³	50	50	25	3	14	2	2.70	4.90
2	SPB	ID³	50	50	25	3	14	2	2.70	4.90
3	SPB	ID³	50	50	25	1	14	2	2.70	4.90
1	SPP	ID³	50	50	25	3	14	2	2.70	5.00
2	SPP	ID³	50	50	25	3	14	2	2.70	5.00
3	SPP	ID³	50	50	25	1	14	2	2.70	5.00
1	SSM	ID³	50	50	25	3	14	2	2.70	4.00
2	SSM	ID³	50	50	25	3	14	2	2.70	4.00
3	SSM	ID³	50	50	25	1	14	2	2.70	4.00
1	VM	ID³	50	50	25	3	14	2	2.70	3.60
2	VM	ID³	50	50	25	3	14	2	2.70	3.60
3	VM	ID³	50	50	25	1	14	2	2.70	3.60
1	V	ID³	50	50	25	3	14	2	2.70	3.50
2	V	ID³	50	50	25	3	14	2	2.70	3.50
3	V	ID³	50	50	25	1	14	2	2.70	3.50

Nexa validated the density estimate by examining the block density distribution against the samples, stepping across the model in vertical section and plan view and preparing swath plots. A statistical comparison of density sample populations to block populations is shown in Table 11-18. A plan view comparing density sample values to block values is shown in Figure 11-22. Swath plots of ID³ density estimates versus nearest neighbour (NN) density estimates, as well as sample density values, are shown in Figure 11-23, Figure 11-24, Figure 11-25, and Figure 11-26.





Table 11-18: Statistical Comparison of Blocks versus Composites: Density
Nexa Resources S.A. - Cerro Lindo Mine





Figure 11-22: Plan View of Block and Density Samples





Figure 11-23: SPB Swath Plots - Density Values



Figure 11-24: SPP Swath Plots - Density Values





Figure 11-25: SSM Swath Plots - Density Values



Figure 11-26: VM Swath Plots - Density Values

The SLR QP reviewed the density data distribution and location and is of the opinion that the density values are reasonable for the style of mineralization and the density samples are well distributed in the largest domains (SPP and SPB) throughout the deposit.

As reserves and resources are extended towards extremities of the mineralization, SLR recommends collecting more density samples in these areas, especially in areas with no density samples. Additional density sampling will allow a





more accurate definition of tonnes in these areas, as mined-out zones in the centre of the deposit have higher density values. SLR recommends reviewing all the reserves stopes and collect density samples on these zones or in the proximities.

11.12 Block Models

Cerro Lindo wireframes were filled with blocks in Datamine Studio RM. The block model was sub-celled at wireframes boundaries with parent cells measuring 5 m by 5 m by 5 m and minimum sub-cell sizes of 0.5 m by 0.5 m by 0.5 m. The block model setup is shown in Table 11-19 and a description of the block model attributes is provided in Table 11-20.

Table 11-19: Block Model Setup
Nexa Resources S.A. - Cerro Lindo Mine

Parameter	X	Y	Z
Origin (m)	387,700	8,552,000	700
Block Size (m)	5	5	5
Min. Sub Block size (m)	0.5	0.5	0.5
Number of Blocks	538	420	322





Table 11-20: Block Model Attribute Descriptions
Nexa Resources S.A. - Cerro Lindo Mine



The SLR QP is of the opinion that the block size is appropriate, based on the drill spacing and proposed mining method, and is suitable to support the estimation of Mineral Resources and Mineral Reserves.

11.13 Net Smelter Return and Cut-off Value

An NSR cut-off value was determined using the Mineral Resource metal prices, metal recoveries, transport, treatment, and refining costs, as well as mine operating cost. Metal prices used for Mineral Resources are based on consensus, long term forecasts from banks, financial institutions, and other sources.





The cut-off value used for the Resource estimate is based on an NSR value, in units of US\$/t, which can be directly compared to operating unit costs. The NSR formula is:



Cut-off costs and NSR parameters are summarized in Table 11-21. The break even NSR cut-off value for SLS and C&F mining methods are \$33.56/t processed and \$49.90/t processed respectively.

Table 11-21: Resource NSR Data
Nexa Resources S.A. - Cerro Lindo Mine

Item	Units	SLS	C&F
Net Metallurgical Recovery *			
Zn	%	88.13	88.13
Pb	%	68.58	68.58
Cu	%	86.30	86.30
Ag	%	68.78	68.78
Cu Concentrate Payable %			
Cu	%	96.7	96.7
Ag	%	90.0	90.0
Pb Concentrate Payable %			
Pb	%	95.0	95.0
Ag	%	95.0	95.0
Zn Concentrate Payable %			
Zn	%	95.8	95.8
Ag	%	70.0	70.0
Metal Prices			
Zn	US\$/lb	1.30	1.30
Pb	US\$/lb	1.02	1.02
Cu	US\$/lb	3.37	3.37
Ag	US\$/oz	19.38	19.38
Charges			
Logistics and TC			
Zn Concentrate	US\$/t conc	321.0	321.0
Pb Concentrate	US\$/t conc	251.0	251.0
Cu Concentrate	US\$/t conc	245.0	245.0
Integrated Zn			
Conversion Cost	US\$/t Zn prod	447.0	447.0
Premium	US\$/t Zn Prod	217.0	217.0
Refining Cost			
Ag in Pb conc	US\$/oz	1.00	1.01
Ag in Cu conc	US\$/oz	0.50	0.51
Operating Costs			





Item	Units	SLS	C&F
Mining	US\$/t proc.	21.00	37.34
Processing + Maintenance	US\$/t proc.	10.42	10.42
G&A	US\$/t proc.	2.14	2.14
Total	US\$/t proc.	33.56	49.90

Nexa reviewed supply and demand projections for zinc, lead, and copper, as well as consensus long term (ten year) metal price forecasts. SLR verified that Nexa's selected metal prices for estimating Mineral Reserves are in line with independent forecasts from banks and other lenders. Prices selected for Mineral Resource estimation are 15% higher, which is in line with typical industry practice.

The average NSR factors are calculated using the LOM revenue contribution from each metal net of off-site costs and factors, divided by the reserve grade for that metal, and are indicative of the relative contribution of each metal unit to the economics of the Mine. For most metals, a variable recovery (as a function of head grade) was used, and therefore the average NSR factors should not be applied to head grades without considering the head grade versus recovery relationship. NSR factors are therefore variable by head grade, with average NSR factors summarized in Table 11-22. The head grade and recovery curves are presented in Figure 11-27, Figure 11-28, and Figure 11-29.

Table 11-22: Average NSR Factors
Nexa Resources S.A. - Cerro Lindo Mine

Item	Units	Value
Zn	US\$/%	20.56
Pb	US\$/%	14.12
Cu	US\$/%	55.91
Ag	US\$/oz	12.59



Figure 11-27: Zinc Recovery





Figure 11-28: Copper Recovery



Figure 11-29: Lead Recovery

11.14 Classification

Definitions for resource categories used in this report are those defined by SEC in S-K 1300. Mineral Resources are classified into Measured, Indicated, and Inferred categories. Mineral Resource classification for the SPP and SPB domains is based on the number of drill holes and distances determined by variogram ranges, geological and grade continuity, and well production experience. The SSM and VM





domain blocks were classified based on the continuity of the orebodies and recent production experience. The SSM and VM mineralization is more discontinuous than the SPB and SPP domains, as it occurs more as patches or stringers. The Measured and Indicated classification was more restrictive.

Flagging of the blocks by drill hole distances was performed by using a search pass with dimensions and parameters for each category. The first pass involved a numerical block classification based on the number of drill holes and search radii followed by a post processing of the classification to remove isolated small patches and irregular shapes, yielding more realistic shapes from a mining perspective.

The classification of the Mineral Resource estimate was applied as follows:

- **Measured Mineral Resources:** Measured blocks were defined, for SPP and SPB domains, the largest contributors of the Measured Resources, using a search radius of 26 m by 26 m by 12 m, and for SSM and VM domains, minor contributors of the Measured Resources (<1%), using a search radius of 13 m by 13 m by 7 m, with at least three holes within each estimation domains, and supported with data of a low level of uncertainty as follows:
 - o **Drilling, sampling, and sample preparation and assay procedures:** follow industry standards and best practices.
 - o **Reliability of sampling data:** Excellent database integrity and representativity based on SLR's independent data verification and validation, as well as no significant bias observed in QA/QC analysis results.
 - o **Confidence in interpretation and modelling of geological and estimation domains:** SPB and SPP (the major contributors to the Mineral Resources) show good agreement and some SSM and VM domain solids show good agreement with the drill holes and underground mapping.
 - o **Geology and grade continuity:** Based on drilling and underground mapping, trend analysis and variography, SPB and SPP domains show good geology and grade continuity.
 - o **Confidence in estimation of block grades for the main metals:** Block grades correlate well with composite data, statistically and spatially, locally and globally, as well as with production reconciliation.
 - o **Acceptable bulk density representativity:** Sufficient density measurements for most of the SPP and SPB domains.
 - o **Well supported drilling spacing criteria:** Based on three drill holes and 50% to 70% of the range of the variograms.
 - o **Production experience in the deposit:** More than a decade of production experience mining the SPP and SPB domains.
 - o **Good reconciliation performance:** Block grades reconcile well with plant data, overall, within 10%.
- **Indicated Mineral Resources:** Indicated blocks were defined, for SPP and SPB domains, the largest contributors of the Indicated Resources, using a search radius of 50 m by 50 m by 13 m, and for SSM and VM domains, minor contributors of the Indicated Resources (<35%), using a search radius of 25 m by 25 m by 13 m, with at least three holes within each estimation domains, and supported with data of a low and/or medium level of uncertainty as follows:
 - o **Drilling, sampling, and sample preparation and assay procedures:** follow industry standards and best practices.
 - o **Reliability of sampling data:** Excellent database integrity and representativity based on SLR's independent data verification and validation, as well as no significant bias observed in QA/QC analysis results.
 - o **Confidence in interpretation and modelling of geological and estimation domains:** SPB and SPP (the major contributors to the Mineral Resources) show good agreement and some SSM and VM domain solids show relatively acceptable agreement with the drill holes and underground mapping where the density of drill holes is less, particularly at the mineralization edges.





- o **Geology and Grade Continuity:** Based on drilling and underground mapping, trend analysis and variography, SPB and SPP domains show good geology and grade continuity. SSM and VM domains geometries are less well defined and geological and grade continuity is less because mineralization is presented in patches.
- o **Confidence in estimation of block grades for the main metals:** Block grades correlate well with composite data, statistically and spatially, locally and globally, as well as with production reconciliation.
- o **Reasonable bulk density representativity:** Sufficient density measurements were taken for most of the SPP and SPB domains. Reasonable density measurements for some of the SSM and VM areas, with limited density measurements available at the mineralization edges.
- o **Well supported drilling spacing criteria:** Based on three drill holes and 60% to 80% of the range of the variograms.
- o **Production experience in the deposit:** More than a decade of production experience mining the SPP and SPB domains. Moderate experience with SSM and VM, increasing in the last five years as these domains are located at the mineralization edges.
- o **Good reconciliation performance:** Block grades reconcile well with plant data, overall, within 10%.
- o **Inferred Mineral Resources:** Inferred blocks were defined, for SPP and SPB domains, using a search radius of 79 m by 79 m by 40 m, for SSM and VM domains, the largest contributors (>76%) of the Inferred Resources, using a search radius of 50 m by 50 m by 25 m, with at least two holes within each estimation domains, for all the other domains (SBO, SOP, SLB, V) representing less than 13% of the Inferred Resources, using a search radius of 50 m by 50 m by 25 m, with at least three holes within each estimation domains and supported with data of a low and/or medium and/or high level of uncertainty as follows:
 - o **Drilling, sampling, and sample preparation and assay procedures:** follow industry standards and best practices.
 - o **Reliability of sampling data:** Excellent database integrity and representativity based on SLR's independent data verification and validation, as well as no significant bias observed in QA/QC analysis results for SPP, SPB, SSM, and VM. Less data is available for the SOB, SOP, SBL, and V domains.
 - o **Confidence in interpretation and modelling of geological and estimation domains:** SPB and SPP (the major contributors to the Mineral Resources) show good agreement and some SSM and VM domain solids show relatively acceptable agreement with the drill holes and underground mapping where the density of drill holes is less, particularly at the mineralization edges.
 - o **Geology and grade continuity:** Based on drilling and underground mapping, trend analysis and variography, SPB and SPP domains show good geology and grade continuity. SSM, VM, SOB, SOP, SBL, and V domains geometries are less well defined, and geological and grade continuity for these domains is less continuous and more variable.
 - o **Confidence in estimation of block grades for the main metals:** Block grades correlate reasonably well with composite data, statistically and spatially, locally and globally, as well as with production reconciliation.
 - o **Bulk density representativity is reasonable for most of the domains:** Density measurements for SOB, SOP, and SLB domains are required.
 - o **Infill drilling:** More drilling is required to determine continuity of mineralization in areas of wide drill spacing in order to upgrade Inferred Resources to Indicated. Inferred drilling spacing was defined based on 80% to 90% of the variogram range.





- o **Production experience in the deposit:** More than a decade of production experience mining the SPP and SPB domains. Moderate experience with SSM and VM, increasing in the last five years as these domains are located at the mineralization edges. Limited experience with SOB, SOP, and SLB domains with challenging metallurgical recovery, however, these domains are localized and should be blended before the material is sent to the plant.

Figure 11-30 and Figure 11-31 show histogram validations of the classification based on the distance of each block to its closest sample for the SPB/SPP and SSM/VM domains, respectively. Figure 11-32 shows a plan view of the final model classification.





Figure 11-30: Validation of Classification (SPB and SPP)





Figure 11-31: Validation of Classification (SSM and VM)





Figure 11-32: Final Classification Designation





The SLR QP has reviewed the classification and considers it to be reasonable, however, the SLR QP recommends monitoring the production data to ensure that the selected drill spacing for SSM and VM is appropriate to support detailed mine planning, as these domains show less grade continuity and more grade variability than the massive sulphide domains.

The SLR QP is of the opinion that the definitions for Mineral Resources used in this report have been classified in accordance with the definitions for Mineral Resources in S-K 1300, which are consistent with Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves dated May 10, 2014 (CIM (2014) definitions).

11.15 Block Model Validation

Nexa and SLR carried out a number of block model validation procedures including:

- Comparison between OK, NN, and composite mean grades (Table 11-23).
- Swath plots (Figure 11-33 and Figure 11-34).
- Visual inspection of composite versus block grades (Figure 11-35 and Figure 11-36).
- Reconciliation with the plant (Figure 11-37).

Nexa compared the OK grade estimates with NN and composite mean grades. Overall, the differences were below 5% for the comparison between the OK and NN grades. Swath plots showed good correlation of the grades locally, without significant bias.

The visual inspection of composite and block grades revealed that the spatial grade correlation is good for zinc and copper and reasonable for lead and silver.

Swath plots (Figure 11-33 and Figure 11-34) show acceptable agreement between composite, NN, and OK estimates for zinc and copper block grades.

The resource model reconciles well with the plant. In 2018, the plant processed 91% of the total resource model tonnage, 100% of the zinc grade, and 112% of the copper grade. For 2019, the plant processed 93% of the total resource model tonnage, 101% of the zinc grade, and 105% of the copper grade.

SLR's validation results suggest that the grade estimates for zinc, copper, lead, and silver are reasonable, and that the block model is suitable to support Mineral Resource and Mineral Reserve estimation.

Table 11-23: Comparison Between Estimates (OK/ID³), NN and Composite Means
Nexa Resources S.A. - Cerro Lindo Mine

Domain	Grade	No. Blocks	NN		OK		Dif. Rel.		IDW ³		Dif. Rel.	
			Mean	CV	Mean	CV	NN	OK(%)	Mean	CV	NN	ID ³ (%)
SPBH	Zn (%)	2,986,839	6.70	0.64	6.68	0.45		0%	6.71	0.48		0%
	Pb (%)	1,818,994	1.22	0.96	1.22	0.59		0%	1.23	0.67		0%
	Cu (%)	3,078,056	0.79	0.81	0.77	0.41		2%	0.78	0.51		2%
	Ag (g/t)	1,818,994	65.37	0.69	64.73	0.38		1%	64.81	0.45		1%
	Fe (%)	3,078,056	19.03	0.70	19.18	0.48		-1%	19.06	0.55		0%





Domain	Grade	No. Blocks	NN		OK		Dif. Rel.		IDW ³		Dif. Rel.	
			Mean	CV	Mean	CV	NN	OK(%)	Mean	CV	NN	ID ³ (%)
SPBL	Zn (%)	2,176,523	1.49	0.97	1.53	0.52		-3%	1.49	0.61		0%
	Pb (%)	3,344,368	0.30	1.69	0.30	0.98		0%	0.31	1.11		-1%
	Cu (%)	2,085,306	0.13	0.85	0.13	0.36		-2%	0.13	0.46		-2%
SPPH	Ag (g/t)	3,344,368	13.23	0.74	13.36	0.40		-1%	13.26	0.46		0%
	Fe (%)	2,085,306	17.80	0.60	17.84	0.40		0%	17.83	0.46		0%
	Zn (%)	3,642,789	1.34	1.20	1.30	0.65		3%	1.33	0.79		1%
	Pb (%)	5,714,720	0.08	2.60	0.08	1.45		-1%	0.08	1.68		2%
	Cu (%)	6,024,909	0.90	0.81	0.89	0.53		1%	0.90	0.57		0%
SPPL	Ag (g/t)	5,714,720	22.99	0.87	23.01	0.47		0%	23.04	0.53		0%
	Fe (%)	6,024,909	31.26	0.44	31.39	0.27		0%	31.54	0.30		-1%
	Zn (%)	5,828,223	0.10	0.96	0.10	0.56		-3%	0.10	0.66		-1%
	Pb (%)	3,756,292	0.01	1.31	0.01	0.80		-1%	0.01	0.93		0%
	Cu (%)	3,446,103	0.10	0.75	0.11	0.44		-2%	0.10	0.50		0%
SSMH	Ag (g/t)	3,756,292	4.12	0.62	4.17	0.36		-1%	4.13	0.43		0%
	Fe (%)	3,446,103	31.78	0.39	31.84	0.26		0%	31.95	0.29		-1%
	Zn (%)	1,208,290	2.41	0.91	2.48	0.52		-3%	2.46	0.63		-2%
	Pb (%)	1,332,857	0.55	1.33	0.55	0.67		-1%	0.55	0.88		-1%
	Cu (%)	1,598,363	0.64	0.77	0.63	0.43		2%	0.63	0.53		2%
SSML	Ag (g/t)	1,332,857	55.86	0.87	55.94	0.44		0%	56.08	0.58		0%
	Fe (%)	1,598,363	19.09	0.53	19.21	0.34		-1%	19.14	0.41		0%
	Zn (%)	2,767,337	0.09	1.54	0.09	0.95		-4%	0.09	1.10		0%
	Pb (%)	2,642,770	0.05	1.56	0.05	0.89		-5%	0.05	1.09		-2%
	Cu (%)	2,377,264	0.09	0.99	0.09	0.57		-3%	0.09	0.68		1%
VMH	Ag (g/t)	2,642,770	7.02	0.92	7.31	0.58		-4%	7.11	0.68		-1%
	Fe (%)	2,377,264	18.81	0.53	19.11	0.36		-2%	18.86	0.42		0%
	Zn (%)	915,742	1.70	0.81	1.70	0.43		0%	1.72	0.55		-1%
	Pb (%)	614,14	0.78	1.02	0.78	0.55		1%	0.79	0.72		0%
	Cu (%)	948,663	0.52	0.85	0.51	0.44		3%	0.52	0.61		0%
	Ag (g/t)	614,14	93.52	0.78	91.28	0.44		2%	93.16	0.57		0%
	Fe (%)	948,663	11.75	0.68	11.85	0.40		-1%	11.78	0.52		0%





Domain	Grade	No. Blocks	NN		OK		Dif. Rel.	IDW ³		Dif. Rel.
			Mean	CV	Mean	CV	NN_OK(%)	Mean	CV	NN_ID ³ (%)
VML	Zn (%)	852,757	0.18	1.30	0.19	0.76	-3%	0.18	0.90	-3%
	Pb (%)	1,154,359	0.18	1.37	0.18	0.82	2%	0.19	1.03	-4%
	Cu (%)	819,836	0.07	0.81	0.07	0.39	-5%	0.07	0.55	-3%
V	Ag (g/t)	1,154,359	17.13	0.78	17.39	0.42	-2%	17.49	0.52	-2%
	Fe (%)	819,836	7.33	0.84	7.45	0.55	-2%	7.25	0.68	1%
	Zn (%)	325,979	0.39	1.43	0.39	1.02	-1%	0.38	1.16	0%
SOP	Pb (%)	325,979	0.19	1.30	0.20	0.74	-3%	0.19	0.98	0%
	Cu (%)	325,979	0.26	1.04	0.27	0.63	-3%	0.26	0.78	0%
	Ag (g/t)	325,979	22.96	1.11	23.87	0.60	-4%	22.92	0.81	0%
SOB	Fe (%)	325,979	9.28	0.95	9.33	0.58	-1%	9.26	0.73	0%
	Zn (%)	45,313	0.22	1.49	0.22	0.95	-1%	0.22	1.12	-1%
	Pb (%)	45,313	0.04	1.79	0.04	1.10	1%	0.04	1.30	5%
SLB	Cu (%)	45,313	0.54	1.10	0.54	0.84	-1%	0.55	0.87	-2%
	Ag (g/t)	45,313	11.50	1.25	11.28	0.85	2%	11.15	0.95	3%
	Fe (%)	45,313	26.99	0.61	27.91	0.44	-3%	27.80	0.49	-3%
OB11VM	Zn (%)	51,57	0.91	1.39	0.92	0.99	0%	0.91	1.11	1%
	Pb (%)	51,57	0.17	1.27	0.18	0.87	-3%	0.17	0.98	-1%
	Cu (%)	51,57	1.07	0.97	1.12	0.60	-5%	1.09	0.70	-1%
SLB	Ag (g/t)	51,57	21.32	0.79	21.76	0.48	-2%	21.45	0.55	-1%
	Fe (%)	51,57	18.96	0.66	19.14	0.51	-1%	19.07	0.55	-1%
	Zn (%)	46,333	0.07	2.58	0.08	1.79	-12%	0.06	2.04	6%
OB11VM	Pb (%)	46,333	0.37	1.78	0.44	1.17	-17%	0.39	1.52	-3%
	Cu (%)	46,333	0.03	3.72	0.04	2.46	-20%	0.03	3.14	4%
	Ag (g/t)	46,333	22.59	1.46	25.36	0.97	-12%	22.48	1.30	0%
OB11VM	Fe (%)	46,333	1.93	3.25	2.37	2.09	-20%	1.85	2.59	4%
	Zn (%)	57,986	2.02	0.54	1.91	0.47	5%	2.05	0.48	-2%
	Pb (%)	57,986	0.13	0.92	0.13	0.28	-1%	0.12	0.58	6%
OB11VM	Cu (%)	57,986	0.11	0.78	0.12	0.53	-3%	0.12	0.71	-6%
	Ag (g/t)	57,986	10.68	0.67	10.68	0.20	0%	11.06	0.51	-3%
	Fe (%)	57,986	8.06	0.15	8.37	0.12	-4%	8.27	0.11	-3%





Domain	Grade	No. Blocks	NN		OK		Dif. Rel.	IDW ³		Dif. Rel.
			Mean	CV	Mean	CV	NN_OK(%)	Mean	CV	NN_ID ³ (%)
OB12VM	Zn (%)	34,995	0.52	0.46	0.51	0.22	3%	0.51	0.27	2%
	Pb (%)	34,995	0.15	0.70	0.14	0.33	5%	0.15	0.43	2%
	Cu (%)	34,995	0.11	0.82	0.11	0.48	5%	0.11	0.63	-2%
	Ag (g/t)	34,995	29.35	1.17	27.51	0.67	6%	28.69	0.95	2%
	Fe (%)	34,995	9.63	0.52	9.37	0.34	3%	9.98	0.44	-4%
	Zn (%)	152,621	1.60	0.92	1.51	0.49	6%	1.56	0.68	2%
OB14VM	Pb (%)	152,621	0.61	1.09	0.63	0.68	-3%	0.64	0.81	-5%
	Cu (%)	152,621	0.10	1.24	0.09	0.91	8%	0.10	1.03	4%
	Ag (g/t)	152,621	25.50	1.50	25.43	1.10	0%	26.33	1.25	-3%
	Fe (%)	152,621	6.88	0.85	6.81	0.70	1%	6.88	0.79	0%
	Zn (%)	20,936	1.84	0.77	1.87	0.54	-2%	1.86	0.62	-1%
	Pb (%)	20,936	0.25	1.04	0.27	0.52	-9%	0.27	0.65	-9%
	Cu (%)	20,936	0.01	1.25	0.01	0.66	13%	0.01	1.09	2%
	Ag (g/t)	20,936	11.14	1.08	11.53	0.57	-3%	11.94	0.70	-7%
	Fe (%)	20,936	3.20	0.61	3.14	0.44	2%	3.21	0.48	0%
PUCVM	Zn (%)	12,028	0.75	1.18	0.70	1.00	7%	0.70	1.01	7%
	Pb (%)	12,028	0.66	1.03	0.61	0.78	8%	0.61	0.79	7%
	Cu (%)	12,028	0.15	1.07	0.14	0.97	1%	0.14	0.97	1%
	Ag (g/t)	12,028	44.02	0.65	41.50	0.61	6%	41.71	0.61	5%
	Fe (%)	12,028	7.33	0.47	7.23	0.44	1%	7.23	0.44	1%





Figure 11-33: Swath Plot: Zn Grade Variation along X, Y, and Z





Figure 11-34: Swath Plot: Cu Grade Variation along X, Y, and Z





Figure 11-35: Vertical Section Showing Zn Block versus Composite Grades





Figure 11-36: Vertical Section Showing Cu Block versus Composite Grades



Nexa Resources S.A. | Cerro Lindo Mine, SLR Project No: 233.03246.R0000
Technical Report Summary - January 29, 2021



Figure 11-37: Plant Versus Resource Model Reconciliation





11.16 Mineral Resource Reporting

The Mineral Resources for the Cerro Lindo underground operation as of December 31, 2020, are summarized in Table 11-1. The Mineral Resource estimate was reported using all the material within resource shapes generated in Deswik software, satisfying minimum mining size, continuity criteria, and using an NSR cut-off value of US\$33.56/t for SLS resource shapes and US\$49.90/t for C&F resource shapes (Figure 11-38 and Figure 11-39). Cerro Lindo Mineral Resources are in compliance with the S-K 1300 resource definition requirement of “reasonable prospects for economic extraction”.

Wireframe models for the underground excavations completed at Cerro Lindo as of May 31, 2020 were prepared to remove the portions of the mineralized zones that had been mined out before the resource and reserve stopes were generated. Mineral Resource and Mineral Reserves estimates were depleted for forecast production from June 1, 2020 to December 31, 2020. After year-end, SLR verified the estimate by reviewing actual mining results for this period of projected mining. Deviations from plan, amounting to approximately 11% less of the 2020 forecast production, were caused by lower production in Q2 2020 due to the COVID-19 pandemic. Production ramped up to pre-pandemic levels in June 2020. The SLR QP is of the opinion that this has had an insignificant impact on the year-end resource and reserve estimates. The sub-blocking functions of the Deswik software package were employed to maximize the accuracy of the mined-out contacts. For the underground excavations, solid models of the stopes, mine development, and drifts were constructed digitally from data collected using an Optech cavity monitoring system and a total station surveying units.

Nexa also generated solids for non-recoverable areas (“no possible” solids) due to poor ground conditions and inaccessibility, to remove these zones from the Mineral Resources and Mineral Reserves. SLR considers generating operational and safety constraints to identify, quantify, and remove the tonnes and grades from Mineral Resources and Mineral Reserves to be a good practice. SLR recommends documenting all the data support to define non-recoverable solids and document any changes to these solids.

The SLR QP reviewed the resource shapes and is of the opinion that they could be improved. Currently, resource shapes have on average 20% internal dilution, however, there are some areas with resource shapes with more than 30% of internal dilution due to the large dimension of the shape. Internal dilution is particularly high in the shapes at the edges of the orebodies. SLR recommends reviewing the resource shape construction methodology to optimize resource shapes in order to reduce unnecessary internal dilution and improve grades, and possibly generate more shapes that were not built due to the methodology used.

SLR also noticed that there is a significant amount of tonnes within blocks above the NSR cut-value that were not included in the Mineral Resources or Mineral Reserves, and are not part of the “no possible” solids. Nexa and SLR reviewed these areas and note that they are mostly skin remnants, however, SLR recommends re-evaluating these zones on an ongoing basis to potentially include part of these tonnes with continuous blocks that have the potential to be recoverable, to generate resource shapes and possibly reserve stopes.

SLR also observed a minor overlapping of the resource shapes with areas that were depleted but not surveyed (“no-survey” solids) from the previous model, however, a “no survey” solid was not generated for the updated model and no documentation was provided to support the changes. The overlapping volume is not material as it is less than 1%. Nevertheless, SLR recommends generating a “no survey” solid to account for the mined-out areas that were not surveyed, and document work to support the resultant solid.

In the SLR QP’s opinion, the assumptions, parameters, and methodology used for the Cerro Lindo underground Mineral Resource estimates are appropriate for the style of mineralization and mining methods.

The SLR QP is of the opinion that, with consideration of the recommendations summarized in Section 1 and Section 23, any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.





Figure 11-38: Plan View of Mineral Resources Inclusive and Exclusive of Mineral Reserves





Figure 11-39: Longitudinal View of Mineral Resources Inclusive and Exclusive of Mineral Reserves



Nexa Resources S.A. | Cerro Lindo Mine, SLR Project No: 233.03246.R0000
Technical Report Summary - January 29, 2021



11.17 Comparison to Previous Mineral Resource Estimates

A comparison of the current Nexa Mineral Resource estimate, exclusive of Mineral Reserves, to the previous 2019 Mineral Resource estimate is presented in Table 11-24. Mineral Resources are reported on an 80.16% Nexa attributable ownership basis. Overall, the resources have increased significantly. The differences are primarily due to the following changes:

- New resource shape reporting methodology that includes all the material in each resource shape.
- Updated “no possible” areas that are excluded from the Mineral Reserves and Mineral Resources, due to poor ground conditions and inaccessibility.
- Improvement of grade continuity in the model.
- Extension of the mineralization domains (SPP, SPB, SSM, and VM) based on infill and exploration diamond drilling; particularly, VM as part of the background rock.
- The addition of new mineralization domains (OB11VM, OB12VM, OB5BVM, OB14VM y PUCVM) as a result of exploration diamond drilling.
- New classification criteria for SSM and VM.
- Slightly higher NSR cut-off values.
- Depletion of material through mining.
- Slightly lower density values due to the addition of 1,181 density determinations from the 2019-2020 drilling campaign located mostly at the extremity of the mineralization domains.





Table 11-24: Cerro Lindo Comparison of 2020 Versus 2019 Mineral Resources
Nexa Resources S.A. - Cerro Lindo Mine

Category	Cerro Lindo Mineral Resources - December 31, 2020									Cerro Lindo Mineral Resources - December 31, 2019								
	Tonnage (Mt)	Grade				Contained Metal				Tonnage (Mt)	Grade				Contained Metal			
		(% Zn)	(% Pb)	(% Cu)	(g/t Ag)	(000 t Zn)	(000 t Pb)	(000 t Cu)	(000 oz Ag)		(% Zn)	(% Pb)	(% Cu)	(g/t Ag)	(000 t Zn)	(000 t Pb)	(000 t Cu)	(000 oz Ag)
Measured	3.53	2.00	0.20	0.67	19.61	70.38	7.10	23.55	2,223.73	2.48	2.58	0.33	0.69	27.87	63.97	8.18	17.15	2,225.24
Indicated	2.77	1.37	0.25	0.45	24.96	37.93	7.05	12.46	2,225.16	1.82	1.64	0.28	0.68	29.66	29.98	5.05	12.34	1,737.07
Total M+I	6.30	1.72	0.22	0.57	21.96	108.31	14.15	36.01	4,448.89	4.30	2.18	0.31	0.68	28.63	93.95	13.23	29.50	3,962.31
Inferred	6.98	1.28	0.35	0.33	31.23	89.07	24.52	23.33	7,012.39	4.12	2.43	0.53	0.53	43.12	100.28	21.72	21.72	5,709.80





12.0 MINERAL RESERVE ESTIMATES

12.1 Summary

Table 12-1 summarizes the Mineral Reserve estimate effective as of December 31, 2020.

Table 12-1: Summary of Mineral Reserves - December 31, 2020
Nexa Resources S.A. - Cerro Lindo Mine

Table with 10 columns: Category, Tonnage (Mt), Grade (% Zn, % Pb, % Cu, g/t Ag), and Contained Metal (000 t Zn, 000 t Pb, 000 t Cu, 000 oz Ag). Rows include Proven, Probable, and Total.

Notes:

- 1. The definitions for Mineral Reserves in S-K 1300 were followed for Mineral Reserves which are consistent with CIM (2014) definitions.
2. The Mineral Reserve estimate is reported on an 80.16% Nexa attributable ownership basis.
3. Mineral Reserves are estimated at NSR cut-off values of US\$33.56/t processed for SLS and US\$49.90/t processed for C&F stoping.
4. Mineral Reserves are estimated using average long term metal prices of Zn: US\$2,494.90/t (US\$1.13/lb); Pb: US\$1,956.00/t (US\$0.89/lb); Cu: US\$6,457.90/t (US\$2.93/lb); Ag: US\$16.85/oz with all costs in US dollars.
5. Metallurgical recoveries are accounted for in the NSR calculations based on historical processing data and are variable as a function of head grade.
6. A minimum mining width of 5.0 m and 4.0 m was used for SLS stopes and C&F stopes respectively.
7. Bulk density varies depending on mineralization domain.
8. Numbers may not add due to rounding.

The Mineral Reserves were estimated by Nexa and reviewed by SLR. Measured and Indicated Mineral Resources were used as inputs for conversion into Proven and Probable Mineral Reserves respectively. Mineral Reserves also include unclassified and Inferred blocks in the form of internal dilution and planned dilution.

Reserve NSR factors were first added to the resource model. Deswik Stope Optimiser (DSO) was used to generate mining shapes at an NSR cut-off value of US\$25/t. A low NSR cut-off value was used to generate the shapes to enable the capture of as much of the mineralization as possible. No planned dilution parameters were considered at this stage. DSO was run separately for each orebody to account for its respective strike and dip direction.

The generated shapes were then cut against a grid that represents the general stope size and mining pattern. The cut stopes were then depleted against as-built wireframes. The resulting shapes were interrogated against the block model and the average grades and NSR value were calculated. The shapes were then reviewed and excluded from Mineral Reserve estimates where appropriate.

The retained stopes are used to guide the development designs. The development and stope designs are then added to Deswik Scheduler to generate a production schedule. The dilution and extraction factors are applied in the scheduler. Mineral Reserves are reported as diluted and extracted stope and ore development tonnes and grades. These were fully scheduled in an appropriate LOM plan and applied to a discounted cash flow model. The Mineral Reserve estimate has demonstrated viable economic extraction.





Mineral Reserves were estimated by flagging mined-out stope surveys through May 31, 2020 as zero values in the block model. Planned mining to December 31, 2020 was identified and excluded from Mineral Reserve estimates and production schedule. After year-end, SLR verified the estimate by reviewing actual mining results for this period of projected mining. Deviations from plan, amounting to approximately 1% of total Mineral Reserve tonnage, were caused by lower production in Q2 2020 due to the COVID-19 pandemic. Production ramped up to pre-pandemic levels in June 2020. SLR considers that these deviations are not significant to the estimate of Mineral Reserves.

The SLR QP is not aware of any risk factors associated with or changes to any aspect of the modifying factors such as mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate.

12.2 Dilution

The dilution factors utilized for the mine design at Cerro Lindo are listed in Table 12-2.

Table 12-2: Mine Dilution Factors
Nexa Resources S.A. - Cerro Lindo Mine

Description	Method	Long Term	Former	Source	Short Term
Operational Dilution	Primary ¹	1.0%	5.7%	Historical	5.90%
	Secondary	6.5%	8.10%	Historical	6.10%
	Tertiary	6.5%	8.10%	Historical	3.80%
	C&F	5.0%	5.0%	Historical	
	Pillar- C&F	11.3%	11.3%	Historical	
Planned Dilution	Open Stoping	15%	15%	Historical	
		12%	12%	Historical	15% to 20%

The primary stopes have typically lower dilution being within the central portion of the mineralized zone and bounded by the secondary stopes. The current or long term factors are based on new layouts which have proven to be successful. The lower dilution is applied to high grade stopes. Secondary stopes have seen an improvement in the level of dilution as well, and the overall dilution figures are supported by the reconciled production numbers reviewed by SLR. The short term dilution factors are typically higher, as indicated in Table 12-2. While the current dilution numbers are supported by the tonnage and grade reconciliation, an increased level of mining on the fringes of the deposit will, in the SLR QP's opinion, require some re-design or revised stoping method to maintain acceptable dilution levels. The dilution is assumed to be at zero grade.

SLR has reviewed the impacts of changes to the dilution estimate. While increasing dilution could render some reserves below cut-off grade the proportion is relatively low and overall the Mineral Reserves are relatively insensitive to dilution fluctuations.

12.3 Extraction

The extraction (recovery) factors for the stopes are shown in Table 12-3. The new layouts have increased the extraction by one percent in the primary stopes and by five percent in the secondary and tertiary stopes. The increases are justified based on the reconciliation of the planned versus actual stope tonnages.





Table 12-3: Mine Stope Extraction Factors
Nexa Resources S.A. - Cerro Lindo Mine

Method	Long Term		Source	Short Term
	Current	Former		
Primary	85%	86%	Historical	84.40%
Secondary	81%	76%	Historical	84.70%
Tertiary	81%	76%	Historical	76.50%
C&F	90%	90%	Historical	
Pillar- C&F	88%	88%	Historical	

While the extraction values appear to be low, they include, in addition to accounting for underbreak and mucking losses (inaccessible due to rough corners and muck hung-up), short term design changes. Stope shapes used in the Mineral Reserve estimation are completed on a regular grid, so that the extraction factor also accounts for skin pillars that are left in place to maintain the integrity of the adjacent backfill. Mineral Reserve tonnage and metal content are affected in direct proportion to variations in extraction.

12.4 Net Smelter Return and Cut-off Value

An NSR cut-off value is determined using the Mineral Reserve metal prices, metal recoveries, concentrate transport, treatment and refining costs, as well as mine operating costs. The metal prices used for the Mineral Reserves are based on consensus, long term forecasts from banks, financial and other sources.

The cut-off value used for the reserves is based on an NSR value (US\$/t processed), which can be directly compared to the mine operating costs. The NSR formula is:

$$\text{NSR} = \frac{\text{GROSS REVENUE} - \text{OFFSITE CHARGES}}{\text{Tonnes Processed}}$$

Costs and other parameters used to calculate the NSR cut-off value are shown in Table 12-4. The breakeven NSR cut-off value was estimated to be \$33.56/t processed. An incremental cut-off value of \$26.16/t is used for certain stopes, for example in the middle of the extraction sequence, where the cost of the development to access the ore has been paid for by adjacent reserves mined. For the sill pillar recovery where a C&F conventional method is used, a higher NSR cut-off value of \$49.90/t is used.

Table 12-4: NSR Data
Nexa Resources S.A. - Cerro Lindo Mine

Item	Units	SLS	C&F
Net Metallurgical Recovery *			
Zn	%	88.13	88.13
Pb	%	68.58	68.58
Cu	%	86.30	86.30





Item	Units	SLS	C&F
Ag	%	90.0	90.0
Pb Concentrate Payable %			
Pb	%	95.0	95.0
Ag	%	95.0	95.0
Zn Concentrate Payable %			
Zn	%	95.8	95.8
Ag	%	70.0	70.0
Metal Prices			
Zn	US\$/lb	1.13	1.13
Pb	US\$/lb	0.89	0.89
Cu	US\$/lb	2.93	2.93
Ag	US\$/oz	16.85	16.85
Charges			
Logistics and TC			
Zn Concentrate	US\$/t conc	321.0	321.0
Pb Concentrate	US\$/t conc	251.0	251.0
Cu Concentrate	US\$/t conc	245.0	245.0
Integrated Zn			
Conversion Cost	US\$/t Zn prod	447.0	447.0
Premium	US\$/t Zn Prod	217.0	217.0
Refining Cost			
Ag in Pb conc	US\$/oz	1.00	1.01
Ag in Cu conc	US\$/oz	0.50	0.51
Operating Costs			
Mining	US\$/t proc.	21.00	37.34
Processing + Maintenance	US\$/t proc.	10.42	10.42
G&A	US\$/t proc.	2.14	2.14
Total	US\$/t proc.	33.56	49.90

* Based on LOM average metal grades

Nexa reviewed supply and demand projections for zinc, lead, and copper, as well as consensus long term (ten year) metal price forecasts. SLR verified that Nexa's selected metal prices for estimating Mineral Reserves are in line with independent forecasts from banks and other lenders.

The average NSR factors are calculated using the LOM revenue contribution from each metal net of off-site costs and factors, divided by the reserve grade for that metal, and are indicative of the relative contribution of each metal unit to the economics of the Mine. For most metals, a variable recovery (as a function of head grade) was used, and therefore the average NSR factors should not be applied to head grades without considering the head grade versus recovery relationship. Therefore, the NSR factors are variable by head grade, with NSR factors summarized in Table 12-5. The grade-recovery relationship for each metal based on recent operating performance are presented in Figure 12-1, Figure 12-2, and Figure 12-3.





Table 12-5: Average NSR Factors
Nexa Resources S.A. - Cerro Lindo Mine

Metal	Unit	Value
Zn	US\$/%	17.49
Pb	US\$/%	11.86
Cu	US\$/%	47.50
Ag	US\$/oz	10.89



Figure 12-1: Zinc Recovery





Figure 12-2: Lead Recovery



Figure 12-3: Copper Recovery





13.0 MINING METHODS

13.1 Background

Cerro Lindo has been operating since 2007, with production rates of approximately 7 Mtpa in the recent years. The mine is mechanized, using rubber-tired equipment for all development and production operations. Mining is carried out in ten separate orebodies, using bulk longhole stoping methods, with up to 30 m high stopes, in a primary, secondary, and tertiary sequence. Stopes are backfilled with a low-cement content paste fill made from flotation tailings in the surface paste plant and distributed to the underground via two vacuum filter trains.

The highest operating level is the 1970 m level, the lowest operating level is the 1550 m level, and the ultimate bottom level is planned to be the 1490 m level.

A longitudinal section through the mine is presented as Figure 13-1.

The mine is accessed through fifteen portals that service adits, drifts, and declines. The main ore flow is directed via the grizzly installations on the 1830 m level that feed the jaw crusher located on the 1820 m level. From the crusher discharge, the ore flows up to the surface stockpile areas via an inclined conveyor and out at the 1940 m level from where it continues to flow to the plant via inclined surface conveyors.

A simplified plan view of the 1820 m level is shown in Figure 13-2. It shows existing and planned development in ore, mined out and planned stoping blocks, portals, and the conveyor incline.





Figure 13-1: Longitudinal Section of the Mine





Figure 13-2: Simplified Plan View of the 1820 m Level





13.2 Mine Design

The mine design includes access via 5.0 m by 4.5 m ramps driven at various gradients to access the stope areas and other infrastructure (sumps, electrical substations, refuge stations, storage areas, etc.). A fleet of 35 t and 52 t haul trucks operated by contractors move the muck to the grizzlies located on the 1830 m level. The ore is crushed at this level and conveyed to the surface stockpiles. The underground mine design is presented in Figure 13-3.





Figure 13-3: Cerro Lindo Underground Mine Design





13.3 Mine Method

The stoping methods employed at Cerro Lindo include the bulk Sublevel Longhole Stopping (SLS) method, which accounts for the majority of the production, and the Cut and Fill (C&F) method, utilized where necessary such as for the mining of sill pillars which require a more conventional method for economic extraction. The SLS stope dimensions are typically 20 m to 30 m in height by 25 m long and vary in width. Dimensions can vary given the orebody geometry or local geotechnical conditions which necessitate extra care in keeping stopes of a size to permit effective ground control and stoping productivities.

SLR considers the mining methods and stope dimensions appropriate for the style of mineralization at Cerro Lindo. SLS has been extensively used at the mine and the current mine designs follow a similar approach. SLR also notes that there is on-going investigations into using C&F mining methods to extract pillars where possible.

The SLS method can vary with production drilling being completed in a fan pattern using downward drilling or uppers drilling as illustrated in Figure 13-4. The production drill holes vary in size from 102 mm in diameter for the downward drilling to 76 mm in diameter for uppers drilling to optimize stoping results in terms of size of fragmentation and overall stoping productivity. The stope design includes detailed support plans, production drill plans with optimized burden and spacing, and detailed loading and blasting plans to provide for the best stoping results. Where effective, for example, electronic delays are used in the blast timing which provides for very precise timing leading to less swell space requirement and improved fragmentation. This enables a reduction in secondary breaking resulting in improved operating costs.

The stope designs are carried out and are detailed in a document titled “*Autorización de Trabajo*” (Work Authorization). This document outlines all aspects of the stope designs including access ways, refuge areas, loading areas to be used, and geomechanical risks (high, medium, or low), drilling and blasting layouts, specific geology of the area, ground support design, based on geotechnical assessment (using finite element models), ventilation requirements (air quantities), backfill requirements (cement content, backfill lines, backfill rates), and a stope risk analysis table outlining the risks identified and the mitigation measures to be taken to address and eliminate these risks. In the SLR QP’s opinion, these documents form the basis of a robust approach to the mine operations and meet or exceed industry best practices.





Figure 13-4: Production Drilling Layout





13.4 Geotechnical Considerations

Independent geotechnical assessments were commissioned for the Cerro Lindo deposit, including by AMEC in 2013 and SRK in 2016 and 2018.

SRK completed a geomechanical 3D modelling exercise and evaluation of the overall stability conditions within the mine. These assessments provide recommended design standards for development and production stope openings, backfill strength requirements, maximum stope dimensions, and guidance for stope sequencing.

13.4.1 Geotechnical Overview

The main lithological units have been described and modelled with acceptable detail to support geotechnical characterization and hazard evaluation related to mining activities. As related to the mining method (SLS) employed at the time of the assessment, rock mass conditions are well understood and appropriate for the current mining depths, the rock reinforcement types, and geotechnical input into the mine production and development.

The geotechnical mapping and data analysis protocols include industry-standard practices such as detailed descriptions of the various structural domains and their characteristics. This work is based on field mapping, geological modelling, and limited geotechnical core drilling.

Geotechnical characterization is a continuous proactive process as new mining areas are accessed.

SRK completed a 3D numerical model in 2017 using the FLAC3D™ 5.01 software (Itasca Consulting Group), with the main objective of evaluating the global stability of the mine and the actual and the long term conditions. This model permits evaluation of the rock mass response in terms of stope and mine workings stability. Nexa carried out in-situ stress testing in 2013 and 2014 to aid in the design of the mining sequence.

The main objectives of the numerical modelling include the following:

- Evaluate the global stability of the mine, the actual conditions, and a long term mine plan.
- Determine the effects of mine induced stresses on the mine infrastructure in future.
- Evaluate the stability of the stopes and assess potential problem areas in the mine.
- Evaluate the areas of potential subsidence on surface and potential impact on surface infrastructure.

To obtain design data, geotechnical work included logging of drill holes (35) to assess RQD values, establishing geomechanical stations at underground locations (37 stations) in various lithological units, and determining the Rock Mass Rating (RMR), the Modified Rock Quality Index (Q'), and physical properties of the lithological units including, density, porosity and absorption. Measurements of the number of joints, the joint roughness number, and joint alternation number are used to determine the stability number N'. The stability number can be plotted on a stability chart against the stope hydraulic radius to assess if the surface considered is in a stable, transition, or caving zone of the rock mass. This in turn enables assessing the required level of support to provide the required stability.

In 2019 Nexa carried out laboratory testing to determine the mechanical properties such as uniaxial compressive strength, triaxial compressive strength, indirect tensile strength, elastic moduli of intact rock, and pulse velocities and ultrasonic elastic constants. All testing was completed using norms such as the ASTM (American Society of Testing and Materials), IRMS (International Rock Mechanics Society), and AAMR (American Association of Rock Mechanics) in accordance with best practices. The most recent laboratory testing was carried out in 2019 by Geomecánica Latina S.A., with offices in Peru, Bolivia, and Chile.

The various factors for the lithologies are shown inTable 13-1.

Table 13-1: Design Factors for Lithologies
Nexa Resources S.A. - Cerro Lindo Mine

Type	Acronym	RQD	Jn	Jr	Ja	Q'(mean)	RMR ₈₉
Primary Pyritic Sulphides	SPP	66	7.84	1.62	2.11	6.46	60





The stability and rock quality factors for the Cerro Lindo lithologies are shown in Figure 13-5. Note that the stability number N' is based on the standard stope dimensions of 30 m high by 19 m long by 13.5 m wide.



Figure 13-5: Stability and Rock Quality Indices

13.4.2 Geomechanics, Ground Support

The geomechanical classification and ground support standards were developed by Nexa staff and the geomechanical classifications are shown inTable 13-2.

Table 13-2: Geomechanical Classification
Nexa Resources S.A. - Cerro Lindo Mine

Classification	RMR	TYPE
Good	61-80	II
Regular A	51-60	III A
Regular B	41-50	III B
Poor A	31-40	IV A
Poor B	21-30	IV B
Very Poor	<20	V





The ground support standards developed by Nexa staff are shown in Figure 13-6 which cover the various conditions encountered throughout the underground mine. The bolting pattern is shown for various conditions and the type and length of bolt or rebar to be used. Shotcrete is also used as required with a typical sprayed thickness of five centimetres. Where necessary, cable bolts, typically six to seven metres in length, are also used. In the long life areas, such as the main crusher room, heavier support is provided with input from specialized people.

Figure 13-7 shows an example of a finite element modelling longitudinal section used to assess the safety factors for the back and walls of the T320B-1880 stope. From this analysis and use of plans and sections of the structural geology, a stability chart can be developed providing an assessment of the equivalent length of slough (ELOS) from the stope walls for dilution estimation, the ground support methods (bolts, mesh, cable bolts, shotcrete) required to provide the support based on the RMR values, and the backfill strength required (cement content) to provide the design stability.

For this case, the stability chart has indicated that the stope, with dimensions of 18 m high by 18 m long by 12 m wide, is located in the transition zone, between the stability zones that indicate ground support is required and not required. The anticipated ELOS is between one to two metres. The paste fill adjacent to the stope has a strength of 0.46 MPa (cement content of 3%), while for a safety factor of 1.3 on the stability modelling, the required strength is 0.35 MPa. For the stope back (roof), the model predicts a safety factor of 0.95 due to rock class IVA at the contact zone of volcanic rock. Cable bolting is recommended at the intersection of the drift and crosscut. The ten metre sill pillar should be monitored by scanning to verify the stability of the pillar.





Figure 13-6: Ground Support Standards





Figure 13-7: Finite Element Model for T320-1880 Stope Safety Factor Assessment





13.5 Hydrogeological Considerations

The Cerro Lindo is a relatively dry mine and does not produce significant quantities of water. Exploration drilling to date has not intersected any water bearing structures that could introduce major inflows in the mine workings. The only pumping requirement is to remove drilling water from the active workings. The water is collected, treated, and recycled for use in the operation.

13.6 Life of Mine Plan

The life of mine (LOM) plan is shown in Table 13-3. Mine production from 2021 through 2029 will include approximately 52.1 Mt with average grades of 21 g/t Ag, 0.61% Cu, 0.20% Pb, and 1.44% Zn over the LOM period. This will result in the production of recovered metal including 35.5 Moz of silver, 319.1 kt of copper, 106.1 kt of lead, and 747.9 kt of zinc.

The LOM production profile is shown in Figure 13-8. The figure indicates a significant decrease in production starting in 2025 due to increased mining on the fringes of the deposit requiring a higher level of preparation and consequently impacting the mine throughput capability. More importantly, the current LOM plan includes mining stopes in proximity to the underground main crushing station which will effectively negate use of the crusher and, as a result, require haulage of ore to surface and additional truck haulage fleet.



Figure 13-8: LOM Production Profile





Table 13-3: Life of Mine Plan
Nexa Resources S.A. - Cerro Lindo Mine

Description	Units	Total	2021	2022	2023	2024	2025	2026	2027	2028	2029
Production	t	52,101	7,000	7,000	6,500	6,500	5,000	5,000	5,000	5,000	5,101
Production Rate	tpd	17,843	19,178	19,178	17,808	17,808	13,699	13,699	13,699	13,699	13,976
Ag Grade	g/t	21.15	18.97	22.08	24.26	23.02	27.99	18.97	17.42	19.60	17.73
Cu Grade	%	0.61 %	0.44 %	0.48 %	0.52 %	0.59 %	0.75 %	0.68 %	0.73 %	0.73 %	0.75 %
Pb Grade	%	0.20 %	0.23 %	0.25 %	0.26 %	0.22 %	0.28 %	0.18 %	0.13 %	0.13 %	0.10 %
Zn Grade	%	1.44 %	1.77 %	1.56 %	1.50 %	1.38 %	1.70 %	1.51 %	1.34 %	1.12 %	0.87 %
Contained Ag	oz (000)	35,472	4,273	4,974	5,042	4,807	4,487	3,025	2,804	3,134	2,926
Contained Cu	tonnes	319,137	31,023	33,609	33,643	38,349	37,479	34,000	36,261	36,661	38,113
Contained Pb	tonnes	106,140	15,924	17,704	17,218	14,514	14,026	8,898	6,322	6,455	5,079
Contained Zn	tonnes	747,899	123,900	109,030	97,500	89,600	85,000	75,461	67,224	55,967	44,217





13.7 Infrastructure

This section covers the underground infrastructure, with the main surface infrastructure described in Section 15 Project Infrastructure.

13.7.1 Mine Access

Cerro Lindo is accessed by means of multiple ramps due to the high number of deposits that make up the mine operations. The ramps are driven at various gradients to attain the required operating level throughout the various deposits. Ramp dimensions are typically five metres by five metres, which corresponds to the dimensions necessary to meet regulations for equipment clearances, ventilation requirements, and adequate space for installation of services carried via the ramp accesses. There are three main ramps that provide access to the lower levels of the mine and these are being deepened to continue accessing lower levels. There are also local ramps that provide access to the operating stopes and stopes being developed and prepared for production.

13.7.2 Ventilation

The mine ventilation circuit at Cerro Lindo is extensive, consisting of portals, main fans, and interconnecting ramps and raises.

The ventilation circuits are typically separated by orebody. A total of 2.37 million cfm enters the mine through 12 portals and raises and exhaust through six raises. The ventilation system is powered by 19 main fans which are installed on the exhaust circuits and several booster fans. The main fans draw exhaust air from the various mining areas and direct it to dedicated exhaust levels or raises.

Figure 13-9 illustrates the ventilation circuit for OB1.





Figure 13-9: Cerro Lindo Ventilation Circuit Schematic





13.7.3 Material Handling

Production muck is hauled from the stope areas to a grizzly located on the 1830 m level, with the grizzly product feeding a jaw crusher located on the 1820 m level. A feeder then delivers the crusher ore to a main conveyor used to convey ore from the 1820 level loading chute up to surface via the 1940 m level portal to the stockpiles. The ore is comingled and not segregated in separate stockpiles.

Waste material from the mine development is dumped into available stopes or, if required, hauled to surface.

13.7.4 Power

The underground mine is serviced by a power reticulation system that provides approximately 7 MW. The main feed to the underground is at 10 kV and feed to substations and reduced to 480 V on the secondary to feed the mining equipment, mine pumps, mine ventilation fans, and auxiliary fans. The mine has backup generator to support the main ventilation system.

13.7.5 Service Water

Service water is very important at Cerro Lindo, which requires recycling and reuse at the maximum possible rate. Service water is used mainly for drilling purposes, cooling, dust control, and shotcrete/concrete requirements. The water is provided from a central plant-wide source and distributed to the underground via a system of pipelines to the working areas. The water is sourced from a desalination plant at the ocean and pumped approximately 180 km via three pump stations to a final elevation of 2,100 MASL at the mine site.

13.7.6 Dewatering

The mine generates very little water from geological sources. The sumps located on the lower levels in active mine areas feed the two pumping stations located on the 1680 m level via 100 mm diameter pipelines. From the two pump stations water is pumped up to the 1820 m level pumping station via 100 mm and 150 mm diameter lines and further on to the reservoir located on the 1970 m level and out to the surface storage area. The mine utilizes an effluent treatment plant that consists of a basic system of water clarification using three contingency ponds.

13.7.7 Backfill

Paste backfill is used at Cerro Lindo and is prepared in the paste plant located on surface near the exhaust portals. The plant is supplied with mill tailings by pipeline from the plant. The plant operates two vacuum filter trains capable of supplying 300 t/h of filter cake to the paste mixers. The nominal binder is 3% but can vary as required to achieve the desired strength. The paste is pumped to the underground via the 1970 m level exhaust portals with pipes laid on the floor of the drifts for most of the distance. The total paste delivery is designed at 5,000 m³/d, with the plant operating at 95% availability and capable of meeting the demand. When the stopes are distant from the paste fill source, additional water is used to enable transport via the pipeline, however, this can result in paste fill of lower quality. SLR recommends that for such conditions a trade-off study be carried out to assess the use of cemented rock fill (CRF) which may be more effective in providing the required strength.

13.7.8 Compressed Air

Almost all drilling equipment in the mine is electric over hydraulic and equipped with on-board air compressors. A compressed air reticulation system delivers compressed air from surface for uses such as construction, ground support, etc.

13.7.9 Maintenance Facilities

There are two service level shops underground operated by contractors Caterpillar and Atlas Copco. These shops are equipped for light maintenance and preventive maintenance services, while equipment requiring major repairs and services is taken to the surface shop facilities. Contractors providing support for the mine maintain their own service on surface and do not use the underground facilities.





13.7.10Communications

The underground mine is equipped with a leaky-feeder radio system providing for effective communications to all areas of the mine and hard-wired telephones to select locations. The mine is serviced by an underground communications centre, which is operating 24 hours per day. Mine rescue teams are available in case of emergency situations.

Nexa should consider upgrading the mine’s underground data-communications capabilities by replacing the present leaky-feeder system with a Wi-Fi fibre-optic network or a 4G-LTE cellular network. An upgraded communications system will permit implementing centralized control and monitoring of underground operations from a control room on surface. These centralized functions can include real-time tracking of personnel and equipment, telemetry, ventilation-on-demand, and closed-circuit television, among other applications.

With a wireless communications system, Nexa should consider implementing automated and/or tele-remote technology to operate equipment from control stations on surface. The technology can be used for mucking stopes, mucking development headings, production drilling, crushing, and operating rockbreakers, among other applications. A significant benefit is that it allows many mining operations to continue during otherwise non-productive periods, including lunch breaks, shift changes, blasting times, and ventilating smoke.

13.8 Mine Equipment

The list of mining equipment is provided in Table 13-4. There are multiple contractors operating in various capacities at Cerro Lindo and the equipment list shown can vary as contractor work programs vary over time.

Table 13-4: Mine Equipment List
Nexa Resources S.A. - Cerro Lindo Mine

Description	Nexa	Tumi	Incimmet	Aesa	American	Dinet	Total
Jumbos	2		2	7			11
Production Drills	6		2				8
Bolters	3		2	5			10
Scalers/Breakers	6		2	4			12
Scissor Lifts	0			5			5
Scoops 9Yd	14			2			16
Scoops 6Yd			3	5			8
Conventional Trucks 35t					16	26	42
Conventional Trucks 52t						26	26
Boom Truck	3			5			8
Excavator	6				4		10
Raisebore		6					6
Forklift			4				4
Transmixer			1				1
ANFO Truck				6			6
Fuel Truck				1			1
Dozers					3		3
Front End Loaders					2		2
Grader					1		1
Compactor					2		2
Total	40	6	16	40	28	52	182





The mine equipment performance criteria and productivities are shown in Table 13-5. The required number of crews is also shown and estimated from the productivity levels and production requirements.

Table 13-5: Equipment Performance Criteria and Productivities
Nexa Resources S.A. - Cerro Lindo Mine

Equipment	No. Units	Distribution (Contract/Nexa)	Availability %	Utilization %	Productivity (avg.)	Units	Crews (avg.)
Bolters	8	2/2	83	46	39	m/h	6.6
Scalers	11	7/4	71	46	31	m³/h	7.8
Trucks 35t	42	42/0	73	78	34	t/h	10.7
Trucks 52t	26	26/0	65	71	41	t/h	16.9
Jumbo Drills	9	7/2	83	56	111	m/h	7.5
LHDs	22	11/11	83	66	120	t/h	12.8
Simba DTH/ITH	6	0/6	75	54	24	m/h	4.5
Raptor LH	4	0/4	79	44	21	m/h	3.2

13.9 Manpower

The workforce of Cerro Lindo consists of company personnel and contractors. The Nexa personnel and contractor lists for mining operations are presented in Table 13-6 and Table 13-7 respectively. The number of Nexa employees required for mining operations are not expected to change significantly for the foreseeable future. The number of contractors varies month to month depending on labour requirements at the mine site.

The production is carried out by the company mine personnel, while contractors carry out the development advances and haulage. Operators and technical staff work a 14 x 7 shift cycle consisting of seven days of dayshift, seven days of nightshift, and seven days off. General staff work on a 5 x 2 shift cycle.

Table 13-6: Nexa Mine Personnel
Nexa Resources S.A. - Cerro Lindo Mine

Area	Managers	General Staff	Operators & Technical Staff	Total
Geology and Exploration	1	9	15	25
Mine	1	29	206	236
Projects	1	7		8
Technical Services	1	24	32	57
Total	5	85	344	434





Table 13-7: Mine Contractor List
Nexa Resources S.A. - Cerro Lindo Mine

Contractor	Area	Shift	Number
Explosupport S.A.C.	Exploration	14 x 7	1
Certimin S.A.	Geology	14 x 7	17
Explomin Del Peru S.A.	Geology	14 x 7	139
		14 x 7	
Transportes San Alejandro S.A.C.	Logistics	6 x 1	36
Administracion De Empresas S.A.C.	Mine	14 x 7	390
American Renta Car S.A.C.	Mine	14 x 7	53
Dinet S.A.	Mine	14 x 7	267
Exsa S.A.	Mine	14 x 7	57
Incimmet S.A.	Mine	14 x 7	298
Tumi Contratistas Mineros S.A.C.	Mine	14 x 7	66
Union De Concreteras S.A.	Mine	14 x 7	126
Total			1,450





14.0 PROCESSING AND RECOVERY METHODS

The Cerro Lindo processing plant is located on a ridge adjacent to the Mine, situated at an altitude of 2,100 MASL to 2,200 MASL. The processing plant commenced operations in 2007 with a processing capacity of 5,000 tpd, however, it has since been expanded to a name-plate capacity of 21,000 tpd. Processing consists of conventional crushing, grinding, and flotation to produce separate copper, lead, and zinc concentrates. Tailings are thickened and filtered for use as backfill or trucked to the dry stack tailings storage facility.

14.1 Process Description

The Cerro Lindo processing plant layout is shown in Figure 14-1 and a simplified process flowsheet is shown in Figure 14-2.

14.1.1 Crushing

Crushing is carried out in three stages with the first stage occurring underground, where a primary jaw crusher, fed via a stationary grizzly, crushes ore to less than 100 mm. Crushed ore is conveyed to the coarse ore stockpiles located at the processing plant. When the primary crusher requires maintenance, ore is trucked directly to surface where it is stockpiled prior to being crushed in a mobile primary crusher, which discharges onto the coarse ore stockpile feed conveyor.

Coarse ore is reclaimed from the stockpile and fed to two parallel crushing circuits, each consisting of secondary and tertiary crushing. Reclaimed ore is screened, with the oversize reporting to the secondary crushers, while the undersize is directed to the fine ore bins. Secondary crusher product is screened, with the screen oversize reporting to the tertiary crushers and the undersize being directed to the fine ore bins. The tertiary crushers are in closed circuit with the tertiary screens, with the screen undersize directed to the fine ore bins. Ore is crushed to 80% passing (P₈₀) 4 mm, and the two fine ore bins provide approximately 16 hours of storage capacity.





Figure 14-1: Cerro Lindo Process Plant Layout





Figure 14-2: Simplified Process Flowsheet





14.1.2 Grinding

Fine ore is fed from the fine ore bins to two parallel ball mill circuits, each in closed circuit with high frequency classifying screens, at a rate of approximately 900 tph. Each grinding circuit also includes flash flotation, producing bulk (copper and lead) concentrate. The first grinding circuit is the original single-stage ball mill circuit installed in 2007 and capable of processing 5,000 tpd, while the second circuit, consisting of two identically sized ball mills in series, can process approximately 15,000 tpd. Grind size for the circuits is P₈₀ 150 µm to 170 µm.

14.1.3 Flotation

Flotation consists of bulk rougher and scavenger flotation to produce a copper-lead concentrate, which is then cleaned and combined with the flash flotation bulk concentrate prior to being separated into copper and lead concentrates. The bulk flotation tails form the feed to zinc rougher and scavenger flotation to produce a zinc concentrate, which is then cleaned. The three concentrates are thickened and filtered, and then deposited into dedicated concrete storage bunkers.

Concentrate is reclaimed by front-end loader and each bucket is sampled before being loaded into trucks. The trucks are weighed on a weigh bridge adjacent to the concentrate handling area before being despatched to the Port of Callao (copper and lead concentrates) or Nexa’s Cajamarquilla refinery (zinc concentrate) near Lima, Peru. Concentrate is despatched during the night shift with an average of 32 trucks per night, each carrying approximately 35 wet tonnes of concentrate.

14.1.4 Tailings

Final tailings consist of zinc scavenger tails. Tailings are directed to the tailings thickener, and the thickened underflow is divided, with a portion going to the two paste backfill plants, and the remainder going to the dry stack tailings filtration plant. The ratio between tailings to paste backfill and dry stack tailings is approximately 50:50.

The tailings filtration plant and paste backfill plants are located between the dry stack TSFs to the south of the concentrator. Horizontal belt filters are used to reduce the moisture of the tailings to approximately 12%. Dry stack tailings are discharged onto a stockpile, which is reclaimed by front-end loader and trucks for subsequent placement, grading, and compaction on one of the two dry stack TSFs. Cement and fly-ash are added to the paste backfill tailings filter cake producing a paste of approximately 79% solids. This is pumped underground by high-pressure positive displacement pumps.

A concrete spillage containment pond with a capacity of 10,000 m³ is located below the plant platform and tailings thickeners, providing emergency containment if needed.

As mining has progressed, the pumping distance of the paste has increased, leading to limitations in the amount of paste that can be pumped to the furthest points in the Mine, in addition to placing strain on the pumping and piping system. This in turn means that dry stack tailings filtration is fully utilized. Any breakdowns in the paste backfill system therefore result in throughput reductions in the processing plant, as there is no tailings surge capacity other than limited space in the tailings thickener. Mitigating steps will be necessary to ensure that paste backfill system limitations do not become significant processing rate constraints in the future. Nexa plans to install an additional belt filter for dry stack tailings filtration, which will help to minimize the effect on processing plant throughput in the case where the paste backfill system is down.

14.1.5 Concentrate Quality

The Cerro Lindo concentrates contain low concentrations of deleterious elements and higher than average concentrations of the primary metals. The lead and zinc concentrates are clean and do not currently incur penalty charges. Due to the combined lead and zinc content of the copper concentrate (approximately 4.8% to 5.6%), however, the copper concentrate attracts a small penalty of approximately US\$2.00/t.

14.1.6 Process Water

Water is supplied from a reverse osmosis desalination plant located on the coast capable of producing 60 L/s and is pumped 60 km to the Mine site. This is sufficient to supply the requirements for make-up water and potable water





(treated at the Mine site). Most of the process water requirement is recovered from tailings thickening and filtration and is returned to the three 3,600 m³ water storage tanks. Approximately 90% of total tailings water is recovered and recycled to the Cerro Lindo processing plant as process water.

14.1.7 Process Consumables and Power

The main process consumables include steel grinding balls, sodium cyanide, lime, and various flotation reagents. No significant changes to the feed ore, process, or capacity of the processing plant are anticipated, and therefore unit consumption of these materials is expected to remain similar to historical consumption rates. The process plant electrical energy requirement is approximately 25 MW, which is supplied from the national grid.

14.1.8 Manpower

The processing plant personnel comprises management and supervisory staff, including metallurgical personnel, and operators, totalling 108 as well as contractors amounting to 42. The processing plant personnel and contractors are presented in Table 18-3 and Table 18-4. These numbers are not anticipated to change significantly in the foreseeable future. Maintenance personnel and contractors, numbering 101 and 399 respectively, have been included in Table 18-3 and Table 18-4.





15.0 INFRASTRUCTURE

A surface plan showing the mine site infrastructure is provided in Figure 15-1. The in-situ and operating infrastructure at Cerro Lindo includes the following:

- An underground mine accessed by 15 portals.
- An underground crusher and conveyance system to surface.
- Surface ore stockpiles and waste rock dumps.
- A 21,000 tpd processing plant.
- Two dry-stack TSFs.
- Main site power supply.
- Site access roads.
- Mine shops, offices, warehouse facilities.
- Mine camps facilities.

15.1 Site Access

Access to the mine site is via paved highway to Chinchá (180 km from Lima), followed by a 60 km unpaved road. The unpaved road covers a significant gain in elevation with several narrow sections that restrict speeds for heavy haulage. Nexa maintains rest stops at wide areas and enforces safe speed limits on employees and contractors.

Despite the low speed achievable on the road to the mine, the relatively short distance to Chinchá represents a logistical advantage for the Cerro Lindo Mine, in comparison with many Peruvian operations.

15.2 Power Supply

Power to the mine is supplied via the National Grid by two independent tied-in systems for redundancy at 220kV, namely the Chilca Independence 220kV, through a branch to the Desert substation. The substation has a twin transformer capacity of 6.66-8.33 MVA (ONAN-ONAF), 220/60/22.9 kV, and two transmission lines provide power to the mine site substation and desalination plant and pumping station plant located at Jahuay. Secondary substations on site serve to transform the distribution voltage 10kV to the 480V to 120V for mine equipment.

- The site power breakdown by area is:
- Mine 7 MW
- Desalination and pumping 4 MW
- Plant 25MW (28kWh/t)
- Camp 0.50 MW

The overall site demand to sustain a production rate of 20,800 tpd is approximately 36.5 MW which is just adequate, however, the system can be increased to 50 MW at an estimated cost of approximately \$15 million.

15.3 Water Supply

There is no fresh water withdrawal from natural water bodies at the mine site, and the mine obtains very little water from the underground mine workings. Approximately 40% of total demand is extracted from five local groundwater wells/boreholes. The remaining 60% of industrial fresh water is supplied from a desalination plant located on the coast.

The pumping system from the desalination plant is divided into three stages to transport the water approximately 45 km to an elevation of 2,200 m. Three pump stations are located along the six-inch pipeline route from the desalination plant to the mine site.





Service water is primarily used underground for drilling water, cooling, dust control, and concrete/shotcrete service. Service water is provided from a central plant-wide source and distributed underground via a system of pipelines to all working areas. Service water is collected and pumped to the surface where it is treated for re-use.

15.4 Site Buildings

Site facilities are distributed along the valley below the concentrator, where terrain permits. Facilities include offices, separate camps for contractors, hourly employees, and staff, warehousing and storage areas, maintenance shops, and the paste fill plant. Fuel storage is located on surface, with underground equipment fueled by service trucks.





Figure 15-1: Surface Plan of Infrastructure





15.5 Mine Waste Management

15.5.1 Tailings Management

Tailings produced in the process plant are thickened and piped to two possible streams. Approximately 50% of the tailings are further dewatered to 84% solids, mixed with cement and used as paste backfill in the underground workings. The remaining 50% of tailings are thickened separately to a solids content of 88%, loaded onto trucks, and dumped on top of the tailings dry stacks Pahuaypite 1 and 2. Once on the stacks the tailings are allowed to dry for three to four days to reduce their moisture content to 6% to 7%; the tailings are then spread in lifts of 300 mm and compacted to 95% standard proctor maximum dry density. The locations of the dry stacks are illustrated in Figure 15-2.

As of May 2020, Pahuaypite 1 has accumulated 6.2 Mm³ of tailings of the total design capacity of 6.3 Mm³, with less than 0.1 Mm³ capacity remaining. Pahuaypite 2 has accumulated 5.6 Mm³ of tailings of 11.0 Mm³, with 5.4 Mm³ capacity remaining. A total of 5.5 Mm³ of tailings capacity remains within the existing design of the surface tailings dry stack, which provides an estimated 4.9 years of tailings storage.

It is noted that approval for 10% expansion of the Pahuaypite 1 tailings dry-stack storage capacity has been granted by the authorities. A similar plan is in place for 10% expansion of the Pahuaypite 2 tailings dry-stack storage capacity. The design studies to support the expansion of Pahuaypite 2 are underway. This 10% expansion is included in the capacities given in the previous paragraph. Further plans for expanded tailings storage should be explored to support any future mine plan changes.





Figure 15-2: Mine Site Layout and Waste Management Areas





15.5.2 Tailings Storage Facility

Tailings from the mine are stored in two dry-stack deposits, Pahuaypite 1 and 2. These dry stacks are each equipped with a starter dam at the toe of the facility, a foundation drain that runs through the base of the valley(s) under the facility, an intermediate dike or platform to increase the initial working area, and a geomembrane lined water management pond downstream. The foundation drains from the dry stacks continue under the starter dams and report to their respective water management ponds at the base of the facility. The water management ponds downstream of Pahuaypite 1 and 2 were both designed with emergency spillways to safely convey the probable maximum precipitation. However, the emergency spillway for the Pahuaypite 2 water management pond, which is downstream of both tailings dry stacks and the Pahuaypite 1 pond, has been removed to allow for the construction of a new waste rock dump downstream of the pond. According to Ausenco (2017), the tailings dry stacks are classified as “significant” hazard classification according to the Canadian Dam Association (CDA) (2013).

The tailings dry stacks are mostly comprised of filtered tailings which are air dried on the working surface of the stack, spread in lifts of approximately 300 mm thickness, and compacted to 95% standard proctor dry density. Quality control data for the compaction and moisture content of the tailings is regularly taken and satisfies the design.

Pahuaypite 1 is planned up to elevation 2,190 m for a total height of approximately 180 m (before the 10% capacity expansion). This deposit has a relatively small upstream catchment area and therefore does not have diversion channels. Surface runoff from the facility is graded to one side of the facility where it can flow down to the water management pond via a pair of pipes 4” and 6” in diameter.

Pahuaypite 2 is planned up to elevation 2,130 m for a total height of approximately 130 m (before the 10% capacity expansion). This deposit has two upstream diversion channels and an upstream check dam that is intended to help separate non-contact water from tailings. The upstream check dam is a water retaining dam with an upstream concrete face connected to a concrete plinth with curtain grouting. Tailings dry stack Pahuaypite 2 and supporting infrastructure are illustrated in Figure 15-3.

Monthly and annual dam safety inspections are currently being conducted by Geoconsultoria Ltda, an external consultant, for the Pahuaypite 1 and 2 dry-stack deposits. SLR relies on the conclusions of Geoconsultoria [two reports titled *Evaluación Anual de Seguridad - 2018* for Pahuaypite 1 and Pahuaypite 2, dated March 15, 2019] and provides no conclusions or opinions regarding the stability of the listed tailings storage facilities.





Figure 15-3: Tailings Dry Stack Pahuypite 2 and Supporting Infrastructure





15.5.3 Waste Rock Dumps

Waste rock from the underground mining operations is either used as backfill underground or stockpiled on the surface. Waste rock is stockpiled in six locations on the mine site, illustrated in Figure 15-2:

- Clearing Platform 1910-1940,
- Waste dump No. 1,
- Waste dump No. 2,
- Waste dump No. 7,
- Waste dump No. 100, and
- Pahuaypite waste dump.

The capacity of the clearing platform 1910-1940 is unknown, however, waste rock dumps Nos. 1, 2, 7, and 100 have a cumulative capacity of approximately 2.3 Mm³, although waste dump No. 100 is by far the largest at 1.8 Mm³. Pahuaypite waste dump is the newest and only operating waste rock dump for the mine operation; it has a waste rock storage capacity of 4.4 Mm³ (less than 1.2 Mm³ remaining) and is located immediately downstream of the Pahuaypite 2 water management dam. This water management pond will not have an emergency spillway while the Pahuaypite waste dump is in operation. At the closure of the Pahuaypite dump, a new spillway will be established to convey water in the valley around the waste rock dump.





16.0 MARKET STUDIES

16.1 Markets

The principal commodities that are produced at the Cerro Lindo Mine – zinc, copper, lead, and silver – are freely traded at prices and terms that are widely known so that prospects for sale of any production are virtually assured. Zinc and copper represent 91% of Cerro Lindo’s gross revenue, while lead and silver contribute 9% of the revenue. All of Cerro Lindo’s zinc concentrate will be processed at Nexa’s Cajamarquilla zinc refinery in Peru (61%) and Três Marias (35%) and Juiz de Fora (4%) zinc refineries in Brazil. Lead and copper concentrates will also be sold on the open market. Cerro Lindo is an operating mine with concentrate sales contracts in place for copper and lead concentrates. SLR has reviewed the concentrate terms provided by Nexa and found them to be consistent with current industry norms.

Market information for this section comes from the industry scenario analysis prepared by Nexa’s Market Intelligence team in July 2020 based on information sourced from different banks and independent financial institutions, economy and politics research groups, and metals consultants.

Nexa’s Market Intelligence team notes that the industry has progressed from volatile markets in 2019 due to US/China trade wars, Brexit, and development economies slowing down, to more uncertainty in 2020 due to the COVID-19 pandemic, a plunging global economy, the oil crisis, and the US elections. All these factors have affected the market fundamentals.

The SLR QP has reviewed the market studies and analyses and the results support the assumptions in the Technical Report Summary.

16.1.1 Zinc

16.1.1.1 Demand

The major market drivers for zinc demand are construction and infrastructure, transportation and vehicles production, industrial machinery production, batteries, and renewable energy. All these industries have been affected by the COVID-19 pandemic which has caused the global economy to slow down. As a result, zinc metal demand has also decreased in 2020, by approximately 10% year over year.

Nexa’s Market Intelligence team examined several scenarios for demand recovery and future growth, and settled on a base case that forecasts pre-COVID-19 levels of demand in the second half of 2022, with a demand compound annual growth rate (CAGR) of approximately 1.3% from 2023 to 2025. In 2019, they had forecasted a CAGR of approximately 1.7% between 2019 and 2024.

16.1.1.2 Supply

Nexa’s Market Intelligence team’s supply forecast analysis was based on the following industry information: zinc mine start-up and closure, mine production guidance, disruption allowance evaluation, project pipeline, and cost evaluation for 2020 onwards. Nexa’s forecast analysis results are summarized as follows:

- Mine disruption factor: Based on independent data, Nexa has forecast a mine disruption factor of 4% for China and 4% until 2023 and 2% to 3% for 2024 and 2025 for the rest of the world (ROW).
- Project Pipeline: The analysis considered greenfield projects forecast to begin production between 2020 and 2025.
- Zinc concentrate production evolution - Global: Recent market conditions due to the COVID-19 pandemic have affected mines worldwide, reducing investments and causing mine closures. As a result, zinc supply might be limited in the long term.





- China concentrate evolution: China concentrate supply is expected to increase by 3% through the 2020 to 2025 cycle, but significantly depends on the ability of China’s small mines to survive amid lower price levels and volatile market conditions.
- Zinc Global Market Balance: Based on the above considerations, Nexa’s forecast is for a significant zinc supply surplus in 2020 and 2021, with an increase in demand starting in the second half of 2022. From 2024 onwards, the global demand will exceed zinc supply.

16.1.1.3 Zinc Price Outlook

Zinc prices depend on variations in supply, demand, and the perceived supply/demand balance. The most commonly referenced currency for zinc transactions is US dollars. Nexa’s Market Intelligence team based on its analysis of zinc supply, demand, global balance, and zinc prices, forecasts stressed zinc prices in 2021 and 2022 (between \$2,000/t and \$2,300/t), with a potential price increase to greater than \$2,700/t starting in 2024-2025, and a long term price of \$2,449/t. Figure 16-1 shows the results of Nexa’s analysis.



Source: Nexa, 2020e

Figure 16-1: Zinc Price Outlook (2020-2025)

16.1.2 Copper

16.1.2.1 Demand

The major market drivers for copper demand are power generation and transmission, construction, factory equipment, and the electronics industry. The COVID-19 pandemic affected copper demand in 2020 and, in the opinion of Nexa’s Market Intelligence team, will also impact it in the years ahead (2021 and 2022). In the long term, the team predicts a lower demand growth, mainly reflecting China’s economic transition, despite the positive contribution of global trends such as electric vehicles, renewable energy, and urbanization.

Nexa analyzed multiple demand scenarios, with a Base Case forecasting a reduction in copper demand by 9.0% between 2019 and 2020, and starting in the second half of 2020, a slower-paced recovery with a demand CAGR of 3.2% between 2020 and 2025. Copper demand is predicted to grow from 26.9 Mt in 2020 to 31.5 Mt by 2025.





16.1.2.2 Supply

Nexa’s Market Intelligence team’s supply forecast analysis was based on the following industry information: copper mine start-up and closure, mine production guidance, project pipeline, and cost evaluation for 2020 onwards. Nexa’s forecast analysis results are summarized as follows:

- Project Pipeline: The pipeline is short, mainly because there are fewer opportunities in mining-friendly jurisdictions.
- Copper concentrate (sulphide) production evolution: Nexa considers that the majority of the production will come from sulphide mines. Nexa forecasts a concentrate production CAGR increase of 4.2% between 2020 and 2025. The increase in supply results from the ramp-up of brownfield projects.
- Copper SXEW (oxide) production evolution: Nexa forecasts a downward trend for SXEW production. Based on Nexa’s analysis, a concentrate production CAGR will decrease by 2.7% between 2020 and 2025, as a result of by mine closures and reductions in production.
- Refined Copper Market Balance: the copper market has been in deficit for the last three years, leading to lower stocks, despite lower prices since mid-2018 mainly due to the trade war between the USA and China, and the COVID-19 pandemic outbreak in 2020. Based on the above production assumptions, Nexa provided a forecast for Copper Market Balance between 2020 and 2025, showing a significant copper supply surplus in year 2020 and a slightly positive surplus in 2021 and 2022. From 2023 onwards, the global copper demand will create a deficit in copper supply (Figure 16-2).



Source: Nexa, 2020e

Figure 16-2: Refined Copper Market Balance (2020-2025)

16.1.2.3 Copper Price Outlook

Copper prices depend on variations in supply, demand, and the perceived supply/demand balance. Based on Nexa’s Market Intelligence team’s analysis of copper supply, demand, global balance, and copper prices, Nexa forecasts stressed copper prices between 2021 and 2024 (between \$6,040/t and \$6,351/t), with a potential price increase to higher than \$6,500/t after 2024, and a long term price of \$6,627/t. Figure 16-3 show the results of Nexa’s analysis.





Source: Nexa, 2020e

Figure 16-3: Copper Price Outlook (2020-2025)

16.1.3 Lead and Silver

Lead and silver in conjunction represent 9% of Cerro Lindo’s gross revenue. Given their low impact on the Cerro Lindo revenue mix, Nexa has based its lead and silver price forecast solely on consensus prices and correlation analysis published by metal market analysts and financial institutions.

16.1.3.1 Lead Price Outlook

Lead represents 4% of Cerro Lindo’s gross revenue. Nexa’s lead prices were chosen considering a spread applied on the zinc prices curve. These spreads are commonly used and monitored by the market, based on a strong correlation between the two metals. For the cycle 2021 to 2025 a growing spread between US\$ 350/t Pb to US\$ 700/t Pb was considered. Nexa forecasts increasing lead prices between 2021 and 2025 (between US\$ 1,869/t Pb and US\$ 2,247/t Pb), and a lower long term price of US\$ 1,910/t Pb. Figure 16-4 presents the results of Nexa’s lead analysis.





Figure 16-4: Lead Price Outlook (2020-2025)

16.1.3.2 Silver Price Outlook

Silver represents 5% of Cerro Lindo’s gross revenue. Nexa’s silver prices were chosen based on the median of consensus quotes/prices published by banks and institutions on a monthly basis. The silver forecast curve in Figure 16-5 presents the median silver price considering 23 different institutional sources. Nexa forecasts declining silver prices between 2021 and 2025 (between US\$ 17.30/oz Ag and US\$ 16.40/oz Ag), with a potential long term price increase to US\$ 16.87/oz Ag.





Figure 16-5: Silver Price Outlook (2020-2025)

16.2 Contracts

16.2.1 Silver Streaming Agreement

Nexa has a silver streaming agreement with Triple Flag Mining Finance Bermuda Ltd. (Triple Flag) on silver production from the Mine. In exchange for an initial payment of US\$250 million, Triple Flag has the rights to 65% of all payable silver, at a cost of 10% of the spot silver price (up to a total of 19.5 Moz Ag). After the total has been reached, currently anticipated to be 2027, Triple Flag is entitled to 25% of payable silver. The SLR QP has reviewed the silver streaming contract terms and is of the opinion that they are within industry norms.

16.2.2 Concentrate Sales Contracts

Cerro Lindo is an operating mine with concentrate sales contracts in place for copper and lead concentrates, with the main players in the world, between global traders and refineries. Zinc concentrate is consumed by Nexa’s Cajamarquilla zinc refinery in Peru (61%) and Três Marias (35%) and Juiz de For a (4%) zinc refineries in Brazil, according to their internal planning. Additional concentrate sales can be made at Nexa’s discretion. SLR has reviewed the concentrate terms provided by Nexa and found them to be consistent with current industry norms.

Currently, the lead concentrate produced at Cerro Lindo averages 63.8% Pb including 75 oz/t Ag, while the copper concentrate averages 25.9% Cu including 14 oz/t Ag. In addition, there are no penalty contaminant elements in the zinc or lead concentrate. A small penalty of approximately \$2/dmt applies to the copper concentrate due to the lead and zinc levels. The penalties could vary every year and according to each private negotiation.

16.2.3 Service Contracts

Various operational support services are provided by contractors, including underground mining, surface tailings haulage and placement, concentrate haulage, catering, security, and the mine site laboratory.

There are current 39 contractors providing the services as listed in Table 19-1.





Table 16-1: Third Party Contractors
Nexa Resources S.A. - Cerro Lindo Mine

Description	Number
Mine	7
Plant	1
Logistics	1
Security	1
Admin & Community Relations	1
Exploration	1
Maintenance	10
Environment/ Infrastructure	4
Geology	2
Human Resources	1
Infrastructure	3
Total	32

SLR has not reviewed the different support service contract details and terms, however, Nexa has used these contractors in the past and continue to do so.





17.0 ENVIRONMENTAL STUDIES, PERMITTING, AND PLANS, NEGOTIATIONS, OR AGREEMENTS WITH LOCAL INDIVIDUALS OR GROUPS

The information presented in this section is based on documentation provided by Nexa and meetings with mine site personnel. A site visit was conducted in support of the preparation of Section 17 of this Technical Report Summary from June 17 to June 20, 2019.

17.1 Environmental Studies

17.1.1 Mine Operation Overview

The Cerro Lindo Mine facilities and infrastructure are located in the districts of Chavín, Pueblo Nuevo, and Grocio Prado, in the province of Chincha (department of Ica), Perú. The Mine facilities and camps are located along the left bank of the Topará Creek in the occidental Andes Mountains, approximately 40 km northeast of the town of Chincha at elevations ranging from 1,820 MASL to 2,200 MASL. The desalination plant is located at sea level approximately 15 km northwest of the town of Chincha.

The mine operation started in July 2007. The community relations team was created in 2003, in parallel with the preparation and approval of the Environmental Impact Assessment (EIA), although it started to work actively in the mine area in 2005, one year before construction start-up. The mine life declared in 2011 was 12 years (up to year 2022). The current mine life is approximately nine years (until 2029) based on the most recent estimate of Mineral Reserves. The mining operation is comprised of the following main facilities:

- Underground zinc-lead-copper-silver mine
- Active waste rock dump (Pahuaypite) and inactive waste rock dumps (No. 1, No. 2, No. 7, and No. 100)
- TSF Pahuaypite 1 and Pahuaypite 2
- Tailings filter plant
- Paste backfill plant
- Water management ponds (contingency ponds downstream of the TSFs)
- Temporary ore stockpile
- Process plant
- Landfill
- Ancillary buildings (administration, storage, vehicle maintenance, medical center, solid residue disposal facilities, laboratories, gas station, magazine, etc.)
- Permanent camps (five)
- Transmission lines and electrical substations
- Desalination plant

The Cerro Lindo process plant is a polymetallic flotation-based concentrator with a production rate of 20,600 tpd according to the current mine plan. The approved EIA grants authorization for a maximum production rate of 22,500 tpd. Processing is based on conventional crushing, grinding, sequential lead and copper bulk flotation followed by zinc rougher flotation, subsequent copper and lead separation and cleaner flotation, zinc cleaner flotation, and concentrate thickening and filtration to produce separate concentrates of zinc, lead, and copper with silver content.

Tailings from the process plant are thickened and then further dewatered in either the paste plant to be deposited underground, or to the filter plant to the south of the process plant to be filtered and subsequently placed in two dry-stack storage facilities, Pahuaypite 1 and Pahuaypite 2. As much as 90% of the process water from dewatered tailings is recycled with industrial fresh water being supplied from a desalination plant at the coast to meet site and process water make-up requirements. At the Mine site, there is no fresh water withdrawal from natural water bodies and there is no discharge of industrial or treated sewage water to the environment.





17.1.2 Environmental Baseline

The summary of the baseline characterization presented below is based on the baseline analyses included in the 2018 EIA for the mine site and the desalination plant area near Chincha.

Climate. The Cerro Lindo Mine is located at the Topará valley, which has an arid, mesothermal climate with absent or very low excess water according to the Thornthwaite climate classification. Average annual temperatures at the mine site fluctuate from approximately 12.5°C to 18.3°C based on data from four meteorological stations. The average annual precipitation is 69.1 mm and the average annual potential evaporation is 1,500 mm. Relative humidity varies from 37% in July to 92% in March. The predominant wind direction is from the southwest.

Higher rainfall occurs between December and March and lower rainfall is typically from May to September. April, October, and November are transition months. The seasonality of precipitation is less pronounced in the area where the desalination plant is located relative to the mine site.

Air Quality. Concentrations of the air quality parameters (particulate matter, gases, and metals [As, Pb]) that were evaluated through 2010 to 2016 were found to be below the Peruvian environmental quality standards (ECA for its acronym in Spanish). The same conclusion applies to non-ionizing radiation for the monitoring period 2010 to 2016.

Ambient Noise. Noise levels evaluated through 2009 to 2016 were found to be below the Peruvian environmental quality standards for industrial areas in both day and night monitoring periods.

Surface Water Quality. The mining operation is located at the upper Topará Creek basin. The Topará Creek flows seasonally, with higher flow during the period from January to March. Since there is not much flow available, farming activities in the valley typically rely on groundwater. Flow monitoring is conducted in six stations located along the creek bed, upstream and downstream of the mine facilities.

Concentrations of the water quality parameters (pH, dissolved oxygen, conductivity, Weak Acid Dissociable [WAD] cyanide, and metals [As, Cd, Cu, Fe, Mn, Pb, Zn]) that were evaluated through 2010 to 2016 were found for the most part to be below the values stated in the Peruvian environmental quality standards (ECA Category 3 according to water use). The water quality analysis included in the 2018 EIA presented an individual discussion for each parameter explaining how the isolated exceedances in the data record are associated with transport of materials of the natural bed, and geological and mineralogical conditions inherent to the mine location. Parameter concentrations that exceeded the standards were also detected at monitoring stations outside the area of influence of the mine.

Sediment loads monitored at the same water quality stations were compared against the Canadian Interim Sediment Quality Guidelines (ISQG) and Probable Effect Level (PEL) standards in absence of Peruvian standards. Data show that arsenic, cadmium, mercury, lead, and zinc were consistently above the ISQG limits. The concentrations of these parameters in the sediments are associated with two factors: i) mineralization and hydrothermal alteration, and ii) external geodynamic processes mainly related to sediment transport (e.g., natural slides). A study by Amphos 21 Consulting Peru S.A.C. (Amphos 21, 2016) confirmed that the elements noted were the result of natural erosive and weathering processes from the surrounding lithologies and were not sourced from the mine.

Surface water quality is also monitored at 15 stations in Jahuay beach where the desalination plant is located. Concentrations of the water quality parameters (pH, dissolved oxygen, biochemical oxygen demand, conductivity, salinity, total suspended solids (TSS), total dissolved solids (TDS), chlorides, oil and grease, nitrites, nitrates, and phosphates) that were evaluated through 2013 to 2016 were found for the most part to be below the values stated in the Peruvian environmental quality standards (ECA Categories 1 and 2 according to water use). The water quality analysis included in the 2018 EIA presented an individual discussion for each parameter explaining how the isolated exceedances in the data record are associated with factors not related to the operation of the desalination plant.

Groundwater Quality. Monitoring of groundwater quality was conducted by Vector in 2011 at five locations, and by Nexa Peru (formerly Milpo) from 2013 through 2015 at four locations. Results were referentially compared against the Peruvian environmental quality standards (ECA Category 3 according to water use) given that Peru does not currently have standards for groundwater quality. Registered exceedances are the result of the mineralogic characteristics of the deposit.





Flora and Fauna. The results of the biological monitoring campaigns include the identification of endemic, migratory, native, naturalized, exotic and/or threatened (according to national and international criteria), economic, ecological and/or socio-culturally important species, as well as the respective characterization indices. Periodic monitoring of terrestrial fauna and flora has been carried out since 2010. Monitoring of aquatic fauna and flora has been carried out since 2013. There are no natural protected areas within the mine's area of influence.

A total of 20 species of terrestrial flora were identified in the mine area as having conservation status: 10 are endemic, nine species are included in Appendix II of CITES (2017), nine species are included in the 2017 International Union for Conservation of Nature (IUCN) annual report (IUCN, 2017), and thirteen species are registered in the Peruvian Ministry of Environment's Supreme Decree (D.S.) No. 043-2006-AG.

A total of 20 species of terrestrial flora were identified in the desalination plant area as having conservation status: eleven are endemic, eight species are included in Appendix II of CITES (2017), seven species are included in IUCN (2017), and 10 species are registered in D.S. No. 043-2006-AG.

A total of 10 species of fauna were identified in the mine area as having conservation status: two are mammals, four belong to birdlife, and four belong to herpetofauna. A total of 17 species of fauna were identified in the desalination plant area as having conservation status: five are mammals, six belong to birdlife, and six belong to herpetofauna.

Social and Heritage Considerations. As reported in Amec Foster Wheeler plc's NI 43-101 report (Amec, 2017), approximately 1,096 people, based on 2007 census figures, live in the Chavin district, and 98% of the population is classified as rural. Due to the elevation and rugged topography, much of the land is classified as unsuitable for agriculture. The primary land use is nomadic cattle grazing, with herds being constantly moved to locations where there is sufficient grass for food.

Chavin village is not regularly used, with most villagers residing in Chincha. The indirect mine influence area is considered to be the entire province of Chincha and the general Ica region, as these areas benefit from mine royalty and taxation payments.

Archaeological surveys were conducted as part of the EIA process, and Nexa Peru holds the following Non-existence of Archaeological Remains certificates (CIRA):

- CIRA No. 2006-0110, for the Jahuay-Cerro Lindo road, which confirms that there are no archaeological remains in the 60 km long road easement.
- CIRA No. 2007-253 (July 2007), for the mining operations, desalination plant area, and the powerline, which confirms that there are no archaeological remains in the 443.92 ha mine direct influence area (area also includes a buffer zone around the operations). One small (2.16 ha) archaeological site, Patahuasi, was identified within the area reviewed for the CIRA permit.
- CIRA No. 2010-381 (September 2010), for the power transmission line easement.

17.1.3 Environmental Studies and Key Environmental Issues

SLR has been provided with and reviewed the following documents and reports:

- Modification of the Cerro Lindo Environmental Impact Assessment for Expansion of the Process Plant to 22,500 Metric Tonnes per Day prepared by SRK Consulting dated January/February 2018
 - o Physical Baseline
 - o Biological Baseline
 - o Social Baseline
 - o Characterization of Environmental Impacts
 - o Environmental Management Plan
- Study of Contaminated Areas - Geochemical Characterization in Support of the Confirmatory Environmental Investigation. Technical memorandum prepared by Golder Associates dated May 17, 2019





- Description of the Recirculation System of Domestic and Industrial Water – Zero-Discharge. Memorandum prepared by Nexa dated March 26, 2019
- Quarterly reports for monitoring of surface water and groundwater quality in 2018 and 2019 prepared by SGS del Perú
- Quarterly reports for monitoring of sediments in 2019 prepared by SGS del Perú
- Quarterly reports for participatory monitoring of air quality in 2018 and 2019 prepared by SGS del Perú
- Quarterly reports for monitoring of ambient noise in 2018 and 2019 prepared by SGS del Perú
- Bi-annual reports for monitoring of air quality, ambient noise and electromagnetic fields for the power transmission line and sub-stations in 2019 prepared by SGS del Perú
- Diagnostic of Compliance with ECAs in the Topará Creek – Study of Hydrogeochemistry and Water Quality prepared by Amphos 21 dated June 2016
- Cerro Lindo Management Plan for Water and Liquid Effluents developed by Nexa (PGU-CL-SSMA-MA-E)
- Cerro Lindo Preparedness and Emergency Response Plan developed by Nexa (CL-SSO-PL-01)
- Second amendment to the Cerro Lindo Mine Closure Plan prepared by Geoservice Ingeniería dated March 2016
- Independent Technical Report pursuant to National Instrument 43-101 of the Canadian Securities Administrators for Cerro Lindo Mine, Perú. Report prepared by AMEC Foster Wheeler dated September 2017

Various EIA, modifications and Supporting Technical Reports (ITS for its acronym in Spanish) have been submitted and approved between 2004 and 2019. The most recent modification of the EIA approved in 2018 corresponds to the expansion of the process plant production rate to 22,500 tpd.

The key project effects and associated management strategies, as described in the 2018 EIA, are shown in Table 17-1. The Environmental Management Plan, which addresses mitigation measures and monitoring programs, was prepared as part of EIA development with the most recent update presented in the 2018 EIA. The Environmental Management Plan includes industrial and domestic effluent discharges, surface water quality and sediment, groundwater quality, surface flow, air quality (particulate matter and gas emissions), non-ionizing radiation, noise, vibrations, soil quality, terrestrial and aquatic flora, terrestrial and aquatic fauna. In the SLR QP’s opinion, the Environmental Management Plan is adequate to address potential issues related to environmental compliance.

The Environmental Management Plan states that no environmental compensation plan is required because the proposed mitigation measures ensure the preservation of the ecosystem and biodiversity of the mine site area, and all the potential environmental effects were characterized as no significant in the EIA (SRK, 2018).

No environmental issues were identified by SLR from the documentation available for review that could materially impact the ability to extract the mineral resources and mineral reserves.

Table 17-1: Summary of Key Environmental Effects and Management Strategies
Nexa Resources S.A. - Cerro Lindo Mine

Environmental Component	Potential Impact	Management Strategies





Soils	Changes to soil uses Changes to soil quality	Implementation of spills management plan for hazardous materials. Implementation of spill containment at potential accidental spill sources, as applicable. Relocation of soils contaminated as a result of hazardous materials spills in appropriate facilities. Provision of oil and grease traps at vehicle maintenance facilities. Tire washing of hauling trucks following concentrate loading. Adequate management of industrial and domestic waste. Development of appropriate topsoil deposits equipped with erosion controls. Timely rehabilitation of disturbed areas. Annual monitoring at five locations following R.M. No. 085-2014-MINAM (national guideline for soils monitoring) and the national environmental quality standards applicable to soils (D.S. No. 002-2013-MINAM and D.S. No. 002-2014-MINAM) for industrial zones.
Geochemistry	Changes to surface water quality and/or groundwater quality	Geochemistry sampling evaluation program for tailings and waste rock.
Surface water	Changes to surface water flows Changes to surface water quality	Maximize water recirculation and re-use at the mine. Zero water discharge to the environment at the mine site. No fresh water withdrawal from natural water bodies at the mine site. Treatment of domestic sewage water prior to reusing it in the process plant. Desalination plant equipped with reverse osmosis water treatment plant. Regular inspections and maintenance program for water management infrastructure. Implementation of oil and grease traps. Inherent design measures such as design of discharge pipes from the desalination plant to promote brine dilution in a short distance. Protection of river and creek beds (e.g. controlled traffic of vehicles, no earth movements near stream beds, no washing of vehicles or machinery in stream beds, etc.). Quarterly water quality monitoring at one effluent discharge location at Jahuay beach for parameters listed in D.S. No. 010-2010-MINAM (national maximum permissible limits for liquid effluents from mining and metallurgic activities). Monthly water quality monitoring of natural streams at six stations located at the mine site area following the national protocol for surface water quality monitoring (R.J. No. 010-2016-ANA) for water bodies classified as Category 3. Monthly monitoring of maritime surface water quality at nine stations located in Jahuay beach following the national protocol for surface water quality monitoring (R.J. No. 010-2016-ANA), and using D.S. No. 004-2017-MINAM (national environmental water quality standards) for categories 1 and 2 as the reference to determine compliance. In absence of national sediment quality standards, the Canadian Environmental Quality Guidelines (2003) are used as the reference to evaluate the environmental performance for both continental and maritime surface water.





Environmental Component	Potential Impact	Management Strategies
Groundwater	Changes to phreatic level Changes to groundwater quality	Implementation of seepage collection systems for waste management facilities for water re-use (and treatment if necessary). Identification of natural recharge zones due to fractures or faults. Monthly groundwater quality monitoring in eight piezometers located upstream of the mine site and downstream of waste rock dumps, TSFs and landfill. In the absence of national groundwater quality standards, the Canadian Water Quality Guidelines for the Protection of Aquatic Life issued by the Canadian Council of Ministers of the Environment (2003) are used as the reference to evaluate the environmental performance.
Air quality	Changes from particulate and gas emissions	Regular preventive maintenance of vehicles and motorized equipment. Regular irrigation of access roads with tanker trucks and sprinkler systems. Irrigation of areas where mobile grinders are operated. Speed limit of 30 km/hr for vehicles circulating within the mine site according to the internal traffic regulations of Cerro Lindo. Transportation of materials in covered hoppers. Monitoring of particulate matter (PM ₁₀ and PM _{2.5}), metals (arsenic and lead), and gases (SO ₂ , NO ₂ , CO). Quarterly monitoring at nine stations at the mine site, and biannual monitoring at five stations at the desalination plant area. Compliance is determined according to applicable national air quality standards from D.S. No. 003-2017-MINAM. The selected parameters are consistent with R.D. No. 239-2011-MEM/AAM (08/08/11). Biannual monitoring of non-ionizing radiation at three stations located at the mine site and 13 stations located along the service corridors following the national environmental quality standards for non-ionizing radiation (D.S. No. 010-2005-PCM).





Environmental Component	Potential Impact	Management Strategies
Noise and vibration	Disturbances resulting from changes to ambient noise levels and generation of vibrations	Use of hearing protection devices. Appropriate planning and optimization of machinery and equipment usage. Avoid simultaneous usage of transportation, demolition, and excavation vehicles. Avoid honking vehicle horns except for safety practices to prevent accidents. Regular vehicle maintenance. Implementation of blasting controls. Quaternary noise monitoring at three stations located at the mine site and biannual noise monitoring at 17 stations located along the service corridors (seven along the transmission line, nine along the water supply pipeline, and one at the road near Jahuay beach). Compliance is determined according to the maximum permissible limits from the national environmental quality standards for noise (D.S. No. 085-2003-PCM) for industrial zones. There are no inhabitants living close enough to the mine site to be potentially affected by vibrations. Hence, vibrations monitoring was not included in the monitoring program.
Aquatic flora and fauna	Changes in abundance and diversity of aquatic species	Environmental controls for protection of local flora and fauna (several measures are outlined in the 2018 EIA). Respecting the ecosystem when carrying out any activities associated with the mine operation and closure. Zero discharge of industrial or sewage water to the environment at the mine site. Meeting water quality standards at points of effluent discharge to the environment (i.e., brine concentration from desalination plant discharge in Jahuay beach). Prohibition to dispose of solid or liquid waste in natural water bodies. Prohibition to capture fish in the mine concession areas and surroundings. Prohibition to introduce non-native species. Personnel training. Biannual monitoring (dry and wet seasons).
Terrestrial flora and fauna	Changes to vegetation cover and diversity of terrestrial flora Changes to sensitive species of wild flora	Environmental controls for protection of local flora and fauna (several measures are outlined in the 2018 EIA). Respecting the ecosystem when carrying out any activities associated with the mine operation and closure. Prohibition to collect flora. Prohibition to introduce non-native species. Prohibition of hunting, fishing, and capture of fauna within the mine concession areas and surroundings. Personnel training. Rescue or relocation of species, if required, in agreement with methods outlined in the 2018 EIA. Consideration of location of endemic species tagged for conservation when deciding on location of mine facilities. Prohibition to dispose of solid or liquid waste in the mine site area outside of the spots designated for this purpose. Biannual monitoring (dry and wet seasons).
Landscape	Changes in landscape's visual quality	Mine planning to minimize and control relief alterations. Slope physical stability. Smoothing of ground surface where applicable with implementation of banks to facilitate re-vegetation and prevent erosion. Re-vegetation.

17.1.4 Environmental Management System

Nexa uses an ISO 14001 compliant environmental management system at Cerro Lindo to support environmental management, monitoring and compliance with applicable regulatory requirements during operation.





Nexa does not have an Environmental Policy for Cerro Lindo. According to Nexa’s website and the 2019 Nexa annual report, the company identifies and manages the main risks from both an operational and a strategic point of view, reducing and mitigating impacts to maintain business sustainability. The company has an integrated management system that establishes the guidelines that govern the conduct of the businesses, with a focus on quality management of environmental, health, and workplace safety and social responsibility issues. In addition, the company follows applicable environmental laws and regulations pertaining to its business in each country where it operates (Nexa, 2019).

Nexa has stated the following environmental goals in its 2020 annual report:

- 75% of recirculation and lower specific use of water.
- Reduce the specific emission of greenhouse gases by 5%.
- Decrease the disposal of tailings in dams and reduction by 50% in the specific generation of mining and smelting waste.
- Ensure that 100% of the units have a pre-prepared future-use alternative study and an updated decommissioning plan, in line with the sector’s benchmark standards.

17.2 Mine Waste and Water Management

17.2.1 Environmental Geochemistry

The tailings have been identified as having a high acid generating potential, and metal leaching is anticipated. Acid generation in the tailings is a result of the presence of sulphides in the tailings, mainly in the form of pyrite. Laboratory testing identified high concentrations of the following metals from leach tests: aluminum, arsenic, cadmium, cobalt, copper, iron, manganese, and zinc (Golder, 2019). Water quality concerns are mitigated by the relative lack of precipitation at the mine site, and managed by the infrastructure in place for seepage collection.

Geochemical testing completed by Golder (2019) identified most of the waste rock to be potentially acid generating (PAG) with exception of some neutral to uncertain results from waste dump No. 2. Acid generation in the waste rock is a result of the presence of sulphides in the rock, mainly in the form of pyrite. Metal leaching laboratory testing identified high concentrations of cadmium, copper, and zinc. Water quality concerns are mitigated by the relative lack of precipitation at the mine site and managed by the seepage collection infrastructure in place for the larger waste rock dumps.

17.2.2 Mine Waste Management

The tailings dry stacks were designed for a 1:500-year return period earthquake, however, Ausenco (2017) identified a need to evaluate the facility design for the maximum credible earthquake. Given the relatively high seismic activity of the region, and the presence of these structures for perpetuity, Ausenco’s recommendation appears to be warranted.

Pahuaypite 1 and 2 are monitored using Casagrande type piezometers, inclinometers, and survey monuments. Inclinometers in Pahuaypite 1 have indicated a deformation between the natural ground and the dry stack of approximately 35 mm, or 10 mm per year. This deformation should continue to be monitored. Piezometers indicate that the stack is unsaturated. A cross-check of the tailings deposits conducted by Ausenco in 2017, and more recent annual inspection reports by Geoconsultoria (2018), indicate that there are no unusual trends in the tailings movement and that the phreatic surface of the dry stacks is near or below the interface between natural ground and tailings. No significant issues noted in monthly inspections up to April 2020.

17.2.3 Tailings Storage Facilities and Waste Rock Dumps Closure

At closure the geometry of the tailings dry stacks will be checked to conform with the design of 2H:1V bench slopes with 20 m tall benches. The dry stacks will be covered with geomembrane placed between resistant non-woven geotextile to promote geochemical stability of the acid generating tailings. The geosynthetics will be covered by 0.3 m of sand and gravel to protect the geomembrane and promote drainage. Upstream hydraulic structures such as the





diversion channels and check dam will be maintained. The water management (contingency) pond will be partially backfilled with inert materials to achieve a surface with stable slopes.

The closure concept for the Pahuaypite waste rock dump and waste dump No. 100 is similar to the tailings dry stacks. The dumps will be covered with a geosynthetic clay liner protected on both sides by a layer of geotextile. The geosynthetic materials will be covered with sand and gravel 0.35 m thick on the slopes and 0.55 m thick on the dump crest. Closure concept details for the other waste rock dumps were not available for review.

Post-closure monitoring of the rehabilitated areas will continue for at least five years to confirm physical and geochemical stability. Seepage collection and treatment at the waste rock dumps might need to continue post-closure depending on water quality conditions (geochemistry analysis of waste rock samples showed high acidity generation potential).

17.2.4 Water Management

The primary objective for water management is to provide enough availability of water to meet the mine operation water demands, and to ensure that the water quality and quantity of water bodies on the environmental influence area of the Cerro Lindo Mine site are not impacted by the operation.

Water conservation is a primary objective in Cerro Lindo due to the limited water availability in the area. Water is recycled and re-used as much as possible. Recycled water is obtained from the thickening process, tailings thickening process, and the filtration process. A permit to recycle a total annual volume of 3,689,712 m³ of industrial wastewater has been granted (Directorate Resolution (D.R.) No. 1382/2007/DIGESA/SA dated May 2007). This permit remains in effect as long as Nexa does not amend or change any of the activities that were allowed under the permit, which also makes reference to the zero-discharge commitment. If an unscheduled discharge was required, Cerro Lindo must obtain authorization from Dirección General de Salud Ambiental (DIGESA) for such discharge. Quarterly monitoring reports to the national authorities in compliance with Article 9 of R.M. No. 011-96-EM/VMM are not applicable to the Cerro Lindo operations due to the zero-discharge commitment for industrial and domestic water.

Service water is primarily used underground for drilling water, cooling, dust control, and concrete/shotcrete service. Service water is provided from a central plant-wide source and distributed underground via a system of pipelines to all working areas. The mine makes very little water from geological sources. Service water is collected and pumped to the surface where it is treated for re-use.

Industrial fresh water is supplied from a desalination plant located at the coast to meet site (e.g., dust suppression) and process water make-up requirements (Figure 17-1). In addition, groundwater extraction from five groundwater wells/boreholes for a combined maximum annual flow of 48 L/s is authorized by various permits. There is no fresh water withdrawal from natural water bodies at the mine site. Approximately 60% of the total fresh water supply to the mine site is taken from the ocean with approximately 40% taken from groundwater wells.



(Source: Nexa Resources S.A.)

Figure 17-1: Water Supply System for Cerro Lindo Mine

The pumping system from the desalination plant is divided into three stages to transport the water approximately 45 km to an elevation of 2,200 m. Three pump stations are located along the six-inch pipeline route from the desalination plant to the mine site. The desalination plant takes water from the ocean with an approved maximum rate of 100 L/s (3,153,600 m³/yr) according to D.R. No. 033-2012-ANA-ALA/MOC (SRK, 2018). The desalination plant discharges residual water from the treatment process to Jahuay Beach, which was approved by D.R. No. 002-2015-ANA-DGCRH





for an annual flow of 72 L/s (SRK 2018). D.R. No. 008-2019-ANA-DCERH grants renewed authorization for effluent discharge from the desalination process. D.R. No. 0706-2012-MGP/DCG grants authorization of aquatic area usage for the submarine pipelines required for water intake and effluent discharge from the desalination process.

The mine has implemented three water treatment plants for industrial water, potable water, and domestic water (sewage). The industrial effluent treatment plant consists of a basic system of mine water clarification using three ponds. The first pond promotes settling sediments by their own weight; the second pond is used to control pH (target between 7 and 8) through lime addition and control conductivity to regulate initial metal elements present in the water; the third pond assists with precipitation of fines and water clarification prior to the water being recirculated to the process plant. There is no discharge of industrial or treated sewage water to the environment (zero-discharge commitment).

Clean water is diverted around the mine infrastructure, TSFs, and waste rock dumps where possible. Contact water resulting from surface runoff within the mine complex footprint is managed through channels and a check dam located at the head of the valley of the Pahuaypite 2 TSF. The flows are directed to lined contingency ponds at the base of the deposits. Water collected in the contingency ponds is pumped to the industrial treatment plant.

An underdrain system was constructed at the foundation/base of the TSFs (basal drainage) to conduct surface flows from the foundation toward the contingency ponds. The waste rock dumps are also equipped with an underdrain system to capture infiltration.

The most recent geochemical evaluation was conducted in 2019 on five tailings samples collected from the TSFs (Pahuaypite 1, Pahuaypite 2), and nine rock samples collected from waste rock dumps Nos. 1, 2, 7, and 100. Static geochemical testing included acid base accounting (ABA), elemental rock analysis, net acid generation (NAG) and metal leaching tests, and shake flask extraction (SFE) test. According to the results, in general, the tailings and waste rock samples showed high acidity generation potential. Tailings and waste rock at Cerro Lindo come from volcanic rocks, rich in massive sulphides mainly comprised of pyrite (50% to 95%). Pyrite oxidation generates acidity and could promote contact water with high concentrations of aluminum, arsenic, cadmium, cobalt, copper, iron, manganese, and zinc. Water quality concerns are mitigated by the relative lack of precipitation at the mine site and managed by the infrastructure in place for seepage collection.

It is noted that a water management protocol developed by Nexa for the Cerro Lindo Mine documents a glossary of terms and definitions associated with water management, and outlines procedures and responsibilities addressing risk evaluation, legal commitments, objectives and target, operational controls, monitoring, and performance indicators.

17.3 Project Permitting

The Cerro Lindo mine operation is managed according to the environmental and closure considerations presented in three type of documents, which must be approved by directorial resolutions from the Peruvian government:

- EIA and subsequent amendments and modifications
- Supporting Technical Reports (ITS for its acronym in Spanish)
- Mine Closure Plan

Cerro Lindo complies with applicable Peruvian permitting requirements. The permits are Directorial Resolutions (RD for its acronym in Spanish) issued by the Peruvian authorities upon approval of mining environmental management instruments filed by the mining companies such as EIAs, ITS and Mine Closure Plans. The approved permits for Cerro Lindo address the authority's requirements for operation of the underground mine, TSFs, waste rock dumps, process plant, water usage and effluents discharge.

Nexa maintains and up to date record of the legal permits obtained to date, documenting the approving authority, validity period and expiry dates, status (current, canceled or superseded), and indicating if renewal is needed or not. The list of approved legal permits for Cerro Lindo provided by Nexa for review addresses the following aspects:

- Environmental impact assessment
- Domestic water treatment





- Industrial water treatment (Process Plant)
- Groundwater wells for exploration drilling
- Use of aquatic area
- Air and water quality monitoring locations
- Mine closure planning
- Beneficiation concessions
- Mine operation certificates
- Mine plans for mineral extraction
- Infrastructure
- Regulated chemical product supplies
- Use of fuel
- Licences for use of explosives
- Absence of archaeological remains

The Directorial Resolutions on environmental certifications, effluent discharge, water use, mine closure and tailings management are listed in Table 17-2. According to the record of the legal permits provided by Nexa in October 2020, the licences granted for use of water, the approved environmental certifications (i.e., EIAs and ITS), the approved mine closure plans and the licences granted for tailings disposal do not have lapsing dates and therefore renewal dates are not applicable. The Third Amendment to the Mine Closure Plan is under review and approval process by the Peruvian Authorities.

**Table 17-2: Environmental, Mine Closure and Tailings Disposal Licences
Nexa Resources S.A. - Cerro Lindo Mine**

Authority	Obligation/Licence	Date of Issue
Environmental Certifications		
DGAAM	EIA Cerro Lindo Mine - RD N° 325-2004-MEM-AAM	02/07/2004
DGASA	Approval of EIA for the Jahuay Road Project, Cerro Lindo Mine - RD N° 037-2006-MTC-16	30/05/2006
DGAAM	EIA for Water Supply, Power, and Desalination Plant - RD N° 134-2007-MEM-AAM	02/04/2007
DGAAM	First Amendment to the EIA, Cerro Lindo Mine - RD N° 204-2007-MEM-AAM	08/06/2007
DGAAM	Second Amendment to the EIA, Cerro Lindo Mine - 10,000 MT/day - RD N° 168-2010-MEM-AAM	17/05/2010
DGAAM-MINEM	Amendment to the EIA for “Production Expansion to 10,000 MT/day and Water Supply, Power, and Desalination Plant” - RD N° 239-2011-MEM/AAM	08/08/2011
DGAAM	ITS for Installation of By-Pass and Third Mill, Cerro Lindo Mine - RD N° 069-2014-MEM-AAM	30/01/2014
DGAAM	ITS for Production Expansion to 17,988 MT/day, Cerro Lindo Mine - RD N° 391-2014-MEM-AAM	31/07/2014
SENACE	ITS for Pahuaypite 1 Raising and Expansion of the Contingency Pond - RD N° 048-2016-SENACE/DCA	14/07/2016





Authority	Obligation/Licence	Date of Issue
DGAAM	Approval of Detailed Technical Memorandum (MTD) - Cerro Lindo Mine - RD N° 258-2016-MEM-DGAAM	31/08/2016
SENACE	Modification of the EIA for the Cerro Lindo Mine - RD N° 39-2018-SENACE	13/03/2018
SENACE	ITS for Auxiliary Facilities - RD N° 001-2019-SENACE-PE/DEAR	03/01/2019
SENACE	ITS for Expansion of the Concentrator Plant to 22,500 MT/day and Additional Facilities - RD N° 134-2019-SENACE-PE/DEAR	22/08/2019
SENACE	ITS for Expansion of the Concentrator Plant to 22,500 MT/day and Additional Facilities - RD N° 00145-2020-SENACE-PE/DEAR	02/12/2020
Effluent Discharge Authorization		
ANA	Effluent Discharge Authorization for Desalination Plant (Brine) - RD N° 008-2019-ANA-DGCRH <i>Expires on February 16, 2023</i>	16/02/2019
Water Use Licences		
ALA Chinchá - Pisco	Groundwater Use Licence (Well No. IRHS 182) - RA N° 057-2009-ANAALACH-P	08/04/2009
ALA Chinchá - Pisco	Groundwater Use Licence (Well No. IRHS 183) - RA N° 058-2009-ANAALACH-P	08/04/2009
ALA San Juan	Groundwater Use Licence (Well No. IRHS 179) - RA N° 026/2011-ANA-ALA S.J	29/04/2011
ALA San Juan	Groundwater Use Licence (Well No. IRHS 180) - RA N° 027/2011-ANA-ALA S.J.	29/04/2011
ALA San Juan	Groundwater Use Licence (Well No. IRHS 181) - RA N° 028/2011-ANA-ALA S.J.	29/04/2011
ALA Mala - Omas - Cañete	Sea Water Use Licence, Cerro Lindo Mine - RA N° 033-2012-ANA-ALA-MOC	02/03/2012
Sanitary Wastewater Treatment Authorization		
DIGESA	Sanitary Authorization for Water Treatment System for the Cerro Lindo Concentrator Plant (Zero Effluent Discharge) - RD N° 1382/2007/DIGESA/SA	17/05/2007
DIGESA	Sanitary Authorization for Water Treatment System for Human Consumption at the Cerro Lindo Mine - RD N° 0231/2021/DIGESA/SA <i>Expires on January 14, 2025</i>	14/01/2021
Mine Closure Plan		
DGAAM	Mine Closure Plan, Cerro Lindo Mine - RD N° 326-2009-MEM.AAM	20/10/2009
DGAAM	First Amendment to the Mine Closure Plan, Cerro Lindo Mine - RD N° 432-2012-MEM-AAM	19/12/2012
DGAAM	First Update of the Mine Closure Plan, Cerro Lindo Mine - RD N° 084-2013-MEM-AAM	22/03/2013





Authority	Obligation/Licence	Date of Issue
DGAAM	Second Amendment to the Mine Closure Plan, Cerro Lindo Mine - RD N° 287-2016-MEM-DGAAM	29/09/2016
Tailings Disposal		
DGM - MINEM	Construction Authorization for the Pahuaypite 2 Tailings Storage Facility and Contingency Facility - RD N° 284 - 2011 -MEM-DGM/V	10/08/2011
DGM - MINEM	Construction Authorization for Temporary Tailings Storage Facility - RD N° 032-2012-MEM-DGM/V	18/1/2012
DGM - MINEM	Authorization for Operation of the Temporary Tailings Storage Facility and Contingency Pond - RD N° 138-2012-MEM-DGM/V	03/05/2012
DGM - MINEM	Authorization for Operation of the Pahuaypite 2 Filtered Tailings Storage Facility - RD N° 323-2013-MEM-DGM/V	10/10/2012
DGM - MINEM	Consent for the Pahuaypite 1 Tailings Storage Facility Raising and Authorization for Construction and Operation - RD N° 0543-2016-MEM-DGM/V	06/09/2016
DGM - MINEM	Modification of Construction Authorization for the Pahuaypite 1 Tailings Storage Facility - RD N° 0260-2018-MEM-DGM/V	21/03/2018
DGM - MINEM	Consent for the Pahuaypite 2 Tailings Storage Facility 10% Raising and Authorization for Construction and Operation - RD N° 0571-2019-MINEM-DGM/V	19/11/2019

17.4 Social or Community Requirements

17.4.1 General Context

The Cerro Lindo Mine is located in the District of Chincha in the Department of Ica, Peru. The underground mine is located approximately 240 km southeast of Lima, the capital city of Peru and 75 km northeast of Chincha, the closest major urban settlement area. The Cerro Lindo Mine is located inland and upland from both Lima and Chincha and is accessible by road.

This section presents the results of the social review based on a review of Nexa's policies, programs, social risk management systems, and/or social performance against relevant International Finance Corporation (IFC) Performance Standards (PS). The IFC PSs have been used as a framework but this social review does not represent a detailed audit of Nexa's compliance with IFC PSs or specific guidelines. Nexa's social performance is benchmarked against the following IFC 2012 PSs:

- **PS1: Social and Environmental Assessment and Management Systems** requires that companies identify, assess, and mitigate the social and environmental impacts and risks they generate throughout the lifecycle of their projects and operations. From a social perspective, the requirement includes: a comprehensive social assessment; identification of critical social impacts and risks; community consultation and engagement; information disclosure; mitigation plans to address impacts and risks; and development of an organizational structure with qualified staff and budgets to manage the overall social management system.
- **PS2: Labour and Working Conditions** incorporates the International Labour Organization conventions that seek to protect basic worker rights and promote effective worker/management relations.
- **PS4: Community Health and Safety** declares the project's duty to avoid or minimize risks and impacts to community health and safety and addresses priorities and measures to avoid and mitigate project related impacts and risks that might generate community exposure to risks of accidents and diseases.





- **PS5: Land Acquisition and Involuntary Resettlement** considers the need for land acquisition or involuntary resettlement of any individual, family or group; including the potential for economic displacement.
- **PS7: Indigenous Peoples** considers the presence of Indigenous groups, communities, or lands in the area that may be directly or indirectly affected by projects or operations.
- **PS8: Cultural Heritage.** This standard is based on the Convention on the Protection of the World Cultural and Natural Heritage. The objectives are to preserve and protect irreplaceable cultural heritage during a project's operations, whether or not it is legally protected or previously disturbed and promote the equitable sharing of benefits from the use of cultural heritage in business activities.

It is noted that PS3 Resource Efficiency and Pollution Prevention and PS6 Biodiversity Conservation correspond to environmental performance standards. Environmental management and performance are discussed at the beginning of Section 17.

17.4.2 Social and Environmental Assessment and Management Systems

At a corporate level, Nexa has adopted the guidelines of the International Integrated Reporting Council (IIRC) and the standards for the Global Reporting Index (GRI). The IIRC guidelines promote a cohesive and integrated approach to reporting on organizational activities. The GRI standards provide best practices for public reporting on economic, environmental, and social impacts in order to help Nexa and its shareholders and stakeholders understand their corporate contribution to sustainable development. These standards were reported on in the most recent Nexa Annual Performance Report for 2019 (Nexa, 2020f). With respect to social issues, the 2019 Annual Report provided details of corporate activities aligning with the following GRI Standards:

1. Employment
2. Occupational health and safety (OHS)
3. Non-discrimination
4. Training and education
5. Diversity and equal opportunities
6. Freedom of association and collective bargaining
7. Child labour
8. Forced or compulsory labour
9. Human rights assessment
10. Local communities
11. Social assessment of suppliers
12. Socio-economic compliance

Nexa’s 2019 Annual Report also includes reporting on corporate progress towards several sustainable development goals. With respect to social environment issues, these include:

1. Gender equality
2. Decent work and economic growth
3. Good health and well-being
4. Peace, justice, and strong institutions
5. Quality education
6. Reduced inequalities
7. Sustainable cities and communities
8. Responsible consumption and production
9. Life below water





Nexa has a corporate compliance policy (PC-RCC-CCI-005-EN) meant to guide Nexa representatives and third parties. The compliance policy includes the following policies and procedures:

1. Code of Conduct
2. Anti-Corruption Policy
3. Money Laundering and Financing Terrorism Prevention Policy
4. Antitrust/Competition Policy
5. Insider Trading Policy
6. Disclosure Policy
7. Compliance Program Manual
8. Money Laundering and Financing Terrorism Prevention Manual
9. Gifts and Hospitality Procedure
10. Relationships with Government Representatives Procedure
11. Travel and Entertainment Procedure
12. Integrity Due Diligence Procedure
13. Conflict of Interests Procedure

With respect to Cerro Lindo operations, Nexa has developed and utilizes a number of social management programs and tools to help the company work with the nearby communities. These include:

1. Fulfilling Commitments and Obligations
 - o Compliance matrix of commitments and obligations
 - o Execution matrix
2. Impact and Expectation Matrix
 - o Local employability program
 - o Local supply program
 - o Local development program
 - o Volunteering program
3. Community Relationship and Social Responsibility
 - o Stakeholder matrix
 - o Interactions matrix
 - o Reporting tools
4. Social Conflict Management
 - o Social conflict management and reporting program
 - o Complaint resolution and care system

In order to better understand community-specific issues and address concerns that arise at Cerro Lindo, Nexa implements a complaint register guided by Nexa's Order and Complaint Procedure, which details roles, responsibilities, and commitments to gather and respond to complaints from the public in a fair and equitable way. All communications and complaints are recorded, investigated, evaluated, and resolved according to the Order and Complaint Procedure. The process is meant to provide Nexa with a better understanding of the local population and related issues. Nexa also maintains a compliance matrix, which is a database of relevant stakeholders and a matrix/listing of interactions with each stakeholder.





Nexa is currently seeking to extend and complete additional installations at Cerro Lindo. In order to understand the potential effects of the Cerro Lindo Mine, Nexa is relying on impact assessment studies completed in 2018 by a third-party consultant. This assessment includes a social environment impact assessment, comprised of a Social Baseline, an Environmental Impact Characterization, and an Environmental Management Strategy, which are all generally consistent with Social Impact Assessment Practices.

The Social Baseline includes a description of:

- The social areas of influence;
- The social, economic, and cultural characteristics of the population of the areas of influence of the project;
- Social-economic variables that might be affected by the project;
- Potential indicators to assess impacts of the project;
- Identification of the main social and environmental issues of relevance to the population;
- Perceptions and expectations of members of the public and other stakeholders regarding Cerro Lindo mining activities and socio-economic development; and
- The foundation for a social impact management plan to mitigate potential negative impacts and maximize potential positive benefits.

The preceding was accomplished through a variety of methods including both primary and secondary data collection. Primary data collection included field investigations such as surveys and interviews. Secondary data collection included reviews of legal documentation, information related to the areas of influence and inhabited areas, and other permits and approved studies relevant to the Cerro Lindo Mine.

The Environmental Impact Characterization assesses the potential impacts of the Cerro Lindo Mine at the various stages and includes an assessment of potential negative and positive impacts of the Mine on the social environment. These variables include:

1. Health
2. Education
3. Local Economy and Trade
4. Demographics
5. Cultural
6. Quality of Life and Human Development

The Environmental Management Strategy includes an Environmental Management Plan and Social Management Plan to mitigate negative impacts and maximize positive benefits of the Cerro Lindo Mine. The Social Management Plan includes a description of community needs and expectations, social projects and community benefits, and recommendations to improve the social and economic environments in the areas of influence. The Social Management Plan includes the following sub-plans:

1. Communications Plan
2. Community Relations Plan
3. Community Development Plan

Each plan is based on the empirical research and document review from the Social Baseline and Environmental Impact Characterization reports, and includes detailed descriptions of activities, budgets, timeframes, as well as measures and indicators. In the SLR QP's opinion, the Social Management Plan is adequate to address potential issues related to local communities.

The studies employed targeted surveys, interviews, and outreach with members of the public, government officials, and other stakeholders to inform the social impact assessment. The information was reviewed to understand trends and commonalities in the main social and environmental issues perceived by the public and other stakeholders. The data and reports provide a thorough account of Nexa's approach to identify, assess, and mitigate social risks related to the Cerro Lindo Mine.





17.4.3 Labour and Working Conditions

Corporately, Nexa reports that 100% of its workers in Brazil are covered by collective bargaining units but does not report on the status in Peru. Nexa also reports corporately on the freedom of association and collective bargaining. Some of the Sustainable Development Targets identified by Nexa include (but are not limited to):

- By 2030 achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value; and
- Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular migrant women, and persons in precarious employment.

As of August 2020, 358 of 595 workers at Cerro Lindo were unionized. At the time of this writing, two workers' organizations were in place at Cerro Lindo.

Nexa has adopted OHS policies to ensure the protection and promotion of the safety, human health, and welfare of employees. Corporately, Nexa reports on its health and safety performance and highlights safety as its "greatest asset". Several corporate initiatives are aimed at promoting safety, ensuring workers and contractors are trained, and that processes are in place to address any incidents that arise. In Peru, Nexa has advanced its Peru Safety Plan, which was reported to be 80% complete in the 2018. The Peru Safety Plan includes eight pillars:

1. Leadership training and awareness
2. Strengthening the OHS team
3. Implementation of the Outsourcing Management Program
4. Improvement of wellness and work regime conditions in the units
5. Standardization of processes and procedures, and improvements in Peru's mining units contingency plans
6. Team training and awareness
7. Synergy with Digital Mining actions measures
8. Industrial Automation Master Plan

At the time of this writing, site-specific information for OHS plans and operations at Cerro Lindo were unavailable for review. Recently, the total recordable injury frequency rate has varied between 2.05 (2015) and 4.85 (2014). In 2018, the rate was 3.59 and in 2019, the rates have varied between 2.06 and 2.61. Initiatives promoted at Cerro Lindo by Nexa since 2018 include the implementation of the Prevention of Fatalities and Critical Controls program for high risk management, leadership training in the roles of Risk Management and Influence Safety, and the first safety meeting with strategic suppliers with the aim of strengthening long term relationships and effective communication.

Corporately, Nexa has stated its commitment to internationally recognized human rights and prohibits any violation of human rights in its operations and suppliers. Suppliers are asked to provide information regarding both social responsibility and human rights preservation. Nexa reported that in 2018 and 2019, there were no complaints of non-compliance with any requirements related to human rights impacts, across all of its operations.

There are procedures in place for employees and contractors to report grievances and ethical violations, including directly to management, via telephone and online. At the time of this writing, there were no specific reports on the number of grievances or ethical violations relevant to Cerro Lindo.

There are two scheduled shifts (day and night) and three rotations (five shifts on, two shifts off; nine shifts on, five shifts off; and 14 shifts on, seven shifts off). This provides staff with sufficient opportunities to rest between scheduled work activities. Nexa has tried to hire from the local workforce when possible, both for skilled and unskilled workers. Outreach is conducted to the local community through social and employment programs. Nexa has established a commitment with the Chavín and Valle de Topará communities to hire up to 25% of qualified personnel and up to 75% of labourers and sub-contractors as long as the mine operation conditions and the availability of local workforce make it possible. Hiring of local workforce is dependent on skills required by the mine operation, some of which are addressed through training programs.





Employees have access to a number of benefits including paid vacations and holidays, financial bonuses, health, education, overtime, living allowance, and other employment bonuses.

17.4.4 Community Health and Safety

Corporately, Nexa has made several commitments to improve community health and safety, as well as the overall well-being of community members. The general area already experiences poor water quality, which can affect human health through the transmission of disease. In the EIA for the expansion and additional installations at Cerro Lindo, it was concluded that the project’s air, noise, and vibration effects were insignificant and would not cause any increased public health effects in nearby communities. Despite this, the impact assessment raised the potential for negative perceptions of health effects at various stages of the project, including perceived impacts to water quality and respiratory illnesses. To mitigate this, the assessment recommends ongoing communication to raise awareness and inform the public of project impacts. It is anticipated that any negative perception will decrease over time.

The impact assessment also describes health promotion activities to improve community health and safety, outside of direct project effects. This includes a program to improve dental care in the areas of direct social influence.

Nexa has also committed resources to improving overall community health, safety, and well-being for the communities in the areas of influence of the Cerro Lindo Mine. These ongoing activities include:

- 1. Organic Agriculture and Irrigation Project
- 2. Safe Water Project
- 3. Local Supply Project
- 4. Women Leaders Network Project
- 5. Local Training and Employability Project
- 6. Local Scholarship Project

Nexa has also undertaken several municipal improvements in the nearby communities including drinking water infrastructure, waste water infrastructure, and roads and transportation improvements. Nexa also encourages its employees and community members to participate in volunteer initiatives such as Christmas shows, gender equity, and equal opportunity workshops, recycling programs, and various educational programs.

The 2016 annual report from Milpo describes community participation in ongoing environmental and water quality monitoring. These programs allow for community members to learn about the Cerro Lindo Mine environmental performance as well as receive training. Nexa has continued with this participatory monitoring for water quality.

Collectively, these programs seek to improve local socio-economic conditions and support a more diverse and educated workforce.

In December of 2019, community members of Chavin and Valle de Topará interrupted the mine access road for two days alleging non-compliance with the agreement and addenda related to environmental contamination. In response to the road blockage, a roundtable discussion took place with participation of the General Social Management office of the Ministry of Energy and Mines. Cerro Lindo provided information during the discussions to demonstrate compliance with agreements and absence of signs of contamination. A coordination effort was initiated to strengthen community training on environmental matters and organize information meetings to make more transparent and facilitate the communication between the community and the mining company.

The EIA concluded that there would be one negative environmental effect on the social environment. During the construction and operation and maintenance stages of the project, job expectations from the local community may exceed the number and type of new jobs available. This impact was found to be moderately significant for both stages of the Project. In order to mitigate these impacts, the assessment recommends ongoing communication with the community and sharing of information on project phases, impacts, and economic opportunities as detailed in the Environmental Management Strategy.

The EIA also identifies positive benefits for the nearby communities. Continuation with the social programs and activities was determined to be a moderately significant contributor to positive impacts.





17.4.5 Land Acquisition and Involuntary Resettlement

The proposed expansion and additional installations at Cerro Lindo will not require any resettlement of the population as all work will be completed in the existing industrial area of the Mine. Therefore, PS5 is not applicable.

17.4.6 Indigenous Peoples

Prior to 2020 Nexa informed SLR that the Cerro Lindo operations are not located on Indigenous or immediately adjacent lands. Accordingly, PS7 was not considered applicable before. In 2020 the Peruvian Ministry of Culture stipulated the incorporation of some rural communities (Comunidades Campesinas) to the official national database of Indigenous Peoples according to the results of the national census completed in 2017. The categorization was conducted based on specific criteria set out in the current legislation to identify Indigenous Peoples (i.e., historic continuity, connection with the land, distinctive institutions, and Indigenous identity). Hence, there are rural communities that could also be identified as Indigenous groups according to the identification criteria. The community of Chavin is included in the list of rural communities added to the Indigenous Peoples database in June 2020 (belongs to the Quechuas Indigenous group).

No Indigenous studies have been carried out by Nexa related to the Cerro Lindo operations. SLR recommends that Nexa confirm the basis for the community of Chavin’s categorization by the Ministry of Culture and conduct a gap analysis with respect to its 2018 impact assessment studies to determine the need for additional socio-cultural studies focused on Indigenous Peoples. The categorization of the community of Chavin by the Ministry of Culture should be explicitly acknowledged in Nexa’s Social Management Plan and its sub-plans (Communications Plan, Social Concertation Plan, and Community Development Plan) modified accordingly.

17.4.7 Cultural Heritage

The EIA for the proposed expansion and additional installations at Cerro Lindo concluded that there was no presence of archaeological remains or evidence in the mine operation related areas. At the time of this writing, no information was available on Chance Find Procedures, which might be applicable as the proposed expansion undergoes construction and expanded operations commence.

17.5 Mine Closure Requirements

17.5.1 Mine Closure Plan and Regulatory Requirements

A formal Mine Closure Plan was prepared in 2009 for the mine components within the context of the Peruvian legislation and has subsequently been amended or updated four times. The Closure Plan addresses temporary, progressive and final closure actions, and post-closure inspection and monitoring. Under Article 20 of the Peruvian mine closure regulations, the first update of the Closure Plan must be submitted to the Peruvian Ministry of Energy and Mines (the Ministry) three years after approval of the initial Closure Plan, and every five years thereafter. Two years before final closure, a detailed version of the Mine Closure Plan will have to be prepared and submitted to the Ministry for review and approval. The following is a summary of the Cerro Lindo Mine Closure Plan updates to date:

- Initial Closure Plan from 2009 approved by R.D. No. 326-2009-MEM/AAM, which incorporated closure measures for the components approved in the 2004 EIA under R.D. No. 325-2004/MEM/AAM.
- First amendment of the Closure Plan from 2012 approved by R.D. No. 432-2012-MEM-AAM, which addressed operational changes approved in the 2010 EIA under R.D. No. 168-2010-MEM/AAM for the production expansion to 10,000 tpd, and the subsequent EIA modification approved in 2011 under R.D. No. 239-2011-MEM/AAM.
- Update to the Closure Plan from 2012 approved by R.D. No. 084-2013-MEM/AAM in compliance with D.S. No. 033-2005-EM, which addressed a modification of the beneficitation concession for the production expansion to 14,990 tpd (R.D. No. 298-2011-MEM-DGM/V).
- Second Closure Plan amendment from 2016 approved by R.D. No. 287-2016-MEM-DGAAM, which addressed the operational changes included in the supporting technical assessment reports approved under R.D. No. 069-2014-MEM-DGAAM (expansion to 10,000 tpd) and R.D. No. 391-2014-MEM-AAM (expansion to 17,988 tpd). Under article 2 of R.D. 287-2016-MEM-DGAAM, an annual financial assurance must be provided to the Ministry, using estimation factors set out by the Ministry.





- Third Closure Plan amendment from 2019 prepared to address mine facilities and operational changes associated with the production expansion to 22,500 tpd as approved in the modification of the EIA completed in 2018. The Third Amendment to the Mine Closure Plan is under review and approval process by the Peruvian Authorities.

The 2008 Mine Closure Plan (Knight Piésold, 2008), the 2016 Mine Closure Plan (Geoservice Ingeniería, 2016), the conceptual closure plan included in the 2018 EIA (SRK, 2018) and the 2019 Mine Closure Plan (KCB, 2019) were available for review.

The approved period for implementing closure and post-closure in the initial Mine Closure Plan was 18 years. Post-closure monitoring, assumed to extend for five years after closure, will include monitoring of physical, geochemical, hydrological, biological, and social stability.

The specific objectives of the Cerro Lindo Mine Closure Plan are as follows:

- Health and safety - The closure activities should substantially eliminate or reduce the risks associated with public health and safety within the mine site area. In the event of residual risks, appropriate controls must be implemented to minimize the exposure. The closure activities should guarantee the health and safety of the workers.
- Physical stability - Identify and evaluate technical and environmental measures to maintain the physical stability of mine components in the short and long term (for example, resilience against seismic events and extreme hydrologic events).
- Geochemical stability - Long term closure design and measures to prevent acid rock drainage and/or metal leaching that could impact natural water bodies in compliance with requirements of the Peruvian environmental legislation related to effluents from mine facilities. The closure measures must protect human health and prevent migration of mine effluents that are not in compliance with the national legislation requirements.
- Land use - Consider possible uses of the mine site area during post-closure for agricultural, recreational, and touristic activities given the availability of water supply and distribution system and re-vegetated areas following mine closure.
- Water body use - Prevent degradation of water quality and reduction of water quantity of water bodies taking into consideration the existing conditions of receiving water bodies as the referential baseline.
- Social objectives - Develop social programs for post-closure that mitigate social effects resulting from cessation of mine operations. Measures to mitigate socio-economic effects should be addressed during the mine life. The program for community development should reinforce skills development and sustainable projects without mine support to the extent feasible. The closure plan should be aligned with local land uses and development objectives.
- Other - Implement closure activities aimed to passive care where active treatment, maintenance, and monitoring are not required in the long term.

In general, closure activities include mobilization of equipment, machinery and personnel; physical, geochemical and hydrological stabilization; dismantling of surface components; demolition, removal and disposal; and levelling and contouring of ground surface. Waste materials will be decontaminated (if required), recycled when cost effective, and disposed of at a licensed facility. Facilities containing petroleum products, chemicals, solid waste, hazardous waste, and/or contaminated soil or materials will be dismantled and managed according to regulatory requirements. All hazardous waste will need to be managed according to existing laws and regulations and will be transported off site.

The geographical area where the Cerro Lindo facilities are located is arid, characterized by very low precipitation and high evaporation. Development of vegetation is difficult in these conditions. Accordingly, no re-vegetation of the disturbed areas is proposed although a topsoil layer will be placed at closure. Rehabilitation of the aquatic habitat is





not proposed either since no detrimental effects on the aquatic environment are anticipated as a result of mine operations and closure.
A summary of the main proposed closure activities is presented in Table 17-3.

Table 17-3: Summary of Main Closure Activities
Nexa Resources S.A. - Cerro Lindo Mine

	Mine Component	Closure Activities
Mine	Underground mine (portals, shafts and drilling platforms)	Dismantling and removal of equipment Installation of concrete plugs (stability of crown pillars must be assured) and backfilling with waste rock between the plugs and the exit points Recontouring of terrain at ground surface level to match original surface and promote adequate natural drainage Placing of topsoil
Waste disposal facilities	Waste dumps (Pahuaypite, No. 1, No. 2, No. 7, and No. 100) Temporary ore stockpile Landfills TSFs (Pahuaypite 1 and 2)	Contouring of slope (physical stability) Installation of low permeability cover on waste rock dumps to limit infiltration Preservation of existing perimeter channels for management of surface runoff Construction of drainage channels Compaction and neutralization of landfill with lime Levelling and recontouring Installation of low permeability cover to limit infiltration Construction of drainage channels Removal of geosynthetic materials and demolition of concrete structures from water management (contingency) ponds Partial backfilling of water management (contingency) ponds with inert materials to achieve surface with stable slopes
Other infrastructure	Process plant Conveyors Tailings filter plant Paste backfill plant Water management infrastructure Shops Transmission lines and electrical substations Warehouse and auxiliary buildings Laydown areas Access roads Desalination plant	De-energization and cleaning Removal of equipment Dismantling, demolition, salvaging, and disposal of structures Demolition of concrete structures Transportation to authorized disposal or collection areas Recontouring of terrain and placement of ground cover layer typical of the mine site area Implementation of natural drainage and/or construction of drainage channels as applicable Removal of contaminated soils Cleaning and purification of tanks and deposits





Staff facilities	Mine camp	Dismantling and removal of structures and equipment to authorized disposal areas
	Administrative buildings	Removal of prefabricated elements
	Potable water and sewage systems	Demolition of concrete slabs
		Recontouring of terrain and placement of ground cover layer typical of the mine site area
		Implementation of natural drainage

Physical, chemical, biological, and social stability conditions following closure will be verified through implementation of the post-closure maintenance and monitoring program. Monitoring will also support the evaluation and verification of compliance with closure activities, and the identification of deviations leading to the adoption of corrective measures. The monitoring activities will be carried out considering the Peruvian Environmental Quality Standards and Maximum Permissible Limits, as well as criteria set in the Mine Closure Plan for physical, chemical, biological, and social stability.

- Post-closure maintenance activities mainly involve the development and implementation of inspection programs, and the execution of physical repair activities of mine closure infrastructure as required (for example, repairs to low permeability covers and drainage system).
- Post-closure monitoring activities involve the following:
- Physical - Inspection of mine facilities, mainly the waste rock dumps to identify cracking, displacements, and settlements on slopes; the monitoring frequency will be biannually for five years.
- Geochemical - Surface water quality monitoring in natural water bodies and receiving water bodies in order to evaluate the effectiveness of the measures established; inspection of low permeability covers; the monitoring frequency will be biannually for five years.
- Hydrological - Technical inspections of the drainage systems to identify possible erosion, settlement, collapses and obstructions; the monitoring frequency will be biannually for five years.
- Biological - Monitoring of terrestrial and aquatic biota in the surrounding areas of locations of mine components as a reference to verify biological conditions in non-disturbed areas, which are considered areas of control; the monitoring frequency will be biannually for five years (dry and wet season).
- Social - Development of a set of actions that will allow to verify the efficiency and effectiveness of the social programs at mine closure in accordance with established objectives, and adoption of corrective measures as required.

17.5.2 Closure Cost Estimate and Financial Assurance for Closure

A closure cost estimate was developed and included in the Mine Closure Plans. The total value estimated in 2019 for the remaining life of mine presented in the third modification of the Mine Closure Plan is as follows (excluding local taxes):

- Progressive Closure (2021 to 2027) US\$16,722,702
- Final Closure (2028 and 2029) US\$39,504,100
- Post-Closure (2030 to 2034) US\$ 930,170

According to Supreme Decree D.S. N° 262-2012-MEM/DM, the financial assurance is calculated based on inflation and discount rates in order to estimate the net present value for the mine closure cost. The total financial assurance (progressive closure, final closure and post-closure) has been calculated in 2019 considering an inflation rate of 2.37% and a discount rate of 2.14% resulting in a total of US\$57,128,936 (including local taxes).





18.0 CAPITAL AND OPERATING COSTS

SLR reviewed capital and operating costs required for mining and processing of Mineral Reserves at Cerro Lindo. Costs were supplied to SLR by Nexa. Cerro Lindo is an operating mine, therefore, capital and operating cost estimates were prepared based on recent operating performance and the current operating budget for 2020. The cost estimates are accurate to within +/-10%. SLR considers these cost estimates to be reasonable, provided the production targets are realized. All costs in this section are expressed in Q4 2020 US dollars.

In both cases, capital and operating cost estimates are based on recent estimates and actual costs and considered by SLR to be reasonable.

18.1 Capital Costs

The capital costs for the Cerro Lindo LOM period are shown in Table 18-1. The Mine is a current producer, therefore there are no pre-production capital costs. The other sustaining capital costs shown are for ventilation and cooling, electrical substations, and accessories. The heavy equipment replacement costs carry on until 2027.

Table 18-1: Sustaining Capital Cost
Nexa Resources S.A. - Cerro Lindo Mine

Description	Total (US\$000)	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Mine Development	66,275	20,326	16,768	15,903	3,722	9,556	-	-	-	-	-
Equipment Replacement	32,410	3,744	5,136	5,195	8,860	6,651	2,824	-	-	-	-
Other Sustaining	37,547	8,649	6,630	(492)	7,737	3,096	1,910	3,339	3,339	3,339	-
Tailings / Dumps	9,246	3,082	664	5,500	-	-	-	-	-	-	-
Modernization	9,364	3,760	4,779	525	205	95	-	-	-	-	-
Sub-Total	154,842	39,561	33,977	26,631	20,524	19,398	4,734	3,339	3,339	3,339	-
Closure	57,157	-	-	-	-	-	-	-	-	-	57,157
Total	211,999	39,561	33,977	26,631	20,524	19,398	4,734	3,339	3,339	3,339	57,157

The mine closure plan engineering design was prepared to meet the Peruvian national requirements with the closure and reclamation cost assessed at \$57.2 million with the distribution as indicated. The closure cost should be updated regularly to address changes and updates in the national requirements.

18.2 Operating Costs

A summary of the LOM operating costs is shown in Table 18-2.

Table 18-2: Mine Operating Cost Estimate
Nexa Resources S.A. - Cerro Lindo Mine

Description	Total LOM (US\$M)	Average (US\$M/yr)	LOM Unit Cost (US\$/t)
UG Mining	791	88	15.18
Mine Development	231	26	4.44
Processing	623	69	11.95
G&A	157	17	3.01
Total	1,802	200	34.58





The average operating cost is based on a LOM period of nine years from 2021 through 2029. The operating cost inputs including labour, consumables, and supplies were based on data supplied by Nexa.

The operating cost profile, showing actuals for 2017 to 2019 and the LOM period, is shown in Figure 18-1.



Figure 18-1: Operating Cost Profile

From 2025 onwards, the mine production falls to approximately 60% of the previous years as mining will take place close to the primary underground crusher location thereby negating use of the crusher. Transportation costs will consequently increase. The lower productivity is reflected in higher mining unit costs as indicated.

18.2.1 Manpower

The manpower breakdown and contractors list for the entire operation at Cerro Lindo are shown in Table 18-3 and Table 18-4, respectively. Cerro Lindo has historically used a significant amount of contract services. The number of contractors on site varies depending on the requirements of the mine. Table 18-4 shows the number of contractors employed for December 2020.

Table 18-3: Manpower Distribution
Nexa Resources S.A. - Cerro Lindo Mine

Area	Managers	General Staff	Operators & Technical Staff	Total
Human Resources		10	4	14
Geology and Exploration	1	9	15	25
Unit Management	1	8		9
Management	1			1
Infrastructure	1	3	3	7
Maintenance	1	23	77	101





Area	Managers	General Staff	Operators & Technical Staff	Total
Environment		3	6	9
Mine	1	29	206	236
Plant	1	16	91	108
Projects	1	7		8
Community Relations		4		4
Security	1	11	2	14
Technical Services	1	24	32	57
Support Staff		6	9	15
Total	10	153	445	608

Table 18-4: Contractors List - December 2020
Nexa Resources S.A. - Cerro Lindo Mine

Contractor	Area	Shift	Number
Manpower Peru	Admin & Community Relations	14 x 7	5
Explosupport S.A.C.	Exploration	14 x 7	1
Certimin S.A.	Geology	14 x 7	17
Explomin Del Peru S.A.	Geology	14 x 7	139
Newrest Peru S.A.C.	Human Resources	14 x 7	231
Movil Bus S.A.	Infrastructure	14 x 7	16
Proseguridad S.A.	Infrastructure	14 x 7	45
Sodexo Peru S.A.C.	Infrastructure	28 x 14	32
		14 x 7	
Transportes San Alejandro S.A.C.	Logistics	6 x 1	36
Atlas Copco Peruana S.A.	Maintenance	14 x 7	3
Cana Dyne Equipment and Services S.A.	Maintenance	14 x 7	13
Confipetrol Andina S.A.	Maintenance	14 x 7	284
Distribuidora De Mangueras Hidraulicas S.A.C.	Maintenance	14 x 7	6
Epiroc Peru S.A.	Maintenance	14 x 7	31
Ferreyros S.A.	Maintenance	14 x 7	16
		5 x 2	
Industrias Islas	Maintenance	8 x6	17
Mb Renting	Maintenance	14 x 7	10
Sandvik Del Peru S.A.	Maintenance	14 x 7	17
Grupo Alvarado S.A.C.	Maintenance	14 x 7	2
Administracion De Empresas S.A.C.	Mine	14 x 7	390





Contractor	Area	Shift	Number
American Renta Car S.A.C.	Mine	14 x 7	53
Dinet S.A.	Mine	14 x 7	267
Exsa S.A.	Mine	14 x 7	57
Incimmet S.A.	Mine	14 x 7	298
Tumi Contratistas Mineros S.A.C.	Mine	14 x 7	66
Union De Concreteras S.A.	Mine	14 x 7	126
Etranserge S.R.L.	Plant	14 x 7	42
Ecoserm - Chavin	Security/ Environment/ Infrastructure	14 x 7	113
Salus Laboris S.A.C.	Security	14 x 14	10
Sgs Del Peru Sac	Security/ Environment/ Infrastructure	10 x 4	3
Transporte Minero Za E.I.R.L.	Security/ Environment/ Infrastructure	14 x 7	20
Ulloa S.A.	Security/ Environment/ Infrastructure	14 x 7	22
Total			2,388





19.0 ECONOMIC ANALYSIS

The economic analysis contained in this Technical Report Summary is based on Cerro Lindo’s Mineral Reserves reported on a 100% ownership basis (Nexa owns 80.16%), economic assumptions provided by Nexa, and the capital and operating costs as presented in Section 18 of this Technical Report Summary.

Nexa has a silver streaming agreement with Triple Flag on silver production from the Cerro Lindo Mine. Triple Flag has the rights to 65% of all payable silver, at a cost of 10% of the spot silver price (up to a total of 19.5 Moz Ag). After the total has been reached, currently anticipated to be 2027, Triple Flag is entitled to 25% of payable silver.

19.1 Economic Criteria

19.1.1 Physicals

- Mine life: 9 years (between 2021 and 2029):
- Underground Ore tonnes mined: 52,101 kt
 - o Cu grade: 0.61%
 - o Zn grade: 1.44%
 - o Pb grade: 0.20%
 - o Ag grade: 21.2 g/t
- Processed:
 - o Total Ore Feed: 52,101 kt
 - \$ Cu grade: 0.61%
 - \$ Zn grade: 1.44%
 - \$ Pb grade: 0.20%
 - \$ Ag grade: 21.2 g/t
 - o Contained Metal:
 - \$ 319 kt
 - Cu:
 - \$ 748 kt
 - Zn:
 - \$ 106 kt
 - Pb:
 - \$ 35,472 koz
 - Ag:
 - o Metallurgical Recoveries at LOM average grade (recoveries vary as a function of head grade):
 - \$ Cu recovery 86.3%
 - \$ Zn recovery 88.1%
 - \$ Pb recovery 68.6%
 - \$ Ag in Cu recovery 39.9%
 - \$ Ag in Pb recovery 28.9%
 - o Recovered Metals:
 - \$ 277 kt
 - Cu:
 - \$ 660 kt
 - Zn:





\$ 74 kt
Pb:
\$ 26,527 koz
Ag:
o Payable Metals:
\$ 266.7 kt
Cu:
\$ 561.2 kt
Zn:
\$ 70.6 kt
Pb:
\$ 22,446 koz
Ag:

19.1.2 Revenue

- Revenue is estimated based on the following LOM weighted average metal prices:
 - o Cu price: US\$6,458/t
 - o Zn price: US\$2,487/t
 - o Pb price: US\$1,987/t
 - o Ag price - spot: US\$17.01/oz
- Net Revenue includes the benefit of Cerro Lindo’s zinc concentrate processed at Nexa’s Cajamarquilla (CJM) zinc refinery in Peru (61%) and Três Marias (TM) (35%) and Juiz de Fora (JF) (4%) zinc refineries in Brazil. This integration with Nexa’s internal refineries provides the benefit of additional US\$150.34/t zinc selling price in average, and zinc smelting at cost (rather than at commercial third-party terms).
- Logistics, Treatment and Refining charges:
 - o LOM average Transportation/Logistics charges:
 - \$ Cu concentrate: US\$109.26/t concentrate
 - \$ Zn concentrate: US\$64.82/t concentrate (weighted average logistic integration cost with CJM, TM, and JF refineries)
 - \$ Pb concentrate: US\$108.75/t concentrate
 - o Treatment Charges:
 - \$ TC+RC Cu concentrate: US\$112.35/t concentrate
 - \$ TC Zn concentrate for export: US\$238.91/t concentrate
 - \$ TC Pb concentrate: US\$201.16/t concentrate
 - \$ Refined Zn weighted average conversion costs at CJM, TM, and JF refineries: US\$443.10/t
 - o Refining Charges:
 - \$ Ag in Cu concentrate: US\$0.50/oz
 - \$ Ag in Pb concentrate: US\$1.00/oz
- NSR Revenue after Logistics, Treatment and Refining charges is US\$3,076 million.

19.1.3 Capital Costs

- LOM sustaining capital costs of US\$154.8 million.
- LOM working capital balance of US\$117.7 million.
- Closure costs of US\$57.2 million were included at the end of the Mineral Reserves based LOM in year 2030.





19.1.4 Operating Costs

- LOM unit operating cost average of:
 - o Mine Development: US\$4.44/t mined
 - o Underground Mining: US\$15.18/t mined
 - o Processing: US\$11.95/t milled
 - o G&A: US\$3.01/t milled
- Total unit operating costs of US\$34.58/t milled.
- LOM operating costs of US\$1,801 million.

19.1.5 Taxation and Royalties

- Corporate income tax rate in Peru is 29.50%.
- Special Mining Tax (IEM/GEM) LOM average rate: 4.3%.
- Mining royalties LOM average rate: 4.3%.
- Employees participation: 8%.
- SLR has relied on a Nexa taxation model for calculation of income taxes applicable to the cash flow.

19.2 Cash Flow

SLR developed a LOM after-tax cash flow model for the Cerro Lindo Mine to confirm the economics of the LOM plan. The model is based on Nexa’s TR Cerro Lindo 2020 Final2 model. The model does not take into account the following components:

- Financing costs
- Insurance
- Overhead cost for a corporate office

A cash flow summary is presented in Table 19-1. Production is reported on a 100% ownership basis (Nexa owns 80.16%). All costs are in Q4 2020 US dollars with no allowance for inflation.





Table 19-1: After-Tax Cash Flow Summary









19.2.1 Cash Flow Analysis

Mine economics have been evaluated using the discounted cash flow method, using mid-year discounting convention, and taking into account annual processed tonnages and copper, zinc, lead, and silver grades. The associated process recovery, copper, zinc, and lead concentrate grades, metal prices, operating costs, refining and transportation charges, royalties, and capital expenditures were also considered.

The economic analysis confirmed that the Cerro Lindo Mineral Reserves are economically viable. The pre-tax net present value (NPV) at an 9% base discount rate is US\$639 million and the after-tax NPV at an 9% base discount is US\$304 million, on a 100% Mine basis (Nexa owns 80.16%).

The summary of the results of the cash flow analysis is presented in Table 19-2.

Table 19-2: Cash Flow Analysis
Nexa Resources S.A. - Cerro Lindo Mine

Item	Discount Rate	Units	Value
Pre-tax NPV at 8% discount	8%	US\$ million	667
Pre-tax NPV at 9% discount	9%	US\$ million	639
Pre-tax NPV at 10% discount	10%	US\$ million	612
After-Tax NPV at 8% discount	8%	US\$ million	319
After-Tax NPV at 9% discount	9%	US\$ million	304
After-tax NPV at 10% discount	10%	US\$ million	290

The undiscounted pre-tax cash flow is US\$971 million, and the undiscounted after-tax cash flow is US\$491 million. For this cash flow analysis, the internal rate of return (IRR) and payback are not applicable as there is no negative initial cash flow (no initial investment to be recovered).

19.3 Sensitivity Analysis

Project risks can be identified in both economic and non-economic terms. Key economic risks were examined by running cash flow sensitivities on after-tax NPV at an 9% discount rate. The following items were examined:

- Metal prices
- Head grade
- Metallurgical recovery
- Operating costs, and
- Capital costs

After-tax sensitivity over the base case has been calculated for -20% to +20% (for head grade), -10% to +5% (for recoveries), -20% to +20% (for metal prices), and -5% to +15% (operating costs and capital costs) variations to determine the most sensitive parameter of this project. The sensitivities are shown in Table 19-3 and Figure 19-1.

Table 19-3: After-Tax Sensitivity Analysis
Nexa Resources S.A. - Cerro Lindo Mine

	Head Grade	NPV at 9% (US\$ million)
80%	Cu:0.49% Zn:1.15% Pb:0.16% Ag:16.9 g/t	71
90%	Cu:0.55% Zn:1.29% Pb:0.18% Ag:19.1 g/t	188





Head Grade		NPV at 9% (US\$ million)
100%	Cu:0.61% Zn:1.44% Pb:0.20% Ag:21.2 g/t	304
110%	Cu:0.67% Zn:1.58% Pb:0.22% Ag:23.3 g/t	416
120%	Cu:0.74% Zn:1.72% Pb:0.24% Ag:25.4 g/t	530
Net average Recovery (all metals)		NPV at 9% (US\$ million)
90%	79%	188
98%	84%	245
100%	88%	304
103%	90%	332
105%	92%	361
Metal Prices		NPV at 9% (US\$ million)
80%	Cu:\$2.33/lb Zn:\$0.90/lb Pb:\$0.71/lb Ag:\$13.68/oz	23
90%	Cu:\$2.62/lb Zn:\$1.02/lb Pb:\$0.80/lb Ag:\$15.39/oz	164
100%	Cu:\$2.91/lb Zn:\$1.13/lb Pb:\$0.89/lb Ag:\$17.10/oz	304
110%	Cu:\$3.20/lb Zn:\$1.24/lb Pb:\$0.98/lb Ag:\$18.81/oz	440
120%	Cu:\$3.49/lb Zn:\$1.35/lb Pb:\$1.07/lb Ag:\$20.52/oz	577
Operating Costs (US\$ million)		NPV at 9% (US\$ million)
95.0%	1,711	370
97.5%	1,756	337
100.0%	1,801	304
107.5%	1,936	205
115.0%	2,072	107
Capital Costs - Sustaining & Closure (US\$ million)		NPV at 9% (US\$ million)
95.0%	201	308
97.5%	207	306
100.0%	212	304
107.5%	228	297
115.0%	244	291





Figure 19-1: After-Tax NPV Sensitivity Graph

The after-tax NPV is most sensitive to metal prices, then to head grade, followed by operating costs, metallurgical recoveries, and capital costs.



Nexa Resources S.A. | Cerro Lindo Mine, SLR Project No: 233.03246.R0000
Technical Report Summary - January 29, 2021



20.0 ADJACENT PROPERTIES

There are no adjacent properties to report in this section.





21.0 OTHER RELEVANT DATA AND INFORMATION

No additional information or explanation is necessary to make this Technical Report Summary understandable and not misleading.





22.0 INTERPRETATION AND CONCLUSIONS

SLR has the following conclusions by area.

22.1 Geology and Mineral Resources

- As of December 31, 2020, exclusive of Mineral Reserves, Measured Mineral Resources are estimated to total 3.53 Mt at 2.00% Zn, 0.20% Pb, 0.67% Cu, and 19.61 g/t Ag and Indicated Mineral Resources are estimated to total 2.77 Mt at 1.37% Zn, 0.25% Pb, 0.45% Cu, and 24.96 g/t Ag. In addition, Inferred Mineral Resources are estimated to total 6.30 Mt at 1.28% Zn, 0.35% Pb, 0.33% Cu, and 31.23 g/t Ag. Mineral Resources are reported on an 80.16% Nexa attributable ownership basis.
- Cerro Lindo is a Kuroko-style VMS deposit that comprises a number of lens-shaped massive and semi-massive sulphide bodies.
- Three massive sulphide units, one semi-massive sulphide unit, and one mineralized volcanic rock unit have been recognized.
- The control of mineralization is lithological, mineralogical, and structural. Most copper mineralization is located in a pyritic massive sulphide unit and most zinc mineralization is located in baritic massive sulphide units, with lesser disseminated mineralization as patches or stringers in the semi-massive sulphide and mineralized volcanic units.
- The geological setting, geophysical studies, surface samples and geological mapping of the Cerro Lindo area present good exploration potential, as a number of targets have already been identified within a ten kilometre radius of the mining operation.
- Protocols for drilling, sampling preparation and analysis, verification, and security meet industry standard practices and are appropriate for the purposes of a Mineral Resource estimate.
- The QA/QC program as designed and implemented by Nexa is adequate, with no significant bias, to support the resource database. The resource database was verified by SLR and is suitable for Mineral Resource estimation.
- The geological models are reasonably constructed using available geological information and are appropriate for Mineral Resource estimation.
- The assumptions, parameters, and methodology used for the Cerro Lindo Mineral Resource estimate are appropriate for the style of mineralization and proposed mining methods.

22.2 Mining and Mineral Reserves

- As of December 31, 2020, Proven and Probable Mineral Reserves are estimated to total 41.76 Mt at 1.44% Zn, 0.20% Pb, 0.61% Cu, and 21.17 g/t Ag. Mineral Reserves are reported on an 80.16% Nexa attributable ownership basis.
- Dilution and extraction factors follow the historical trend and are considered appropriate for the type of stoping methods employed at Cerro Lindo.
- The level of dilution will likely increase in the latter years of production as the stopes on the fringes of the deposit will increase exposing the stopes to more external dilution.
- The level of extraction will likely decrease under similar circumstances as more care will be required to avoid excess dilution in the ore.
- Modifications to the mining approach for the areas requiring a more conventional method such as C&F will be required in the latter years when mining the fringes of the deposit. Paste backfill delivery is an issue when stopes are distant from the paste fill source requiring dilution with water which in turn can result in lower strength backfill. This does not represent a significant risk to the Mineral Reserve estimate, as C&F represents a small amount of the total Mineral Reserves. Pastefill can also be substituted with CRF. CRF can be mixed underground closer to the C&F stopes.





22.3 Mineral Processing

- The development of a geometallurgical model to predict metallurgical response during future processing at Cerro Lindo remains a work in progress. Additional work and metallurgical testing are necessary to confirm the validity of the relationships derived to date for throughput, grinding media consumption, recovery, and concentrate quality.
- Analysis of historical production demonstrates that recoveries of copper, lead, and zinc are related to their head grades, while silver recoveries to the copper and lead concentrates tend to follow the copper and lead head grades.
- Average LOM planned head grades of copper, lead, and silver for the next three years are similar to those experienced from 2016 to 2020 at 0.48%, 0.25%, and 0.70 oz/t, respectively, while the planned head grades of zinc decrease steadily from 1.8% after 2020.
- Head grades towards the end of the LOM are anticipated to decrease, particularly those of zinc. Forecast recoveries and concentrate grades are initially in line with those of recent years, and then predicted to fall as head grades decrease.
- Apart from decreasing head grades, no fundamental changes to the concentrator feed are anticipated, and in the QP’s opinion, based on recent processing plant performance, the forecast recoveries and concentrate qualities for the near future are reasonable. With end of LOM zinc and lead head grades being well below the historical ranges, however, there is a risk that actual recoveries may be lower than forecast due to the lack of data on processing material with these low head grades.
- A small amount of transition or supergene ore has been identified in two stopes, and test work is underway to determine economical alternatives for processing the ore, e.g., by campaigning the supergene material through the processing plant using conditions and reagents optimized specifically for this material.

22.4 Environment, Permitting and Social Considerations

- No known environmental issues were identified during the site visit and documentation review. The Cerro Lindo Mine operation complies with applicable Peruvian permitting requirements and Nexa maintains a list of permits for the Project, which was provided to SLR. The approved permits address the authority’s requirements for operation of the underground mine, TSF, waste rock dumps, process plant, water usage, and effluents discharge. There is no discharge of industrial or domestic water to the environment at the mine site.
- There is a comprehensive EMP in place, which includes a complete monitoring program for effluent discharges, gas emissions, air quality, non-ionizing radiation, noise, surface water quality, groundwater quality, soil quality, terrestrial biology (vegetation and wildlife), and aquatic biology. Cerro Lindo reports the results of the monitoring program to the authorities according to the frequency stated in the approved resolutions and no compliance issues have been raised by the authorities. In the SLR QP’s opinion the proposed environmental plans are adequate to address potential issues related to environmental compliance.
- Regarding the tailings dry-stack storage facilities, some movement of the tailings relative to the foundation has been noted from the tailings monitoring data, however, phreatic levels in the tailings are very low and the range of movement is considered to be within normal parameters. It is noted that the likelihood of the mine site experiencing a severe seismic event is relatively high given the mine site proximity to a major tectonic plate subduction zone.
- Water management involves complete recirculation of water at the mine site where there is no fresh water withdrawal from natural water bodies and there is no discharge of industrial or treated sewage water to the environment. Fresh water is being supplied from a desalination plant located at the coast to meet site and process water make-up requirements. Water quality monitoring is carried out monthly at stations located along the Topará Creek at the mine site and in Jahuay beach at the discharge location from the desalination plant.
- A Mine Closure Plan has been developed for all the Mine components within the context of Peruvian legislation and is periodically updated.





- A social baseline description, assessment of socio-economic impacts, and a social management plan have been carried out to mitigate negative impacts and maximize positive benefits of the Cerro Lindo Mine. These components are generally consistent with social impact assessment practices. The Social Management Plan is comprised of three plans (Communications Plan, Community Relations Plan, and Community Development Plan) and includes measures and indicators to track social management performance. Nexa implements a complaint register to gather and respond to complaints from the public. In the SLR QP's opinion the Social Management Plan and the grievance mechanism in place are adequate to address potential issues related to local communities.
- Nexa hires from the local workforce when possible, both for skilled and unskilled workers. Outreach is conducted to the local community through social and employment programs.
- The review of social aspects indicates that, at present, Nexa's operations at the Cerro Lindo site in Peru are a positive contribution to sustainability and community well-being. Nexa has established and continues to implement its various Corporate policies, procedures, and practices in a manner consistent with relevant IFC Performance Standards. Nexa has, and continues to make, a positive contribution to the communities most affected by the Mine and has done a thorough job in collecting information to support its environmental effects assessment. Information regarding the outcomes of the complaints and grievances reports and site-specific health and safety practices was not provided at the time of this review, however, the corporate policies that guide these activities are clear and aligned with IFC Performance Standards.
- The water quality concerns outside of the mine site that communities express from time to time remain a risk for the operations at Cerro Lindo.

22.5 Costs and Economic Analysis

- SLR reviewed the sustaining capital costs and considers them to be appropriate for the remaining mine life. The sustaining capital costs are spread over the LOM period from 2021 to 2029, with mine closure in 2030. The bulk of the sustaining capital is mine development required to both access and develop the stoping blocks for mining. Equipment replacement is comprised of new equipment and equipment overhauls.
- The LOM operating cost forecast reflects the existing operating status of the mine. The SLR QP has reviewed recent operating costs and is of the opinion that the forecast is appropriate for the Cerro Lindo mine operation. Cerro Lindo staff also continue to assess operating efficiencies and approaches in efforts to improve operating costs in the different cost centres.
- The economics of the Cerro Lindo mine operation are robust over the LOM, confirming that the Cerro Lindo Mineral Reserves are economically viable. The economic analysis shows an after-tax NPV, at an 9% base discount rate, of \$304 million, on a 100% Mine basis (Nexa owns 80.16%).





23.0 RECOMMENDATIONS

SLR has the following recommendations by area.

23.1 Geology and Mineral Resources

1. Improve reconciliation processes by implementing a formal procedure and by forming a multi-disciplinary team to organize and analyze reconciliation results so that production data can be used to calibrate future resource and reserve models.
2. Investigate the potential 5% negative bias for lead at Inspectorate Lima.
3. Incorporate controls to reduce failure rates observed for some lead and silver CRMs.
4. Actively monitor blank results so any contamination issues can be corrected immediately, particularly the mine samples where there is no remaining core for re-analysis.
5. Take density measurements for SOP, SOB, and SLB domains, and collect more density samples at the extremities of the mineralization where resource and reserve shapes were generated.
6. Investigate building grade domains without separating them by geological domain to preserve grade continuity, evaluate incorporating mineralogy data, and review the geometry and trends of the grade domains
7. Improve DA angles particularly for the OB1 area based on grade trends and structural interpretations and potential further sub-domaining.
8. Continuously improve post-mineralization dike modelling to capture more of the logged intercepts and core angles, as well as contacts based on the underground mapping. Dikes are important to delimit internal waste and to guide the local interpolation strategy as some of them are behaving like faults by controlling the mineralization trends.
9. Build a more detailed structural model and structural domains to customize local search anisotropies and directions. It appears that there are at least four main structural trends present (northwest-southeast dipping northeast, northwest-southeast dipping southwest, northeast-southwest dipping northwest, and west-northwest/east-southeast dipping northwest and plunging west-northwest) that should be investigated further. Some mineralization domains appear to have mineralization trending in various directions due to local faulting and folding and further sub-domaining may be warranted.
10. Using the production data, monitor the chosen drill spacing for SSM and VM to determine if sufficient confidence is provided to support detailed mine planning, as these domains show less grade continuity and more grade variability than the massive sulphide domains.
11. Optimize resource shapes to reduce unnecessary internal dilution and improve grades, and possibly generate more shapes that were not built due to the resource shape construction methodology used.
12. Generate a no survey solid to account for the mined-out areas that were not surveyed, and document work to support the resultant solid.
13. Document all the data support to define non-recoverable solids and document any changes.
14. Complete the proposed 2021 exploration program, consisting of a 35,100 m of diamond drilling, and continue with advanced exploration, including geological mapping, and geochemical and geophysical surveys. The 2021 exploration program budget is approximately US\$7.1 million.
15. Complete the proposed 2021 mine geology drilling, consisting of 48,000 m with a goal of upgrading Inferred Mineral Resources to Indicated or Measured Resources (recategorization drilling) and for mine planning purpose (infill drilling) and ultimately convert them into Probable or Proven Mineral Reserves. The 2021 mine geology drilling program budget is approximately US\$3.1 million.

23.2 Mining and Mineral Reserves

1. Review the stope designs to address the potential for increased dilution as mining nears the deposit limits. The use of shanty back design could be useful in addressing this issue.





2. Adjust the mining methods to reduce the level of internal dilution. Trade-off studies will be required to assess all aspects of the methods.
3. Complete a trade-off study comparing the use of CRF in areas that are distant from the paste fill source requiring high water content for delivery and lowering the backfill quality.
4. Consider upgrading the mine's underground data-communications capabilities by replacing the present leaky-feeder system with a Wi-Fi fibre-optic network or a 4G-LTE cellular network.
5. An upgraded communications system will permit implementing centralized control and monitoring of underground operations from a control room on surface. These centralized functions can include real-time tracking of personnel and equipment, telemetry, ventilation-on-demand, and closed-circuit television, among other applications.
6. With a wireless communications system, consider implementing automated and/or tele-remote technology to operate equipment from control stations on surface. The technology can be used for mucking stopes, mucking development headings, production drilling, crushing, and operating rockbreakers, among other applications. A significant benefit is that it allows many mining operations to continue during otherwise non-productive periods, including lunch breaks, shift changes, blasting times, and ventilating smoke.

23.3 Mineral Processing

1. Re-evaluate the potential benefits that may be derived from a geometallurgical model to determine if additional test work and further development of a geometallurgical model will provide more valuable information than what is already available from test work results.
2. Conduct flotation test work on ore samples representing the lower lead and zinc head grades anticipated towards the end of the LOM to provide information on recovery and concentrate quality for planning purposes.
3. Continue investigations into development of processing conditions suitable for campaigning transition/supergene ore through the plant.

23.4 Environment, Permitting and Social Considerations

1. Continue identifying and comparing solutions for storing tailings for the remainder of the LOM.
2. Evaluate the long term environmental impacts of allowing the tailings valley runoff to pond against and seep through the Pahuaypita waste rock dump.
3. Continue with participatory monitoring of water quality and implement social commitments to help improve access to water and water quality in the area.
4. Sourcing local employment may be difficult with expanded and continued operations as Nexa has already reported that sourcing local employees has, at times, been challenging. Continue with commitments in educating, training, recruitment, and diversity targeted to the local workforce.
5. Improve social and employment policies and procedures by developing mechanisms to communicate the outcomes of the employee and community focused activities with stakeholders and the public, particularly with a focus on access to water and perception about water quality.
6. Confirm the basis for the community of Chavin's categorization as an Indigenous group by the Ministry of Culture in 2020 and conduct a gap analysis with respect to its 2018 impact assessment studies to determine the need for additional socio-cultural studies focused on Indigenous Peoples. The categorization of the community of Chavin by the Ministry of Culture should be explicitly acknowledged in Nexa's Social Management Plan and its sub-plans (Communications Plan, Social Concertation Plan, and Community Development Plan) modified accordingly.

23.5 Costs and Economic Analysis

1. Continuously monitor costs and lock in costs as soon as possible to eliminate economic uncertainty.





2. Continue efforts towards improving efficiencies and approaches to mining and development operations as opportunities arise in these areas.





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25.0 RELIANCE ON INFORMATION PROVIDED BY THE REGISTRANT

This Technical Report Summary has been prepared by SLR for Nexa. The information, conclusions, opinions, and estimates contained herein are based on:

- Information available to SLR at the time of preparation of this report,
- Assumptions, conditions, and qualifications as set forth in this report, and
- Data, reports, and other information supplied by Nexa.

For the purpose of the Summary and Section 3 of this report, SLR has relied on ownership information provided in an internal legal opinion by Magaly Bardales, Legal Corporate Manager and Institutional Affairs dated August 16, 2020 (Nexa, 2020a) and a supporting email from Nexa dated January 18, 2021. SLR has not researched property title or mineral rights for the Cerro Lindo Mine as we consider it reasonable to rely on Nexa’s legal counsel who is responsible for maintaining this information.

SLR has relied on Nexa for guidance on applicable taxes, royalties, and other government levies or interests, applicable to revenue or income from the Mine in the Summary and Section 19. As the Mine has been in operation for over ten years, Nexa has considerable experience in this area.

The Qualified Persons have taken all appropriate steps, in their professional opinion, to ensure that the above information from Nexa is sound.

Except for the purposes legislated under U.S. federal securities laws and the Canadian provincial securities laws, any use of this Technical Report Summary by any third party is at that party’s sole risk.





26.0 DATE AND SIGNATURE PAGE

This report titled “Technical Report Summary on the Cerro Lindo Mine, Department of Ica, Peru” with an effective date of December 31, 2020 was prepared and signed by:

SLR Consulting (Canada) Ltd. (Signed) *SLR Consulting (Canada) Ltd.*

Dated at Toronto, ON
January 29, 2021



Nexa Resources S.A. | Cerro Lindo Mine, SLR Project No: 233.03246.R0000
Technical Report Summary - January 29, 2021



Technical Report Summary on Cerro Pasco Complex Integration, Pasco Province, Peru

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Table of Contents

1.0	Executive Summary	1-1
1.1	Summary	1-1
1.2	Economic Analysis	1-15
1.3	Technical Summary	1-20
2.0	Introduction	2-1
2.1	Site Visits and QPs	2-2
2.2	Sources of Information	2-3
2.3	List of Abbreviations	2-5
3.0	Property Description	3-1
3.1	Location	3-1
3.2	Mineral Rights in Peru	3-3
3.3	Land Tenure	3-4
3.4	Annual Fees	3-30
3.5	Surface Rights and Easements	3-33
3.6	Required Permits and Status	3-37
3.7	Other Significant Factors and Risks	3-45
4.0	Accessibility, Climate, Local Resources, Infrastructure and Physiography	4-1
4.1	Accessibility	4-1
4.2	Climate	4-1
4.3	Local Resources	4-2
4.4	Infrastructure	4-2
4.5	Physiography	4-3
5.0	History	5-4
5.1	Ownership History	5-4
5.2	Exploration and Development History	5-4
5.3	Past Production	5-6
6.0	Geological Setting, Mineralization, and Deposit	6-1
6.1	Regional Geology	6-1
6.2	Local Geology	6-4
6.3	Property Geology	6-11
6.4	Alteration	6-12
6.5	Mineralization	6-15





6.6	Deposit Types	6-17
7.0	Exploration	7-1
7.1	Exploration	7-1
7.2	Drilling	7-2
7.3	Channel Sampling	7-13
7.4	Hydrogeology Data	7-18
7.5	Geotechnical Data	7-19
7.6	Geophysics	7-20
7.7	Exploration Target	7-23
7.8	Exploration Potential	7-23
7.9	Summary	7-28
8.0	Sample Preparation, Analyses, and Security	8-1
8.1	Laboratories	8-1
8.2	Sample Preparation and Analysis	8-1
8.3	Sample Security	8-6
8.4	Density Determinations	8-6
8.5	Quality Assurance and Quality Control	8-8
8.6	QP Opinion	8-46
9.0	Data Verification	9-1
9.1	Databases and Internal Verification	9-1
9.2	El Porvenir	9-1
9.3	Atacocha	9-3
9.4	Data Verification by the QP	9-4
9.5	QP's Opinion and Recommendations	9-4
10.0	Mineral Processing and Metallurgical Testing	10-1
10.1	El Porvenir	10-1
10.2	Atacocha	10-15
11.0	Mineral Resource Estimates	11-1
11.1	Summary	11-1
11.2	Comparison with Previous Estimate	11-8
11.3	Reconciliation	11-12
11.4	El Porvenir	11-16
11.5	Atacocha (San Gerardo) Open Pit	11-72
11.6	Atacocha Underground	11-131





11.7	Mineral Resource Uncertainty	11-182
12.0	Mineral Reserve Estimates	12-1
12.1	Summary	12-1
12.2	Comparison with Previous Estimates	12-5
12.3	Atacocha and El Porvenir Underground	12-6
12.4	Atacocha (San Gerardo) Open Pit	12-14
13.0	Mining Methods	13-1
13.1	Atacocha and El Porvenir Underground	13-1
13.1.6	Infrastructure	13-18
13.2	Atacocha Open Pit (San Gerardo)	13-23
13.2.3	Open Pit LOM Production Schedule	13-28
13.2.4	Infrastructure	13-28
13.3	Consolidated Life of Mine Plan	13-29
14.0	Processing and Recovery Methods	14-1
14.1	El Porvenir	14-1
14.2	Atacocha	14-7
15.0	Infrastructure	15-1
15.1	El Porvenir	15-3
15.2	Atacocha	15-13
16.0	Market Studies	16-1
16.1	Markets	16-1
16.2	Contracts	16-6
17.0	Environmental Studies, Permitting, and Plans, Negotiations, or Agreements with Local Individuals or Groups	17-1
17.1	El Porvenir	17-1
17.2	Atacocha	17-29
18.0	Capital and Operating Costs	18-1
18.1	Capital Costs	18-1
18.2	Operating Costs	18-2
19.0	Economic Analysis	19-1
19.1	Economic Criteria	19-1
19.2	Cash Flow Analysis	19-3
19.3	Sensitivity Analysis	19-7
20.0	Adjacent Properties	20-1
21.0	Other Relevant Data and Information	21-1





22.0 Interpretation and Conclusions	22-1
22.1 Geology and Mineral Resources	22-1
22.2 Mining and Mineral Reserves	22-1
22.3 Mineral Processing	22-3
22.4 Infrastructure	22-4
22.5 Environment, Permitting, and Social Considerations	22-5
22.6 Capital and Operating Costs and Economics	22-7
22.7 Risks	22-7
23.0 Recommendations	23-1
23.1 Geology and Mineral Resources	23-1
23.2 Mining and Mineral Reserves	23-2
23.3 Mineral Processing	23-2
23.4 Infrastructure	23-3
23.5 Environment, Permitting, and Social Considerations	23-3
24.0 References	24-1
25.0 Reliance on Information Provided by the Registrant	25-1
26.0 Date and Signature Page	26-1

Tables

Table 1-1: Transportation, Treatment, and Refining Charge Assumptions	1-16
Table 1-2: Annual After-Tax Cash Flow Summary	1-18
Table 1-3: Summary of Cerro Pasco Complex Mineral Resource Estimate (Nexa Attributable Ownership Basis) – December 31, 2023	1-24
Table 1-4: Summary of Cerro Pasco Complex Mineral Resource Estimate (100% Ownership Basis) – December 31, 2023	1-25
Table 1-5: Summary of Cerro Pasco Complex Mineral Reserve Estimate (Nexa Attributable Basis) – December 31, 2023	1-27
Table 1-6: Summary of Cerro Pasco Complex Mineral Reserve Estimate (100%) – December 31, 2023	1-28
Table 1-7: Sustaining Capital Costs Summary – Cerro Pasco Complex	1-34
Table 1-8: Operating Costs Estimate – Cerro Pasco Complex	1-34
Table 2-1: QP Responsibilities	2-3
Table 3-1: El Porvenir Mineral Concessions	3-6
Table 3-2: El Porvenir Beneficiation Concession	3-10
Table 3-3: Atacocha Mineral Concessions	3-11





Table 3-4: Atacocha Beneficiation Concession	3-27
Table 3-5: El Porvenir Royalties Payable to Moraima Zevallos and Others	3-31
Table 3-6: El Porvenir Concessions Subject to Atacocha Royalty Payments	3-32
Table 3-7: Atacocha Concessions Subject to El Porvenir Royalty Payments	3-33
Table 3-8: Royalty Percentages	3-33
Table 3-9: El Porvenir Main Government Consents	3-37
Table 3-10: Atacocha Main Consents	3-41
Table 5-1: History of Cerro Pasco Complex	5-4
Table 5-2: El Porvenir Past Production	5-6
Table 5-3: Atacocha Past Production	5-7
Table 7-1: El Porvenir Drilling	7-2
Table 7-2: El Porvenir Excluded Drill Holes	7-5
Table 7-3: Atacocha Drilling	7-7
Table 7-4: El Porvenir Channel Sampling	7-13
Table 7-5: Atacocha Channel Sampling	7-16
Table 7-6: El Porvenir Geotechnical Logging Summary Statistics	7-19
Table 7-7: Atacocha Geotechnical Logging Summary Statistics	7-19
Table 8-1: El Porvenir and Atacocha Laboratory Detection Limits	8-4
Table 8-2: El Porvenir Density Measurements	8-7
Table 8-3: Atacocha Density Measurements	8-8
Table 8-4: El Porvenir and Atacocha Control Sample Insertion Rate and Failure Criteria	8-9
Table 8-5: El Porvenir QC Submittals: 2020 to 2023	8-10
Table 8-6: El Porvenir Certified Reference Material Performances	8-11
Table 8-7: El Porvenir Duplicate Types and Descriptions	8-20
Table 8-8: EL Porvenir Duplicate Performance: 2017 to 2023	8-25
Table 8-9: El Porvenir External Check Assay Performance: 2017 to 2023	8-28
Table 8-10: Atacocha QC Submittals: 2018 to 2023	8-30
Table 8-11: Atacocha CRM Performance: 2018 to 2023	8-31
Table 8-12: Atacocha Duplicate Types and Failure Rates	8-42
Table 8-13: Atacocha External Check Assay Performance: 2018 to 2023	8-45
Table 10-1: Algorithms for Pb Recovery in Pb Concentrate and Pb Concentrate Grade	10-7
Table 10-2: Algorithms for Zn Recovery in Zn Concentrate and Zn Concentrate Grade	10-7
Table 10-3: Concentrator Operational Performance 2018 - 2023	10-9
Table 10-4: Summary of Daily Grade and Recovery Results for 2022 - 2023	10-10





Table 10-5: Atacocha Samples Selected for Metallurgical Test Work	10-15
Table 10-6: Analysis of Samples Selected for Metallurgical Test Work	10-16
Table 10-7: Mineralogical Characterization Summary	10-17
Table 10-8: Comminution Test Work Results	10-19
Table 10-9: Analysis of Composite Samples	10-20
Table 10-10: Recovery Curves for the Atacocha Concentrator	10-21
Table 10-11: Algorithms for Pb Recovery in Pb Concentrate and Pb Concentrate Grade	10-25
Table 10-12: Algorithms for Zn Recovery in Zn Concentrate and Zn Concentrate Grade	10-26
Table 10-13: Atacocha Concentrator Production for 2021 - 2023	10-28
Table 10-14: Summary of Daily Grade and Recovery Results for 2022 - 2023	10-28
Table 11-1: Summary of Cerro Pasco Complex Mineral Resource Estimate (Nexa Attributable Basis) - December 31, 2023	11-3
Table 11-2: Summary of Cerro Pasco Complex Mineral Resource Estimate (100%) - December 31, 2023	11-5
Table 11-3: El Porvenir Comparison of 2022 Versus 2023 Mineral Resources (83.48% Ownership Basis)	11-2
Table 11-4: San Gerardo Comparison of 2022 Versus 2023 Mineral Resources (75.96% Ownership Basis)	11-3
Table 11-5: Atacocha Underground Comparison of 2022 Versus 2023 Mineral Resources (75.96% Ownership Basis)	11-4
Table 11-6: El Porvenir Data Completed After January 31, 2023 Resource Database Closure	11-9
Table 11-7: El Porvenir Resource Database	11-9
Table 11-8: El Porvenir Resource Database Tables	11-9
Table 11-9: El Porvenir Resource Database Assay Summary Statistics	11-12
Table 11-10: El Porvenir Resource Database Density Summary Statistics	11-12
Table 11-11: El Porvenir Assay Statistics (Length Weighted) for the Main Domains	11-19
Table 11-12: El Porvenir Drill Hole (DDH), Channel (CHN), and the Second Level Top-Cut Values for the Main Elements	11-24
Table 11-13: El Porvenir Capped Statistics for the Main Elements	11-26
Table 11-14: Capped and Composited Statistics	11-31
Table 11-15: El Porvenir Variogram Parameters for the Main Domains (Back-Transformed)	11-35
Table 11-16: El Porvenir Search Parameters for the Main Domains	11-38
Table 11-17: El Porvenir Statistics of the Density Values for the Main Domains	11-41
Table 11-18: El Porvenir Grouped Domain Density Statistics	11-42
Table 11-19: El Porvenir Blocked Model Definition	11-43





Table 11-20: El Porvenir NSR Parameters	11-44
Table 11-21: El Porvenir Cut-off Value Calculation by Mining Zone and Method	11-45
Table 11-22: El Porvenir Statistical Comparison Between OK, ID3, NN, and the Capped Composites	11-51
Table 11-23: El Porvenir Underground Mine: Summary of Mineral Resources (on an 83.48% Nexa Attributable Ownership Basis) – December 31, 2023	11-63
Table 11-24: El Porvenir Underground Mine: Summary of Mineral Resources (on a 100% Ownership Basis) – December 31, 2023	11-64
Table 11-25: Atacocha Data Completed After Resource Database Closure	11-65
Table 11-26: Atacocha Resource Database	11-67
Table 11-27: Atacocha Resource Database Tables	11-67
Table 11-28: Atacocha Resource Database Assay Summary Statistics	11-68
Table 11-29: Atacocha Resource Database Density Summary Statistics	11-68
Table 11-30: San Gerardo Assay Statistics (Length-Weighted) for the Main Domains	11-78
Table 11-31: San Gerardo DDH and CHNL First and Second Level Top-Cut Values	11-83
Table 11-32: San Gerardo Compositing Statistics for the 25 Main Domains	11-88
Table 11-33: Atacocha Open Pit Zn Variogram Parameters for Main 25 Domains	11-93
Table 11-34: San Gerardo Zn Search Parameters for Main 25 Domains	11-98
Table 11-35: San Gerardo Open Pit Density Statistics	11-102
Table 11-36: San Gerardo Grouped Density Statistics	11-103
Table 11-37: San Gerardo Open Pit Sub-Blocked Model Definition	11-103
Table 11-38: San Gerardo Open Pit Re-Blocked Model Definition	11-104
Table 11-39: San Gerardo NSR Cut-off Value Parameters	11-105
Table 11-40: San Gerardo Statistical Comparison Between OK, ID3, NN, and the Capped Composites	11-110
Table 11-41: San Gerardo Open Pit Mine: Summary of Mineral Resources (75.96% Nexa Attributable Ownership Basis) – December 31, 2023	11-122
Table 11-42: San Gerardo Open Pit Mine: Summary of Mineral Resources (100% Ownership Basis) – December 31, 2023	11-123
Table 11-43: Atacocha Underground Assay Statistics (Length Weighted) for the Main Domains	11-131
Table 11-44: Atacocha Underground DDH, CHNL, and Second Level Top-Cut Values	11-136
Table 11-45: Atacocha Underground Compositing Statistics for the 25 Main Domains	11-140
Table 11-46: Atacocha Underground Zn Variogram Parameters for Main 25 Domains	11-144
Table 11-47: Atacocha Underground Zn Search Parameters for Main 25 Domains	11-150
Table 11-48: Atacocha Underground Density Statistics of the Main Domains	11-154





Table 11-49: Atacocha Underground Grouped Mean Density	11-154
Table 11-50: Atacocha Underground Sub-Blocked Model Definition	11-155
Table 11-51: Atacocha Underground NSR Cut-off Value Parameters	11-156
Table 11-52: Atacocha Statistical Comparison Between OK, ID3, NN, and the Capped Composites	11-163
Table 11-53: Atacocha Underground Mine: Summary of Mineral Resources (75.96% Nexa Attributable Ownership Basis)– December 31, 2023	11-172
Table 11-54: Atacocha Underground Mine: Summary of Mineral Resources (100% Ownership Basis)– December 31, 2023	11-173
Table 12-1: Summary of Cerro Pasco Complex Mineral Reserve Estimate (Nexa Attributable Basis) – December 31, 2023	12-2
Table 12-2: Summary of Cerro Pasco Complex Mineral Reserve Estimate (100%) – December 31, 2023	12-3
Table 12-3: El Porvenir (100%) Mineral Reserve Estimates Comparison	12-5
Table 12-4: Summary Atacocha (75.96%) and El Porvenir (83.48%) Underground Mines Mineral Reserves – December 31, 2023	12-7
Table 12-5: Summary Atacocha (100%) and El Porvenir (100%) Underground Mines Mineral Reserves – December 31, 2023	12-7
Table 12-6: Summary of NSR Parameters	12-9
Table 12-7: El Porvenir and Atacocha Mining Zones	12-12
Table 12-8: Cut-off Value Estimates	12-13
Table 12-9: Open Pit Mineral Reserves (75.96% Nexa Attributable Basis)– as of December 31, 2023	12-14
Table 12-10: Open Pit Mineral Reserves (100% Basis) – as of December 31, 2023	12-15
Table 12-11: NSR Parameters	12-16
Table 12-12: NSR Cut-off Value Parameters	12-17
Table 12-13: Open Pit Reserve Pit Optimization Parameters	12-18
Table 13-1: Mine Design Parameters	13-2
Table 13-2: El Porvenir Rock Mass Classification	13-9
Table 13-3: El Porvenir Geotechnical Parameters	13-9
Table 13-4: El Porvenir Stress Magnitudes Used for Geotechnical Evaluation	13-10
Table 13-5: El Porvenir Recommended Stope Dimensions (from BISA, 2022)	13-11
Table 13-6: El Porvenir Cablebolt Support Recommendations (From BISA, 2022)	13-11
Table 13-7: El Porvenir Development Support for Permanent Openings	13-14
Table 13-8: El Porvenir Development Support for Temporary Openings	13-14
Table 13-9: El Porvenir Support for Intersections (Permanent Limestone and Temporary Ore Openings)	13-15





Table 13-10: Atacocha and El Porvenir Underground Mines LOM Plan	13-16
Table 13-11: Ventilation Balance	13-18
Table 13-12: Mine Equipment List	13-21
Table 13-13: Mine Personnel	13-22
Table 13-14: Pit Slope Domain Sectors Parameters	13-25
Table 13-15: Open Pit Life of Mine Production Schedule	13-28
Table 13-16: Open Pit Mine Equipment List	13-29
Table 13-17: Open Pit Mine Personnel	13-29
Table 13-18: El Porvenir Plant Consolidated Underground Life of Mine Plan (100% Basis)	13-32
Table 13-19: Atacocha Plant Open Pit Life of Mine Plan (100% Basis)	13-32
Table 14-1: Concentrator Plant Operation Stages	14-1
Table 14-2: Flotation Reagent Consumptions	14-10
Table 17-1: Summary of Key Environmental Effects and Management Strategies	17-7
Table 17-2: Water Quality Monitoring Locations	17-13
Table 17-3: Environmental, Mine Closure, and Tailings Disposal Licences	17-14
Table 17-4: Summary of Main Closure Activities	17-26
Table 17-5: Summary of Key Environmental Effects and Management Strategies	17-34
Table 17-6: Permits and Authorizations	17-39
Table 17-7: Summary of the Atacocha's Commitments Acquired by the Right of Land and Right of Way Agreements Celebrated with the Communities of Cajamarquilla and Ticlacayán	17-45
Table 17-8: Summary of Main Closure Activities	17-48
Table 18-1: Sustaining Capital Costs Summary – Cerro Pasco Complex	18-1
Table 18-2: Operating Costs Estimate – Cerro Pasco Complex	18-2
Table 19-1: Transportation, Treatment, and Refining charges assumptions	19-2
Table 19-2: Annual After-Tax Cash Flow Summary	19-5
Table 19-3: After-Tax Sensitivity Analyses – Cerro Pasco Complex	19-8

Figures

Figure 3-1: Location Map	3-2
Figure 3-2: El Porvenir Mineral Rights	3-28
Figure 3-3: Atacocha Mineral Rights	3-29
Figure 3-4: El Porvenir Surface Rights	3-35
Figure 3-5: Atacocha Surface Rights	3-36





Figure 4-1: Mean Monthly Temperature Range and Mean Precipitation	4-2
Figure 6-1: Simplified Geological Map of the Central Andes	6-3
Figure 6-2: Local Geology	6-6
Figure 6-3: Generalized Stratigraphic Column	6-7
Figure 6-4: Regional Geological Setting with Major Structures	6-10
Figure 6-5: Representative Cross Section through El Porvenir Area	6-13
Figure 6-6: Representative Cross Section through Atacocha Area	6-14
Figure 6-7: Schematic Diagram of Skarn, Replacement and Hydrothermal Vein Mineralization	6-20
Figure 6-8: Schematic Diagram through Typical Porphyry System	6-23
Figure 7-1: El Porvenir Drill Hole Locations	7-4
Figure 7-2: El Porvenir Core Recovery Distribution	7-6
Figure 7-3: Atacocha Drill Hole Locations	7-9
Figure 7-4: Atacocha Core Recovery Distribution	7-11
Figure 7-5: El Porvenir Channel Sampling Locations	7-15
Figure 7-6: Atacocha Channel Sampling Locations	7-17
Figure 7-7: Geophysical Anomalies at Pasco Complex	7-21
Figure 7-8: Comparison Between Geological and Geophysical Section	7-22
Figure 7-9: Short Term Exploration Potential	7-24
Figure 7-10: El Porvenir and Atacocha Mines with Exploration Areas	7-26
Figure 7-11: Brownfield Exploration Targets	7-27
Figure 8-1: Nexa Schematic Flow Chart for Sample and Data Controls	8-2
Figure 8-2: El Porvenir Zn Control Chart for CRM PEPSTSD006 at Inspectorate EP: 2020 to 2023	8-14
Figure 8-3: El Porvenir Pb Control Chart for CRM PEPSTSD006 at Inspectorate EP: 2020 to 2023	8-15
Figure 8-4: El Porvenir Ag Control Chart for CRM PEPSTSD006 at Inspectorate EP: 2020 to 2023	8-15
Figure 8-5: El Porvenir Pb Control Chart for CRM PEPSTSD009 at Inspectorate EP: 2022 to 2023	8-16
Figure 8-6: El Porvenir Zn Control Chart for CRM PEPSTSD006 at ALS: 2020 to 2023	8-16
Figure 8-7: El Porvenir Pb Control Chart for CRM PEPSTSD006 at ALS: 2020 to 2023	8-17
Figure 8-8: El Porvenir Zn Control Chart for CRM PEPSTSD008 at ALS: 2023	8-17
Figure 8-9: El Porvenir Pb Coarse Blank PEPBBLK002 at ALS: 2020 – 2023	8-19
Figure 8-10: El Porvenir Zn Coarse Blank PEPBBLK002 at Inspectorate EP: 2020 to 2023	8-20





Figure 8-11: El Porvenir Zn Pulp Duplicates at ALS: 2020 to 2023	8-22
Figure 8-12: El Porvenir Pb Coarse Duplicates at Inspectorate EP: 2020 to 2023	8-23
Figure 8-13: El Porvenir Pb Drilling Field Duplicates at ALS: 2020 to 2023	8-24
Figure 8-14: El Porvenir Zn Channel Field Duplicates at Inspectorate EP: 2020 to 2023	8-25
Figure 8-15: El Porvenir Check Assay Scatter Plot - Zn	8-27
Figure 8-16: El Porvenir Check Assay Scatter Plot - Pb	8-28
Figure 8-17: Atacocha Zn Control Chart for CRM MAT12 at ALS: 2018 to 2019	8-34
Figure 8-18: Atacocha Zn Control Chart for CRM PEPSTSD006 at Inspectorate AT: 2019 to 2022	8-35
Figure 8-19: Atacocha Zn Control Chart for CRM PEPSTSD005 at Inspectorate AT: 2019 to 2022	8-35
Figure 8-20: Atacocha Zn Control Chart for CRM MAT10 at ALS: 2019	8-36
Figure 8-21: Atacocha Pb Control Chart for CRM PEPSTSD004 at Inspectorate AT: 2019 to 2021	8-36
Figure 8-22: Atacocha Zn Coarse Blank PEPsBLK002 at ALS: 2018 to 2022	8-38
Figure 8-23: Atacocha Pb Fine Blank PEPsBLK001 at ALS: 2018 to 2022	8-38
Figure 8-24: Atacocha Pb Pulp Duplicates at ALS: 2018 to 2022	8-40
Figure 8-25: Atacocha Zn Coarse Duplicates at Inspectorate AT: 2018 to 2022	8-41
Figure 8-26: Atacocha Zn Field Duplicates at ALS: 2018 to 2022	8-42
Figure 8-27: Atacocha Check Assay Scatter Plot - Zn	8-44
Figure 8-28: Atacocha Check Assays Scatter Plot - Pb	8-45
Figure 10-1: Bulk Mineralogical Analysis	10-2
Figure 10-2: Sulphide Mineral Breakdown	10-3
Figure 10-3: El Porvenir Head Grade Statistics for 2022 – 2023	10-11
Figure 10-4: El Porvenir Recovery Statistics for 2022 – 2023	10-11
Figure 10-5: Zinc Head Grade from 2003 - 2023	10-12
Figure 10-6: Zinc Recovery from 2003 - 2023	10-12
Figure 10-7: Lead Head Grade from 2003 - 2023	10-13
Figure 10-8: Lead Recovery from 2003 - 2023	10-13
Figure 10-9: Copper Head Grade from 2003 - 2023	10-14
Figure 10-10: Copper Recovery from 2003 - 2023	10-14
Figure 10-11: Bulk Mineralogical Analysis	10-18
Figure 10-12: Sulphide Mineral Breakdown	10-19
Figure 10-13: Monthly Zinc Recovery in 2017 and 2018, and the 2019 NSR Recovery Curve	10-22





Figure 10-14: Monthly Lead Recovery in 2017 and 2018, and the 2019 NSR Recovery Curve	10-23
Figure 10-15: Monthly Copper Recovery in 2017 and 2018, and the 2019 NSR Recovery	10-24
Figure 10-16: Atacocha Head Grade Statistics for 2022 - 2023	10-29
Figure 10-17: Atacocha Recovery Statistics for 2022 - 2023	10-30
Figure 10-18: Zinc Head Grade from 2000 to 2023	10-30
Figure 10-19: Zinc Recovery from 2000 to 2023	10-31
Figure 10-20: Lead Head Grade from 2000 to 2023	10-31
Figure 10-21: Lead Recovery from 2000 to 2023	10-32
Figure 10-22: Copper Head Grade from 2000 to 2023	10-32
Figure 10-23: Copper Recovery from 2000 to 2019	10-33
Figure 11-1: El Porvenir and Atacocha Underground Resource Panels, with San Gerardo Mineral Resource Blocks Exclusive of Mineral Reserves	11-7
Figure 11-2: Zn Long- and Short-Term Grades and Plant Grade for El Porvenir (top) and Atacocha (bottom)	11-6
Figure 11-3: San Gerardo Blast Hole Zn Grades with Mineralization Wireframes	11-8
Figure 11-4: El Porvenir Drill Holes Completed After Database Cut-Off	11-11
Figure 11-5: El Porvenir 25 Main Domains	11-15
Figure 11-6: El Porvenir Grouped Mineralization	11-16
Figure 11-7: El Porvenir Underground Mineralization Contact Analysis	11-17
Figure 11-8: El Porvenir CDF and Histograms for the Drill Holes and Channels Samples	11-22
Figure 11-9: El Porvenir Scatter Plots for Zn, Ag, Pb, and Cu	11-23
Figure 11-10: El Porvenir Raw (on the left) and Compositing (on the right) Histograms	11-29
Figure 11-11: El Porvenir Compositing Analysis	11-29
Figure 11-12: Downhole and Directional Zn Experimental Variograms and Models for "de2" Domain	11-34
Figure 11-13: Contour Zn Grades for the "de2" (left) and "por9q" (right) Domains	11-37
Figure 11-14: El Porvenir Density Correlation Matrix and Scatter Plots	11-39
Figure 11-15: El Porvenir Density Composites	11-40
Figure 11-16: El Porvenir Boxplots Showing the Density Values for the Main Domains.	11-41
Figure 11-17: View of the Mineral Resource Reporting Panels at El Porvenir	11-46
Figure 11-18: Histograms Showing the Number of Samples Used for the Estimation (on the left), and the Estimation Search Volume (on the right)	11-48
Figure 11-19: Longitudinal and Plan View of the Mineral Resource Classification for the El Porvenir Domains	11-49





Figure 11-20: El Porvenir Final Grade Variables and Capped and Composited Samples Comparison	11-56
Figure 11-21: Longitudinal View of the “de2” Domain – Zn Estimation	11-58
Figure 11-22: Longitudinal View of the “exito” Domain – Cu Estimation	11-59
Figure 11-23: El Porvenir Swath Plots for Zn and Cu	11-60
Figure 11-24: View of the Mineral Resource Blocks	11-62
Figure 11-25: Atacocha Drill Holes Completed after Database Cut-Off	11-66
Figure 11-26: San Gerardo Geological Control Type	11-71
Figure 11-27: San Gerardo Grouped Mineralization	11-72
Figure 11-28: San Gerardo High Grade and Low Grade Estimation Domains	11-73
Figure 11-29: San Gerardo 25 Main Domains	11-74
Figure 11-30: San Gerardo Mineralization Contact Analysis	11-76
Figure 11-31: San Gerardo CDFs Comparing Declustered and Original data.	11-81
Figure 11-32: San Gerardo Scatter Plots between the Elements	11-82
Figure 11-33: San Gerardo Capping Effect on Drill Hole and Channel Distributions	11-84
Figure 11-34: San Gerardo Open Pit Zn Compositing Analysis	11-86
Figure 11-35: San Gerardo Drilling Sample Distributions before and after Compositing to 2 m Length	11-87
Figure 11-36: San Gerardo Variography Grouping	11-92
Figure 11-37: Downhole and Directional Zn Experimental Variograms and Models for Estimation Group C_ESTIM=306	11-95
Figure 11-38: Contour Zn Grades for the “che16” Domain (Orebody=316)	11-97
Figure 11-39: San Gerardo Correlation Matrix between Density and Other Elements (left) and Scatter Plot between Density and Zn (right)	11-100
Figure 11-40: San Gerardo Density Composites	11-101
Figure 11-41: San Gerardo Histogram of Number of Samples and Search Pass by Class	11-107
Figure 11-42: Plan and Longitudinal View of the Reported San Gerardo Classification within Mineral Resources Exclusive of Mineral Reserves	11-108
Figure 11-43: San Gerardo Final Grade Variables and Capped and Composited Samples Comparison	11-115
Figure 11-44: San Gerardo Longitudinal View of the Faulting-Controlled “che16” Domain (Orebody=316) – Zn Estimation	11-117
Figure 11-45: San Gerardo Section View of the Breccia-Controlled “cpo15” Domain (Orebody=2015) – Zn Estimation	11-118
Figure 11-46: San Gerardo Swath Plots for Zn and Pb	11-119
Figure 11-47: Longitudinal W-E Section of the Reported San Gerardo Mineral Resources and Mineral Reserves	11-120





Figure 11-48: San Gerardo Plan and Longitudinal Views of the NSR Values Above Cut-Off for Mineral Resources Inclusive of Reserves	11-121
Figure 11-49: Atacocha Underground Lithological Control Type	11-126
Figure 11-50: Atacocha Underground 25 Main Domains	11-127
Figure 11-51: Atacocha Underground Grouped Mineralization	11-128
Figure 11-52: Atacocha Underground Mineralization Contact Analysis	11-129
Figure 11-53: Atacocha Underground CDF Main Elements, Comparing Declustered and Original Data.	11-134
Figure 11-54: Atacocha Underground Scatter Plots	11-135
Figure 11-55: Atacocha Underground Capping Effect on Drill Hole and Channel Distributions	11-137
Figure 11-56: Atacocha Underground Compositing Analysis	11-138
Figure -11-57: Sample Distributions before and after Compositing to 2 m Length	11-139
Figure 11-58: Downhole and Directional Zn Experimental Variograms and Models for Estimation Group 1005.	11-146
Figure 11-59: Contour Zn Grades for the “sge” Domain (Orebody=1005) (left) and “sgg” Domain (Orebody=1007) (right)	11-148
Figure 11-60: Atacocha Underground Correlation Matrix (left) and Scatter Plot between Density and Zn (right)	11-152
Figure 11-61: Atacocha Underground Density Composites	11-153
Figure 11-62: View of the Mineral Resource Reporting Panels of Atacocha Underground	11-158
Figure 11-63: Atacocha Underground Histogram of Number of Samples and Search Pass by Class	11-159
Figure 11-64: Longitudinal View of the Mineral Resource Classification for the Atacocha Underground Resources Exclusive of Reserves	11-161
Figure 11-65: Atacocha Underground Final Block Grades and Capped and Compositing Samples Comparison	11-168
Figure 11-66: Longitudinal View of the “ing_2” Domain (Orebody=750) Estimated Grades for Zn within Atacocha Underground Mine	11-170
Figure 11-67: Atacocha Underground Swath Plots for Zn and Pb	11-171
Figure 11-68: Atacocha Underground Mineral Resources Exclusive of Mineral Reserves	11-174
Figure 12-1: Waterfall Chart of Change in El Porvenir Mineral Reserves	12-6
Figure 12-2: Volumetric Comparison of El Porvenir Mineralization and Surveyed Stopes	12-8
Figure 12-3: Zinc Recovery Curve	12-11
Figure 12-4: Lead Recovery Curve	12-11
Figure 12-5: Copper Recovery Curve	12-12
Figure 13-1: Atacocha Mine Design	13-3





Figure 13-2: El Porvenir Mine Design	13-4
Figure 13-3: Cut-and-Fill Mining Method	13-7
Figure 13-4: SLS Avoca Mining Method	13-8
Figure 13-5: El Porvenir Installation of Cablebolts for Veins Dipping Greater Than 80°	13-12
Figure 13-6: El Porvenir Installation of Cablebolts for Veins Dipping Less Than 80°	13-13
Figure 13-7: Cerro Pasco Complex Integration LOM Production Plan	13-18
Figure 13-8: Planned Ventilation Requirements	13-20
Figure 13-9: San Gerardo Open Pit Layout	13-24
Figure 13-10: Final Pit Design and Phases Location	13-26
Figure 13-11: Open Pit Geotechnical Domain Sectors	13-27
Figure 13-12: Life of Mine Plan	13-30
Figure 13-13: Plant Production Schedule	13-31
Figure 14-1: El Porvenir Process Flowsheet	14-6
Figure 14-2: Atacocha Process Flowsheet	14-12
Figure 15-1: Cerro Pasco Integration Project	15-2
Figure 15-2: Power Distribution Single Line Diagram for El Porvenir and Atacocha Mine Sites	15-4
Figure 15-3: El Porvenir Site Layout	15-6
Figure 15-4: El Porvenir Tailings Storage Facility Layout with Dam Crest at Elevation 4,064 MASL	15-10
Figure 15-5: El Porvenir Tailings Storage Facility Layout Main Dam Layout at Crest Elevation 4,064 MASL	15-11
Figure 15-6: El Porvenir Tailings Storage Facility Main Dam Section to Crest Elevation 4,100 MASL	15-12
Figure 15-7: Atacocha Site Layout	15-14
Figure 15-8: Atacocha Tailings Storage Facility Layout with Dam Crest at Elevation 4,128 MASL	15-16
Figure 15-9: Atacocha Tailings Storage Facility Main Dam Section to Crest Elevation 4,128 MASL	15-17
Figure 16-1: Zinc Price Outlook	16-2
Figure 16-2: Copper Price Outlook	16-4
Figure 16-3: Lead Price Outlook	16-5
Figure 16-4: Silver Price Outlook	16-6
Figure 16-5: Gold Price Outlook	16-6
Figure 19-1: After-Tax Sensitivity Analysis	19-9



1.0 Executive Summary

1.1 Summary

SLR Consulting (Canada) Ltd. (SLR) was retained by Nexa Resources S.A. (Nexa) to prepare a Technical Report Summary (TRS) on the integration of Nexa's El Porvenir and Atacocha mines into the Cerro Pasco Complex (Cerro Pasco or the Complex), located in Pasco Province, Peru. The purpose of this TRS is to support the disclosure of the Cerro Pasco Mineral Resource and Mineral Reserve estimates with an effective date of December 31, 2023. The Mineral Resource estimate for the Complex was prepared by Jerry Huaman Abalos, B.Geo., AusIMM CP(Geo), Corporate Mineral Resource Manager with Nexa and a Qualified Person (QP) for this TRS. This TRS conforms to United States Securities and Exchange Commission's (SEC) Modernized Property Disclosure Requirements for Mining Registrants as described in Subpart 229.1300 of Regulation S-K, Disclosure by Registrants Engaged in Mining Operations (S-K 1300) and Item 601 (b)(96) Technical Report Summary. SLR's qualified persons (QPs) visited the site from January 15 to 17, 2024. Nexa's QP, Jerry Huaman Abalos, B.Geo., AusIMM CP(Geo), visited the site over the same period.

The Complex consists of the El Porvenir underground zinc (Zn)-copper (Cu)-silver (Ag)-gold (Au) mine (El Porvenir Mine or El Porvenir) and the adjacent Atacocha (San Gerardo) open pit and Atacocha underground Zn-Pb-Ag mines (together Atacocha Mine or Atacocha).

Nexa, as Votorantim Metais Holding S.A. (VM Holding), acquired the El Porvenir Mine in 2010 when it acquired Compañía Minera Milpo S.A. (Milpo). The property is located in the central Andes mountains at an approximate elevation of 4,200 metres above sea level (MASL). El Porvenir commenced production in 1949 with Milpo as the operator. A gravity separation plant was built at the site in 1953, and a flotation plant was completed in 1979. The current production rate of 5,600 tonnes per day (tpd) at El Porvenir was achieved in 2014. In 2023, production at El Porvenir was 2.22 million tonnes (Mt) at grades of 2.86% Zn, 0.16% Cu, 1.37% Pb, 2.34 oz/t Ag, and 0.01 oz/t Au. Mining is carried out by sub-level stoping (SLS) and cut and fill (CAF) mining methods.

Milpo acquired the adjacent Atacocha Mine in 2008 and Nexa acquired Atacocha when it acquired Milpo in 2010. Atacocha is located approximately 16 km from the city of Cerro de Pasco at an altitude of approximately 4,050 MASL. The processing plant is located near the Huallaga River valley. The Atacocha mining unit commenced operation in the first decade of the 20th century producing Pb, Ag, Zn, and Cu ores. Mining at Atacocha was suspended in 2020 in response to COVID-19. When COVID-19 restrictions were lifted, mining resumed at the San Gerardo open pit mine. As of the end of 2023, Nexa has not resumed underground mining. In 2023, production at Atacocha was 1.40 Mt at grades of 0.77% Zn, 0.04% Cu, 0.93% Pb, 1.21 oz/t Ag, and 0.01 oz/t Au.

The El Porvenir Mine is 100% owned by Nexa Resources El Porvenir S.A.C. (Nexa El Porvenir), a 99.99%-owned subsidiary of Nexa Resources Peru S.S.A. (Nexa Peru). Nexa's resulting interest in the El Porvenir Mine is 83.48% that corresponds to the sum of Nexa's direct interest in Nexa Peru (0.18%) and indirect interest of Nexa in Nexa Peru (83.37%) through its controlled company Nexa Resources Cajamarquilla S.A. (99.916%), and the remaining 16.45% are floating shares.

The Atacocha Mine is 100% owned by Nexa Resources Atacocha S.A.A. (Nexa Atacocha). Nexa's resulting interest in the Atacocha Mine is 75.96% that corresponds to the sum of Nexa's direct interest in Nexa Peru (0.18%), and Nexa Peru's indirect interest in Nexa Atacocha

(90.999%) through its controlled company Nexa El Porvenir (99.99%), the remaining 9.001% are floating shares, and indirect participation of Nexa in Nexa Peru (83.37%) through its controlled company Nexa Resources Cajamarquilla S.A. (99.916%), and the remaining 16.45% are floating shares.

The integration project is intended to capture synergies between the two mining operations, resulting from their proximity and operational similarities, with the ore from both underground mines being processed in the El Porvenir treatment plant. The goal is to achieve cost and investment savings, thereby reducing the environmental footprint and extending the combined mine life of the two mines.

The integration project has been developed over the past several years. The first stage involved the administrative integration of both mines, which was completed in 2014. The second stage involved the integration of the tailings disposal system, which allowed the Atacocha plant to send tailings to the El Porvenir dam within the short term, thereby helping reduce the environmental footprint. The third stage, completed in 2016, involved the construction of a new energy transmission line with a 138 kilovolt (kV) connection that supplies both mines, replacing the prior 50 kV transmission lines. The development of a 3.5 km tunnel, connecting both underground mines and enabling exploration program in the Integration Zone between the mines, was part of the fourth stage, concluded in 2019.

In 2021, the modernization and debottleneck studies to evaluate the deepening of the mine and extension of the life of mine (LOM) for El Porvenir were postponed due to the prioritization of a capital allocation strategy and the reassessment of the integration with the Atacocha underground mine. In 2022, Nexa advanced the integration project with an optimization study of the integration of the El Porvenir and Atacocha underground mines by evaluating increasing the capacity of tailings and shaft and optimizing the processing plant, to potentially increase production and extend the LOM.

In 2023, Nexa continued to advance the integration project with technical studies to sustain and expand production, such as mine design and studies for the underground interconnection, shaft upgrade and engineering assessment of the plant, as well as key routes to improve capacity to provide a long-term solution for tailings disposal. A Front-End Loading (FEL) 3 study to increase El Porvenir hoisting was completed in Q1 2023 and a FEL3 tailings pumping system study was completed in early Q2 2023.

The integration plan includes:

- restarting and rehabilitation of the Atacocha underground mine,
- development of an approximately 2 km long connection tunnel (Tunnel 2900), linking Atacocha underground to the bottom of Picasso shaft in El Porvenir, allowing the production from both underground mines to be hoisted to feed the El Porvenir processing plant,
- Picasso shaft capacity expansion to support production and extraction at both underground mines,
- closure of the Atacocha processing plant, with the exhaustion of Atacocha open pit reserves, in 2027,
- a new tailing pumping and pipeline system to be built, that will allow tailings from El Porvenir to be sent to the Atacocha dam, bringing a long term solution for tailings, supporting the extension of the combined life of the two mines.



1.1.1 Conclusions

1.1.1.1 Geology and Mineral Resources

- The Mineral Resource estimate was prepared by Nexa. The resource estimate has been audited and accepted by the QP.
- Exclusive of Mineral Reserves, the estimated end of year 2023 (EOY2023) Measured and Indicated Mineral Resources attributable to Nexa comprise:
 - o El Porvenir underground (83.48% attributable): 3.24 Mt at 3.29% Zn, 0.21% Cu, 62.2 g/t Ag, and 0.97% Pb containing 106.6 thousand tonnes (kt) of Zn, 6.8 kt of Cu, 6,485 koz of Ag, and 31.1 kt of Pb.
 - o Atacocha underground (75.96% attributable): 2.71 Mt at 3.35% Zn, 0.33% Cu, 55.0 g/t Ag, and 0.94% Pb containing 90.8 kt of Zn, 9.0 kt of Cu, 4,792 koz of Ag, and 25.4 kt of Pb.
 - o San Gerardo open pit (75.96% attributable): 4.31 Mt at 1.12% Zn, 29.8 g/t Ag, 0.89% Pb, and 0.22 g/t Au containing 48.4 kt Zn, 4,128 koz Ag, 38.4 kt Pb, and 31.1 koz Au.
- In addition, the El Porvenir EOY2023 Inferred Mineral Resources attributable to Nexa total 9.23 Mt at 3.83% Zn, 0.24% Cu, 82.9 g/t Ag, and 1.32% Pb.
- Atacocha EOY2023 Inferred Mineral Resources attributable to Nexa total 6.12 Mt at 4.09% Zn, 0.56% Cu, 77.3 g/t Ag, and 1.21% Pb for Atacocha underground, and 1.29 Mt at 1.27% Zn, 32.7 g/t Ag, 1.15% Pb, and 0.22 g/t Au for San Gerardo open pit.
- El Porvenir and Atacocha feature skarn and hydrothermal vein/breccia-style mineralization. El Porvenir also has stratabound deposits, while Atacocha has porphyry mineralization. Controls on mineralization are lithological, mineralogical, and structural.
- The El Porvenir and Atacocha database closure date was January 31, 2023. Between then and the effective date of this report, 252 drill holes and 1,727 channels were completed at El Porvenir and 32 channels and 18 DDH were completed at Atacocha. SLR does not consider this to have a material impact on the estimated Mineral Resources.
- Protocols for drilling, sampling, analysis, verification, and security meet industry standard practices. The drill hole database was verified by SLR and is suitable for Mineral Resource estimation.
- The Mineral Resource estimates are completed to industry standards using reasonable and appropriate parameters and are acceptable for conversion to Mineral Reserves.
- Nexa has defined several polymetallic prospects located near the deposits, which warrant additional exploration, including the Integration Zone between the El Porvenir and Atacocha underground mines.

1.1.1.2 Mining and Mineral Reserves

- The Cerro Pasco Complex consists of the El Porvenir underground mine, the Atacocha underground mine, and the San Gerardo open pit mine.
 - o Production is currently from the San Gerardo mine, which feeds the Atacocha processing plant that has a nominal throughput of 4,400 tpd, and the El Porvenir



underground mine, which feeds the El Porvenir processing plant that has a nominal throughput of 6,500 tpd.

- o The Atacocha underground mine was placed in care and maintenance in 2020 to focus all production at the San Gerardo open pit mine. Atacocha is planned to resume production in 2027 when the San Gerardo pit has reached the end of its mine life.
- o The Atacocha Mine will be integrated with the El Porvenir Mine and both will feed the El Porvenir processing plant.
- The Mineral Reserve estimates were prepared by Nexa and reviewed and accepted by SLR.
 - o On an 83.48% Nexa attributable ownership basis, El Porvenir underground Mineral Reserves total 12.2 Mt averaging 4.11% Zn, 0.23% Cu, 72.9 g/t Ag, and 1.20% Pb.
 - o On a 75.96% Nexa attributable ownership basis, Atacocha underground Mineral Reserves total 4.3 Mt averaging 4.33% Zn, 0.40% Cu, 79.8 g/t Ag, and 1.34% Pb.
 - o On a 75.96% Nexa attributable ownership basis, San Gerardo open pit Mineral Reserves total 3.3 Mt at an average grade of 0.99% Zn, 34.9 g/t Ag, 0.27 g/t Au, and 1.15% Pb.
- The assumptions, parameters, and methodology used to estimate Mineral Reserves meet industry standard practices and are appropriate for the style of mineralization and proposed mining methods.
- The underground mines are planned to be mined using CAF and SLS mining methods. Backfill in the form of unconsolidated backfill from waste development and hydraulic fill from tailings will be used for both mining methods.
- Underground mine design and support recommendations have been developed using industry standard geotechnical data and analysis methods.
- The dilution factors assumed for SLS are low when compared to surveyed stopes and planned designs reconciliation data provided by Nexa.
 - o SLR has investigated the effect of higher dilution and notes that approximately 2% of the total Mineral Reserves would be impacted. This is not considered to be a material difference.
- Mining of the San Gerardo open pit is planned using conventional open pit mining methods with drill and blast operations using excavators and trucks.
- Open pit net smelter return (NSR) block value calculations are based on historical performance of the concentrator, historical operating costs and current smelter contracts.
- Open pit calculated block model NSR values are evaluated against the internal break-even value. Blocks classified as Measured or Indicated Mineral Resources with an NSR value above the internal break-even value are included in the Mineral Reserve.

1.1.1.3 Mineral Processing

El Porvenir

- The El Porvenir concentrator processed 2,220,011 tonnes of ore in 2023 with Cu, Pb, and Zn grades of 0.16%, 1.37% and 2.86% respectively. Recoveries to their respective concentrates were 10.1% Cu, 82.1% Pb, and 88.0% Zn.
- The head grades of Zn, Cu, Au, and Ag have been consistent for the period from 2018 through 2023, while Pb has increased from 0.98% to 1.37%. Pb, Ag, and Au recoveries have increased and the recovery of Ag and Au to the Pb concentrate has increased over the period. Cu grades and recoveries have decreased significantly over the period.
- The average head grades of Zn, Pb, and Cu during 2022 and 2023 were 2.83%, 1.36%, and 0.16%, respectively, and the recoveries of Zn, Pb, and Cu for the period were 87.49%, 81.65%, and 8.67%, respectively.
- Nexa began developing a geometallurgical model for El Porvenir in 2017. The objectives of the work were to develop a geometallurgical model able to predict the recovery of lead, zinc, copper, arsenic, and manganese, concentrate grades, as well as abrasiveness (abrasion index (Ai)) and hardness (Bond ball mill work index (BWi)), and therefore throughput, based on ore source within the deposit.
- Prior to the present Phase 6 study, five phases of geometallurgical studies were carried out. Identified risks include the presence of high-hardness material in intrusive materials and limestone, as well as high abrasiveness in sandstone and clastic materials.
- The potential penalty elements that should be monitored in the Cu Concentrate include As, Sb, Bi, Cd, and combined Pb+Zn. The potential penalty elements in the Pb concentrate are low lead concentrate grade, bismuth, and fluorine. The potential penalty elements in the Zn concentrate are copper and manganese.

Atacocha

- The Atacocha concentrator processed 1,397,192 tonnes of ore in 2023 with Pb and Zn grades of 0.93% and 0.77%, respectively. Recoveries to their respective concentrates were 85.7% Pb and 75.9% Zn.
- Head grades of ore being treated in the Atacocha concentrator have changed since the introduction of open pit ore in early 2016. Head grades of Zn have decreased from 1.8% to 0.77%, Cu has decreased from 0.11% to 0.04%, and Pb has decreased from 1.31% to 0.93% from 2016 to 2023. Since 2019, the copper grades have been too low to allow a separate copper concentrate to be produced.
- The average grades of Zn and Pb during 2022 and 2023 were 0.84% and 0.95%, respectively, and the recoveries of Zn and Pb for the period were 76.57% and 83.64%, respectively. The recoveries used for the cut-off grade and resource model at these grades were 70.44% for Zn and 84.06% for Pb, which compares well to the operating data for Pb, the Zn values being somewhat conservative.
- A metallurgical testing program was carried out to characterize the geometallurgical behaviour of the Atacocha San Gerardo ore according to the 2022-2023 mining plan.
- Prior to the present study, three phases of geometallurgical studies were carried out, increasing the available geometallurgical data progressively to reduce the risk in metallurgical predictions.



- Risks identified include the presence of high hardness and abrasive material in intrusive material and hydrothermal breccias, as well as areas of low Au recovery associated with Au disseminations in pyrite in mainly marble-type material.
- The potential penalty elements in the Pb concentrate are arsenic and fluorine. The potential penalty elements in the Zn concentrate are manganese, silica, and cadmium.

1.1.1.4 Infrastructure

Integration of Atacocha and El Porvenir

- The Cerro Pasco integration project aims to maximize the synergy of the Atacocha and El Porvenir mines.
- El Porvenir started in 1950 and is an operating underground mine with multiple accesses including a shaft (Picasso shaft) for ore and people transportation.
- Atacocha started in 1937 comprising an underground mine and an open pit mine. The open pit mine, San Gerardo is currently in operation, and the underground mine has been on care and maintenance since 2020.
- Access to Atacocha underground is by multiple surface tunnels, that are in good condition despite the production suspension.
- Atacocha is currently connected to El Porvenir through two active tunnels: at 4070 and 3300 levels, with traffic of heavy mine equipment, conventional trucks, and mining crews, linking Atacocha surface to El Porvenir underground.
- The integration plan comprises restarting of Atacocha underground, development of additional connections between El Porvenir and Atacocha, expand the Picasso shaft capacity, closure of the Atacocha processing plant in 2027, and construction of a new pipeline to pump El Porvenir mine tailings to the Atacocha tailing dam.
- A combination of transportation methods, including road access, aircraft via Huánuco, and rail to Cerro de Pasco are used to supply the Atacocha and Porvenir mines.
- Off-site infrastructure includes facilities for the transfer of concentrate from truck to rail at Cerro de Pasco to transport concentrate for export by train to the port of Callao. Mine access is via a 13 km dirt road northeast from Cerro de Pasco, and paved road from Lima to Cerro de Pasco (approximately 315 km).
- The main road from Lima to Cerro de Pasco is used for personnel transportation, supply of food, reagents, spare parts, mining supplies, and diesel fuel. Huánuco airport can be used for personnel transportation and emergency situations.
- The power supply for the Atacocha and El Porvenir mines comes from two sources: the national power grid via 50/13.8 kV main substations located near each of the mines and the La Candelaria Hydroelectric Plant, which consists of three turbines (0.5 MVA, 1.2 MVA, and 3.5 MVA), and is connected to the Atacocha and El Porvenir main substations by a 4.6 km long 50 kV transmission line.
- Power is generated at 4,660 kV at the La Candelaria Hydroelectric Plant. All other project loads are fed at 13.8 kV from the main substation through overhead power lines. These power lines are used to deliver power to various locations to support activities during operation of the Complex.





- The El Porvenir TSF receives tailings generated by both the El Porvenir and Atacocha concentrator plants. A portion of tailings is used for hydraulic backfill at El Porvenir. The El Porvenir TSF was originally constructed in the 1970s, and the current elevation of the dam crest is 4,066 MASL. The downstream toe is inferred from available plans to be at 3,920 MASL, resulting in a current dam height of 146 m.
- Nexa is planning to improve the water management system through construction of a perimeter channel (i.e., upstream water diversion) to intercept clean (non-contact water) surface runoff water before it flows into the TSF. Diverted water will be discharged downstream of the TSF in the Lloclla River gorge.

El Porvenir

- The El Porvenir site comprises an underground mine, TSF, waste rock stockpiles, an ore processing facility with associated laboratory and maintenance facilities, and maintenance buildings for underground and surface equipment.
- Additional facilities and structures include an office building, change house facilities, main shaft, ventilation shaft, backfill plant, explosives storage area, hydroelectric power generating plant, power lines and substation, fuel storage tanks, a warehouse and laydown area, and an accommodation camp.

Atacocha

- Atacocha site operations comprise an underground mine, open pit mine, and a process plant facility.
- Supporting on-site infrastructure include maintenance facilities; maintenance buildings for underground and surface equipment, laboratory, and tailings pumping station. Facilities and structures supporting operations include warehouses and laydown areas, offices, dry facilities, hydroelectric generating station, power lines and substation, fuel storage tanks, and accommodations camp.
- A network of site roads that are approximately 6 m wide and total 15 km in length are used by authorized mine personnel and equipment, including ore and waste haul trucks, concentrate haul trucks, support and light duty vehicles to provide access to on-site infrastructure.

1.1.1.5 Environment, Permitting, and Social Considerations

- No environmental issues were identified from the documentation available for review that could materially impact the ability to extract the Mineral Resources and Mineral Reserves. SLR understands that El Porvenir and Atacocha have the permits required to continue the mining operations in compliance with applicable Peruvian permitting requirements. Of note, expired authorizations under the renewal process do not interrupt the continuity of the operations (for example, the authorization for discharge of industrial effluent for El Porvenir has been filed by Nexa but it is pending approval by the environmental authority).
- Approval of environmental permits required for the Cerro Pasco Complex Integration is critical for its implementation. Nexa's Environmental Management Superintendent for El Porvenir and Atacocha understands well the environmental permitting requirements and has developed a tracking matrix that identifies the key components of each permit, corrective actions to be implemented to be in compliance, and the status of implementation of each action. All action items are qualified according to a ranking of



criticality established (low, medium and high) for continuity of the operation. The matrix includes the planning for the future environmental permits required for implementation of the Cerro Pasco Complex Integration.

- The monitoring program at El Porvenir includes meteorology, air quality, non ionized radiation, noise, surface water quality, groundwater quality (only one location), spring water quality, effluent discharges, fauna and flora, and TSF physical stability. El Porvenir reports the results of its monitoring program to the authorities according to the frequency stated in the approved resolutions. SLR is not aware of any non-compliance issues raised by the authorities.
- The monitoring program at Atacocha includes effluent discharges, gas emissions, air quality, non-ionizing radiation, noise, surface water quality, groundwater quality, springs water quality, vibrations, soil quality, terrestrial biology (vegetation and wildlife) and aquatic biology, and TSF physical stability. Atacocha reports the results of its monitoring program to the authorities according to the frequency stated in the approved resolutions. SLR is not aware of any non-compliance issues raised by the authorities.
- Nexa utilizes an Integrated Dam Management System (referred to as SIGBar) for the El Porvenir TSF and the Atacocha TSF, which provides guidelines for document management, monitoring, evaluation, risk analysis, compliance with standards and legislation, training of personnel, operation of structures and other provisions.
- SLR's social review indicates that, at present, Nexa's operations at El Porvenir make a positive contribution to sustainability and community well-being. From the review and SLR's site visit, Nexa appears to have the necessary governance documents and tools to manage social risks associated with the Cerro Pasco Complex operations. A grievance mechanism and Community Relations Plans are in place and implemented by the social teams for each of El Porvenir and Atacocha.
- An independent technical evaluation of key components of the Cerro Pasco Complex Integration project completed in early 2024 by a third party did not find any fatal flaws. The evaluation included the TSFs, social risks and permitting. It resulted in a number of findings and recommendations to be considered by Nexa to derisk the Cerro Pasco Complex Integration project.
- Community discontent represents a future risk for the Cerro Pasco Complex operations. The Cerro Pasco Complex Integration project may increase expectations from the local communities in terms of contracting of local services, employment, training and community investment opportunities. The modification of the Environmental Impact Assessment required for Atacocha and El Porvenir imply processes of consultation and Citizen Participation, which could delay the approval process in the event of social disagreement.
- Although there is no written commitment from Nexa to ensure local procurement, the company retains services from local businesses and from contractors that employ local workforce.
- In 2023, Nexa experienced an increase in local hiring for El Porvenir and Atacocha. Nexa has declared local hiring commitments with eight local communities and has specific local hiring targets with two of them.
- Atacocha acquired rights to land from the community of Cajamarquilla via an agreement to construct tailings facilities and ancillary infrastructure. The agreement included various commitments and obligations, including financial compensation for rights to the land.

Atacocha also acquired and subsequently renewed a right-of-way agreement with the community of Ticiacayán associated with hydraulic infrastructure. Community agreements related to rights to land from the community have also been signed for El Porvenir with Comunidad San Francisco de Asís de Yarusyacán y Comunidad Cajamarquilla.

- Independent conceptual Mine Closure Plans have been developed for El Porvenir and Atacocha within the context of Peruvian legislation and are periodically updated. The most recent modification to the Mine Closure Plan for El Porvenir and update to the closure cost estimate was completed in 2020. The most recent modification to the Mine Closure Plan for Atacocha and update to the closure cost estimate was completed in 2022.

1.1.1.6 Capital and Operating Costs and Economics

- Capital and operating cost estimates were prepared based on historical operating performance and the current operating budget for 2024, and the forecasted cost estimates for the integration project. SLR considers these capital and operating cost estimates to be reasonable, provided the operation and production targets are realized.
- The LOM production schedule in the cash flow model, covering a 10-year mine life, is based on the December 31, 2023 Mineral Reserves.
- All costs in this report are expressed in Q4 2023 US dollars.
- The economic analysis at average LOM prices of US\$1.24/lb Zn (US\$2,741/t Zn), US\$0.92/lb Pb (US\$2,032/t Pb), US\$3.54/lb Cu (US\$7,809/t Cu), US\$21.72/oz Ag, and US\$1,798/oz Au, demonstrated that the Cerro Pasco Mineral Reserves are economically viable.
- On a 100% ownership basis, the pre-tax net present value (NPV) at a 7.22% base discount rate is US\$364 million and the after-tax NPV at a 7.22% discount is US\$162 million. The undiscounted pre-tax cash flow is US\$568 million, and the undiscounted after-tax cash flow is US\$290 million.
- There is good potential to extend the mine life through continued conversion of Inferred Resources, with improved economic results.

1.1.1.7 Risks

- Underground geotechnical risks:
 - o The impact of faults on the stope stability and equivalent linear overbreak/slough (ELOS) have not been accounted for in the geotechnical empirical analyses. SLR has evaluated the potential underestimate of ELOS, however, dilution in areas affected by faults may increase compared to that currently anticipated. Mitigation can be applied by installing ground support in the faulted walls and/or by reducing the stope size in those locations, which would impact productivity rates. It is considered that this is a low-moderate risk and that these mitigations can be applied during production, so a change to the mine plan/schedule is not required at this stage.
 - o The project is lacking a geotechnical block model. This is best practice and should be implemented. While its absence is considered a low risk, a geotechnical block model allows for a better understanding of the spatial distribution of the geotechnical



conditions and would assist in short-medium term mine planning (and also links back to the point on faults above).

- San Gerardo open pit risks:
 - o Pit slope design outside of the domain sectors was assumed to be 45 degrees for design, this assumption is considered low risk based on the wall height of the north and west satellite pits.
 - o Open pit mining operating costs are defined as constant values for mine planning. However, there is a variable component associated with the haulage distance of the open pit mining costs that requires a truck haulage distance forecast in the LOM plan. There is a low risk that the estimated mining cost will increase over the LOM due to increased truck haulage distances.
- Process risks:
 - o There is a risk of lower metal grades and recoveries than planned and the recovery of deleterious elements in the concentrates that may draw penalties.
 - o The potential penalty elements in the Pb concentrate are arsenic and fluorine. The potential penalty elements in the Zn concentrate are manganese, silica, and cadmium.
 - o Geometallurgical testing has identified the presence of high-hardness material in intrusive materials and limestone, as well as high abrasiveness in sandstone and clastic materials may result in increased operating power and wear material consumption and costs.
 - o Geometallurgical work has identified areas of low Au recovery associated with Au disseminations in pyrite in mainly marble-type material.
- Infrastructure risks:
 - o The age of the current infrastructure and the cost of maintenance is a moderate risk.
 - o Cost and schedule risk for the design and construction of integration infrastructure including the new tailing pumping station and pipeline from El Porvenir to the Atacocha TSF.
- Risks associated with environmental permitting and community relations:
 - o The modifications to the Environmental Impact Assessment (EIA) required for both El Porvenir and Atacocha as part of the Cerro Pasco Complex Integration project involve a period of review and approval by the environmental authority. There is a high level of uncertainty associated with the actual duration of the review and approval period due to staffing issues at the National Service of Environmental Certification for Sustainable Investments (SENACE for its acronym in Spanish) and adjustments to its review and approval processes. As a mitigation measure, Nexa has included additional time in its permitting schedule for the Cerro Pasco Complex Integration project to carry a contingency for the permitting process.
 - o Community discontent represents a future risk for the Cerro Pasco Complex operations since it can lead to blockades and in turn could result in operation interruptions and reputational damage. There is precedent for such conflict given that blockades organized by communities have taken place in the past and, as recently as last year (2023), led to short suspensions of operations. As mitigation measures, Nexa is mainly working towards addressing and closing commitments





with the communities in a more efficient manner, and is revisiting its social management approach to be more proactive in preventing potential issues or addressing them early to avoid escalation.

1.1.2 Recommendations

1.1.2.1 Geology and Mineral Resources

- 1 Investigate if capping levels should be applied based on high-grade and low grade domains for Zn, Pb, Cu, and Ag for some domains of San Gerardo open pit.
- 2 Fine-tune the estimation workflow and dynamic anisotropy angles calculation to minimize visual grade artifacts observed in some domains (such as “de2” for El Porvenir and “sge” for Atacocha UG). Consider utilizing hangingwall, footwall, and reference surface data to refine local angle precision, alongside auxiliary dip and dip direction charts to identify and rectify any inconsistencies.
- 3 Consider incorporating the blast hole samples to define the Long Term Model (LTM) mineralization boundaries given that the Grade Control Model (GCM) performs systematically better than the LTM for the San Gerardo open pit.
- 4 Increase the number of density samples to allow more accurate block density estimates.
- 5 Adjust the density estimation methodology to only interpolate where supported by sufficient samples.
- 6 Improve the Mineral Resource classification post-processing, aiming to clean up the remaining isolated blocks of Measured or Indicated classification, such as in the domain “vcn32” of El Porvenir.
- 7 Investigate relaxing the maximum of two composites per drill hole restriction in domain extremities and sparsely drilled areas.
- 8 For the Mineral Resource classification, consider excluding drilling intersections that are sub-parallel to tabular mineralized domains as they significantly reduce drill hole spacing calculations in an artificial manner.
- 9 Use the production data to monitor the selected drill spacing for the minor continuity zones to determine if sufficient confidence is provided to support detailed mine planning, as these domains show less grade and geological continuity.
- 10 In future models, incorporate a structural model to help properly define the estimation trends.
- 11 Improve the field duplicate rates of channels by revising the sampling protocol of duplicates in channels.
- 12 Increase the frequency of monitoring Inspectorate El Porvenir laboratory (Inspectorate EP) results on a batch basis to preliminarily identify and address instances of failure that may require re-analysis.
- 13 Keep monitoring CRMs and other controls to prevent and/or mitigate trends, biases, or other issues which may require sample re-analysis. Continue with periodic external checks across laboratories to ensure the primary laboratory's performance remains satisfactory.





- 14 Ensure all the samples analyzed by ALS are re-assayed using the relevant analytical method when exceeding the detection limit (i.e., samples >10,000 ppm Zn), to prevent few instances detected of incomplete results in the assay database.
- 15 Investigate and address sample discrepancies identified during the data verification process, particularly those related to Au values. These discrepancies, however, are minor and have negligible impact on the overall assessment.
- 16 Maintain standardization of the format and database structure.
- 17 Complete the 2024 exploration program, consisting of an 8,500 m drill program to explore new targets and continue with advanced exploration. The 2024 exploration program budget is approximately US\$2.1 million.
- 18 Improve the reconciliation between the underground production volumes and the mineralization wireframes, to better understand the differences between the along-strike mineralization, and to better quantify the proportion of the discrepancy resulting from the opportunistic mining of ore from across-strike structures.
- 19 To better define mineralized extents, consider completing closer spaced exploration and infill drilling ahead of production, including at orientations better designed to intercept across-strike mineralized structures.

1.1.2.2 Mining and Mineral Reserves

1. Review the underground mine designs and mining sequence and incorporate sill pillars where required.
2. Continue underground geotechnical data capture, specifically seismic monitoring around pillars between stopes.
3. Develop an underground geotechnical block model to better spatially define the geotechnical variation.
4. Re-appraise stope stability and ELOS using an updated empirical method, such as the Villaescusa approach, which updates the Potvin approach, particularly the stress factor (A) for the underground.
5. Assess the impact of faults on the stope stability and ELOS, such as using the approach developed by Suorineni, which applies a fault factor to the analyses depending on the intersection geometry between the faults and the planned stope walls for the underground.
6. Implement reconciliation analysis between underground designed stopes and surveyed mined-out stopes to estimate overbreak and underbreak quantities to better define dilution and mining recovery factors.
7. Apply external underground dilution factors as ELOS during the optimization process to capture dilution grade.
8. Develop grade control practices particularly for planned underground SLS stopes to minimize dilution due to orebody irregularities.
9. Add a yearly truck haulage distance forecast to the open pit LOM plan.



1.1.2.3 Mineral Processing

- 1 Investigate the addition of instrumentation and process controls to both El Porvenir and Atacocha concentrators including a SCADA system to retrieve and store process data to support daily operations and planning.
- 2 Continue with the geometallurgical program at El Porvenir and Atacocha.
- 3 Perform a geological assessment of the Au association to galena and Au associated with pyrite based on deposit genesis and geometallurgical test results for San Gerardo.
- 4 Carry out a geological assessment for San Gerardo to identify areas associated with oxides in Phase 2 of mining, which represent a risk to the recovery of Pb, Zn, and Au.
- 5 Evaluate the behaviour of low recovery material near upcoming mining phases in the San Gerardo pit.
- 6 Perform recovery studies by size with plant feed material to quantify losses in recoveries of valuable metals by size fraction in both mines.
- 7 The steel consumption estimation model for El Porvenir was derived in 2018, based on circuit data and operating variables reported by Nexa to date. Update these models by incorporating the operational changes made to date in the grinding circuits of both El Porvenir and Atacocha concentrators.

1.1.2.4 Infrastructure

- 1 Place priority on the ongoing maintenance of older site infrastructure including piping, electrical, roads, and buildings.
- 2 Remove abandoned infrastructure such as old pipelines as it is replaced by new, to facilitate future maintenance.

1.1.2.5 Environment, Permitting, and Social Considerations

- 1 Track closely the action items identified for obtention of new permits and renewal of expired permits required for the Cerro Pasco Complex Integration project and follow up on the status of progress regularly to prevent possible delays in the submission of permitting applications. There is a level of uncertainty regarding the amount of time required by the authorities for review and approval of permitting applications. In order to mitigate the risk of delayed approval, initiate the first steps of the approval process for the main permits as early as possible (for example, the engineering design and the baseline field work).
- 2 Due to uncertainty regarding the potential for acid generation of the waste rock, geochemical evaluation (including static and kinetic geochemical testing on waste rock samples) should be carried out prior to the next Atacocha dam raise (not permitted yet), and prior to closure to inform closure planning and water quality predictions for post-closure. Carry out additional static and kinetic geochemical testing on waste rock and tailings samples to confirm or revise the geochemical characterization. Robust water quality monitoring should continue during operations to verify compliance with the national environmental standards and the appropriateness of the waste rock disposal and water management procedures that are in place.
- 3 Expand the groundwater quality monitoring program at El Porvenir to include additional stations for collection of groundwater quality samples (and subsequent analysis).
At a



minimum, consideration should be given to the installation of one station upstream of the El Porvenir TSF.

- 4 Consider conducting a Dam Safety Review (DSR) for El Porvenir TSF and the Atacocha TSF in support of mining operation and ore processing in future years, and in order to finalize the detailed mine closure plan prior to moving into the closure stage.
- 5 The following recommendations are proposed for the Atacocha TSF:
 - a) Develop TARPs for the piezometers for inclusion in the OMS manual and monitoring plan.
 - b) Capacity assessments of the TSF completed on a bi annual basis with topographic and bathymetric surveys.
 - c) Complete long term geochemical kinetic testing of the tailings.
 - d) Monitor the water quality from the TSF subsurface drains.
- 6 The same recommendations listed above are proposed for the El Porvenir TSF. In addition, implement a groundwater monitoring program at the El Porvenir TSF to determine levels of metals and sulphates. Monitoring stations should be implemented both upstream and downstream of the El Porvenir TSF.
- 7 Implement a water balance for ongoing operations to be updated by Mine personnel using meteorological and water monitored data on a regular basis (at least monthly). The water balance is an important tool to track trends and conduct short term predictions through simulation of variable operating and/or climatic scenarios to support decision making associated with tailings pond operation (e.g., maintaining adequate freeboard at all times).
- 8 Develop an integrated water balance that reflects the interaction between the El Porvenir and Atacocha operations from a water balance perspective to identify and predict possible scenarios of interruption of mine operations due to water management issues and/or dam safety concerns (e.g., not maintaining adequate dam freeboard).
- 9 El Porvenir and Atacocha have significant social commitments as the needs and expectations of local communities/stakeholders are high. Managing commitments requires an adequate tracking tool and implementation plan to honour commitments. SLR recommends that Nexa considers adopting a robust tracking tool to track commitments and allocate adequate resources to use it and keep it up to date, including an escalation process for overdue commitments. This action will avoid mismanagement of commitments, prevent potential conflicts, and demonstrate Nexa's efforts to maintain good relationships with host communities.
- 10 Review the current social area of influence for both El Porvenir and Atacocha to confirm or update its delineation in case new local communities or Indigenous communities should be added (e.g., Anexo Joraoniyoc, which belongs to Comunidad Campesina de San Francisco de Asis de Yarusyacan for the Atacocha mine site). This is a key action to identify potential impacts and develop social management plans for the newly added communities in the revised area of influence. The determination of the social area of influence is a dynamic matter that requires regular review. SLR understands that Nexa is already planning to review the current social area of influence and it held a meeting on this topic with the environmental authority as one of the initial steps.





1.2 Economic Analysis

The economic analysis contained in this TRS is based on the Cerro Pasco Complex Mineral Reserves on a 100% basis, economic assumptions, and capital and operating costs provided by Nexa corporate finance and technical teams and reviewed by SLR.

All costs are expressed in Q4 2023 US dollars. Unless otherwise indicated, all costs in this section are expressed without allowance for escalation, currency fluctuation, or interest.

A summary of the key criteria is provided below.

1.2.1 Economic Criteria

1.2.1.1 Physicals

- Mine life: 10 years (between 2024 and 2033).
 - o Atacocha Open Pit: 4 years (between 2024 and 2027)
 - o Atacocha and El Porvenir Underground: 10 years (between 2024 and 2033)
- LOM production plan (on a 100% ownership basis) as summarized in Table 1-2.
- LOM processing of 24.70 Mt, grading 3.61% Zn, 1.22% Pb, 0.23% Cu, 67.76 g/t Ag, and 0.06 g/t Au.
 - o Atacocha Plant (open pit material): 4.38 Mt, grading 0.99% Zn, 1.15% Pb, 0.03% Cu, 34.94 g/t Ag, and 0.27 g/t Au
 - o El Porvenir Plant (underground material): 20.32 Mt, grading 4.17% Zn, 1.24% Pb, 0.28% Cu, 74.83 g/t Ag, and 0.02 g/t Au
- LOM total contained metal: 891 kt Zn, 302 kt Pb, 57.5 kt Cu, 53.8 Moz Ag, and 50.6 koz Au.
- LOM average metallurgical recoveries:
 - o Atacocha Plant: 78.5% Zn, 83.0% Pb, 0% Cu, 3.3% Ag in Zn, 76.7% Ag in Pb, and 67.2% Au in Pb.
 - o El Porvenir Plant: 89.0% Zn, 79.5% Pb, 14.3% Cu, 15.2% Ag in Zn, 66.4% Ag in Pb, 29.4% Au in Pb, 2.0% Ag in Cu, 8.6% Au in Cu.
- LOM realized metal payables (%) of: 84.0% Zn, 94.3% Pb, 95.0% Cu, 84.0% Ag, and 77.1% Au.
- LOM payable metal of: 663 kt Zn, 228 kt Pb, 7.6 kt Cu, 37.6 Moz Ag, and 23.4 koz Au.

1.2.1.2 Revenue

- All revenues are received in US\$.
- Revenue is estimated based on the following LOM weighted average metal prices derived from Nexa’s Internal Projection forecasts: US\$1.24/lb Zn (US\$2,741/t Zn), US\$0.92/lb Pb (US\$2,032/t Pb), US\$3.54/lb Cu (US\$7,809/t Cu), US\$21.72/oz Ag, and US\$1,798/oz Au.
- Total gross revenue from concentrates of US\$3,000 million.





- Net Revenue includes the benefit of Cerro de Pasco's zinc concentrate processed at Nexa's Cajamarquilla (CJM) zinc refinery in Peru. This integration with Nexa's internal refinery provides the benefit of additional US\$94.66/t Zn premium selling price, and zinc smelting at cost (rather than at commercial third-party terms).
- Transportation, Treatment, and Refining charges as defined in Table 1-1:

Table 1-1: Transportation, Treatment, and Refining Charge Assumptions

Transportation, Treatment and Refining Charges	Units	LOM Average
Transportation - Zn Concentrate Integrated - UG	US\$/t conc	46.65
Transportation - Zn Concentrate Integrated - OP	US\$/t conc	45.52
Transportation - Pb Concentrate - UG	US\$/t conc	45.21
Transportation - Pb Concentrate - OP	US\$/t conc	43.86
Transportation - Cu Concentrate - UG	US\$/t conc	39.21
TC Zn Concentrate - EP Plant (UG)	US\$/t conc	310.56
TC Zn Concentrate - ATA Plant (OP)	US\$/t conc	317.37
TC Pb Concentrate - EP Plant (UG)	US\$/t conc	138.23
TC Pb Concentrate - ATA Plant (OP)	US\$/t conc	183.94
TC Cu at Cu Concentrate	US\$/t conc	195.21
RC Cu at Cu Concentrate	US\$/t conc	50.00
RC Ag at Cu Concentrate	US\$/oz	0.50
RC Au at Cu Concentrate	US\$/oz	8.00
RC Ag at Pb Concentrate	US\$/oz	1.50
RC Au at Pb Concentrate	US\$/oz	10.00
RC Ag at Zn Concentrate	US\$/oz	-

- There are no third-party royalties applicable to the Cerro Pasco Complex operations.
- Net revenue after selling costs and royalties of US\$2,774 million.
- Average net smelter return of US\$137/t processed.
- Revenue is recognized at the time of production.

1.2.1.3 Costs

- Mine life: 10 years.
- El Porvenir sustaining capital (excluding closure costs) over the LOM totals US\$400 million.
- Atacocha sustaining capital (excluding closure costs) over the LOM totals US\$222 million.
- El Porvenir concurrent reclamation between 2024 and 2033 of \$7.9 million.
- El Porvenir mine closure costs between 2034 and 2037 of \$14.6 million.





- El Porvenir post-closure costs between 2038 and 2042 of \$2.3 million.
- Atacocha concurrent reclamation between 2025 and 2033 of \$16.2 million.
- Atacocha open pit mine closure costs between 2029 and 2032 of \$5.0 million.
- Atacocha underground mine closure costs between 2034 and 2037 of \$35.1 million.
- Atacocha post-closure costs between 2038 and 2042 of \$2.8 million.
- Total average unit operating costs of US\$56.69/t ore processed.
 - o Open pit mining operating costs: US\$3.33 /t mined (or US\$19.52/t processed).
 - o Underground mining operating costs: US\$39.25/t mined (or US\$39.25/t processed)
 - o Processing operating costs – Atacocha: US\$13.29/t ore processed
 - o Processing operating costs – El Porvenir: US\$12.47/t ore processed.
 - o General and administrative (G&A) – Atacocha open pit: US\$11.85/t ore processed
 - o G&A – El Porvenir underground: US\$7.56/t ore processed.
- LOM site operating costs of \$1,400 million.
- Other off-site operating costs: US\$2.44/t ore processed.
- Costs were estimated considering an exchange rate of S/.3.67:US\$1.00.

1.2.1.4 Taxation and Royalties

- Corporate income tax rate in Peru is 29.50%.
- Special Mining Tax Contribution (IEM) varies over the LOM between 2% and 3.6% based on the marginal rate.
- Government Mining Tax Royalty varies over the LOM between 1% and 4% based on the marginal rate.
- Employees’ profit sharing participation: 8%.
- There are no third-party royalties applicable to the Cerro Pasco Complex.
- SLR has relied on Nexa’s taxation model for calculation of taxes applicable to the cash flow.

1.2.2 Cash Flow Analysis

SLR prepared a LOM unlevered after-tax cash flow model to confirm the economics of the Cerro Pasco Complex over the LOM (between 2024 and 2033). Economics have been evaluated using the discounted cash flow method by considering LOM production at a 100% basis, annual processed tonnages, and gold and silver grades. The associated process recoveries, metal prices, operating costs, treatment, refining and selling charges, sustaining capital costs, and reclamation and closure costs, and taxes and government royalties were also considered.

The base discount rate assumed in this TRS is 7.22% as per Nexa’s corporate guidance, based on Weighted Average Cost of Capital (WACC) analysis. Discounted present values of annual cash flows are summed to arrive at the Cerro Pasco Base Case NPV.





The economic analysis at average LOM prices of US\$1.24/lb Zn (US\$2,741/t Zn), US\$0.92/lb Pb (US\$2,032/t Pb), US\$3.54/lb Cu (US\$7,809/t Cu), US\$21.72/oz Ag, and US\$1,798/oz Au, confirmed that the Cerro Pasco Complex Mineral Reserves are economically viable.

The pre-tax NPV at a 7.22% base discount rate is US\$364 million and the after-tax NPV at a 7.22% discount is US\$162 million. The undiscounted pre-tax cash flow is US\$568 million, and the undiscounted after-tax cash flow is US\$290 million.

The annual after-tax cash flow summary is presented in Table 1-2.

Table 1-2: Annual After-Tax Cash Flow Summary

Summary Cash Flow	Units	Total LOM
Production		
LOM	years	10
OP Production	000 tonnes	4,380
Au grade	g/t	0.27
Ag Grade	g/t	34.94
Cu Grade	%	0.03%
Pb Grade	%	1.15%
Zn Grade	%	0.99%
UG Production	000 tonnes	20,316
Au grade	gr/t	0.02
Ag Grade	gr/t	74.83
Cu Grade	%	0.28%
Pb Grade	%	1.24%
Zn Grade	%	4.17%
Concentrate Production		
Cu Concentrate	dmt	40,433
Pb Concentrate	dmt	462,461
Zn Concentrate	dmt	1,573,707
Recovered Metal		
Au	oz	30,364
Ag	oz	44,782,850
Cu	tonnes	8,022
Pb	tonnes	242,046
Zn	tonnes	788,995
Metal Prices		
LOM weighted average - Au	US\$/oz	1,798
LOM weighted average - Ag	US\$/oz	21.72





Summary Cash Flow	Units	Total LOM
LOM weighted average - Cu	US\$/tonne	7,809
LOM weighted average - Pb	US\$/tonne	2,032
LOM weighted average - Zn	US\$/tonne	2,741
Cash Flow		
Gross Revenue	US\$ million	3,000
Transport / TC-RC Charges	US\$ million	(242)
Royalties	US\$ million	-
Net Revenue	US\$ million	2,758
Other Revenues & Compensations	US\$ million	12
Operating Costs		
OP Mining Costs	US\$ million	(85)
UG Mining Costs	US\$ million	(797)
Processing Costs - Atacocha	US\$ million	(58)
Processing Costs - El Porvenir	US\$ million	(266)
G&A	US\$ million	(206)
Other Costs	US\$ million	(60)
Operating Cash Flow	US\$ million	1,298
Capital Costs		
Direct Capital Costs	US\$ million	-
Sustaining and Expansion Capital Costs - Atacocha	US\$ million	(222)
Sustaining and Expansion Capital Costs - El Porvenir	US\$ million	(400)
Reclamation & Closure - Atacocha	US\$ million	(59)
Reclamation & Closure - El Porvenir	US\$ million	(25)
Change Working Capital	US\$ million	(24)
Pre-Tax Net Cash Flow	US\$ million	568
Taxes - Income Tax	US\$ million	(178)
Taxes - Workers' Participation	US\$ million	(52)
Taxes - Special Mining Tax & Mining Royalty	US\$ million	(47)
After-Tax Cashflow	US\$ million	290
Project Economics		
Pre-Tax		
Pre-tax NPV at 7.22%	US\$ million	364
After-Tax		





Summary Cash Flow	Units	Total LOM
After-Tax NPV at 7.22%	US\$ million	162

1.2.2.1 Sensitivity Analysis

Project risks can be identified in both economic and non-economic terms. Key economic risks were examined by running cash flow sensitivities:

- Metal prices
- Head grades
- Metallurgical recoveries
- Operating costs
- Capital costs (Sustaining and Closure)

After-tax NPV_{7.22%} sensitivities over the base case have been calculated for -20% to +20% for head grade, -5% to +5% for overall recoveries, -20% to +20% for metal prices, and -10% to +15% for operating and capital costs variations to determine Cerro Pasco's most sensitive parameter.

The sensitivity analysis at Cerro Pasco shows that the after-tax NPV at a 7.22% base discount rate is most sensitive to metal prices, head grade, and metallurgical recoveries, followed by operating costs and capital costs.

1.3 Technical Summary

1.3.1 Property Description

The Complex is located in Peru's Central Andes region at an elevation of approximately 4,050 MASL to 4,200 MASL. It is situated in the districts of San Francisco de Asís de Yarusyacán and Yanacancha, in the province and department of Pasco. El Porvenir and Atacocha are located 13 km and 16 km north of the city of Cerro de Pasco, respectively, which is located approximately 315 km by road from the national capital, Lima, when travelling by the Carretera Central and the La Oroya-Huánuco highway.

El Porvenir's coordinates are 10°36'36" S, 76°12'37" W (Latitude/Longitude decimals -10.6100, -76.2102), and approximately 367600m E, 8826850m N using Universal Transverse Mercator (UTM) WGS84 datum Zone 18S. Atacocha's coordinates are 10°34'37" S, 76°11'26" W (Latitude/Longitude decimals -10.5769, -76.1906), and approximately 367160m E, 88304000m N using the UTM WGS84 Zone 18S. The mines are located approximately 3.5 km from each other.

El Porvenir consists of underground Zn, Pb, Ag, and Cu mining operations, producing Cu, Pb, and Zn concentrates via conventional crushing, grinding, and flotation at the El Porvenir processing plant. Atacocha consists of the San Gerardo Zn, Pb, Au, and Ag open pit mining operation and the Atacocha underground Zn, Pb, Cu, and Ag mining operation. Ore is sent to the Atacocha processing plant, which generates Pb, Cu, and Zn concentrates via conventional crushing, grinding, and sequential flotation. Cu and Pb concentrates are sold to traders and delivered by road and rail to Callao (approximately 270 km by road) for shipping overseas, while Zn concentrate is transported by road and rail to Nexa's Cajamarquilla Zn refinery.



1.3.2 Land Tenure

El Porvenir consists of 25 mining concessions covering an area of 4,846.68 ha and one beneficiation concession covering an area of 323.79 ha. As of December 31, 2023, the concessions are held in the name of Nexa El Porvenir, Nexa Atacocha, Nexa Peru, and S.M.R.L. CMA No. 54 (50% Nexa El Porvenir and 50% Nexa Atacocha).

Atacocha consists of 147 mineral concessions covering an area of 2,872.47 ha and one beneficiation concession covering an area of 413.23 ha. As of December 31, 2023, the Atacocha concessions are held in the name of Nexa Atacocha, Nexa Peru, and Nexa El Porvenir.

For El Porvenir, all annual fees applicable to the mineral concessions and beneficiation concessions have been paid in full as of the effective date of the report. These totalled US\$14,540.07 and US\$4,803.41, respectively, in 2023.

For Atacocha, all annual fees applicable to the mineral concessions and beneficiation concessions have been paid in full as of the effective date of the report. These totalled US\$8,617.43 and US\$3,716.58, respectively, in 2023.

In 2023, penalties were paid to Instituto Geológico, Minero y Metalúrgico (INGEMMET) of the Peruvian Government, totalling US\$4,215.97 for El Porvenir and US\$3,829.16 for Atacocha, since minimum required levels of production or exploration expenditures were not met.

1.3.3 History

Under previous operators, the Atacocha and El Porvenir Mines have operated since 1936 and 1949, respectively.

Compañía Minera Milpo S.A. (Milpo), the operator of El Porvenir at the time, acquired the Atacocha Mine in 2008.

In 2010, the current operator, Nexa (then VM Holding), gained control of Milpo and its assets, including El Porvenir and Atacocha. In 2014, Nexa began integrating the El Porvenir and Atacocha operations, including administration, the TSFs, the electrical power supply, and mineral processing. VM Holding changed its corporate name to Nexa Resources S.A. in 2017, accompanied by initial public offerings on the New York Stock Exchange and Toronto Stock Exchange.

El Porvenir's operations were interrupted from March 10, 2020 to May 15, 2020, due to the COVID-19 pandemic. Although the San Gerardo open pit remains operational, the Atacocha underground mine did not resume operations after the mandatory restriction period imposed by the Peruvian Government was lifted in June 2020.

Between 1950 and 2023, El Porvenir produced 60.1 Mt treated ore, while Atacocha produced 21.6 Mt treated ore between 2009 and 2023. Production data for Atacocha prior to 2009 is unavailable.

1.3.4 Geological Setting, Mineralization, and Deposit

The El Porvenir and Atacocha deposits are situated in the Pasco region of the Western Cordillera of the Andes, within the Eocene-Miocene Polymetallic and Miocene Au-Ag Epithermal Belts.

At El Porvenir, the stratigraphic units of primary interest are the Pucará and the Goyllarisquiza groups. The Goyllarisquiza Group outcrops in the area of the deposit comprising quartz rich

sandstone, corresponding to the Goyllarisquizga Formation. Sandstones vary from quartz arenite to arkose, with an argillaceous to siliceous matrix. Above the 4000 Level, the lithology and stratification are well defined and easy to recognize. Below the 4000 Level, strong alteration of the original rock has formed siliceous breccias and massive silica where it is still possible to recognize quartz grains and in few places the stratification. Intrusive rocks within the property are variably porphyritic dacite to quartz diorite with hornblende and biotite phenocrysts. The Milpo-Atacocha fault is a major structural feature in the region, which can be traced for nearly 15 km from Yarusyacán in the north to Carmen Chico in the south.

At Atacocha, the stratigraphic units of primary interest are the Chambará, Aramachay, and Condorsinga formations, as well as other undifferentiated limestone units of the Pucará Group, the Goyllarisquizga Formation, and stratigraphically overlying basalt layers. The deposit is structurally controlled and the Milpo-Atacocha Fault divides the property into two structural domains; the western San Gerardo Sector, and the eastern Santa Bárbara Sector.

Mineralization at El Porvenir and Atacocha is generally characterized as a skarn, intermediate sulphidation epithermal vein/breccia-style, while El Porvenir also has stratabound mineralization in the Goyllarisquizga Formation, and Atacocha also has porphyry mineralization. Skarn related alteration at Atacocha includes silica- wollastonite, garnet, silica, and pyrite-argillic alteration. Silica-sericite-argillic alteration is associated with hydrothermal mineralization. Phyllic alteration made of sericite, quartz, pyrite, and intense A- and B-types quartz veinlets stockwork is generally associated with porphyry mineralization.

1.3.5 Exploration

Nexa's exploration program is based on an integrated strategy of geological and structural interpretation, combined with remote sensing for alteration and magnetic patterns and anomalies.

As of December 31, 2023, a total of 5,683 drill holes totalling 944,070 m and 19,074 channel samples totalling 129,075 m have been completed at El Porvenir.

As of December 31, 2023, a total of 5,206 drill holes totalling 895,504 m, and 69,154 channel samples totalling 262,171 m have been completed at Atacocha.

Exploration at El Porvenir and Atacocha is generally conducted simultaneously with underground development, which involves diamond core drilling, and channel sampling following underground drifting. Geological mapping is completed on paper and digitized for incorporation into three dimensional (3D) models to aid future exploration and mine development planning. Although 35 reverse circulation (RC) drill holes have been completed at Atacocha, drilling is generally diamond coring (DDH).

Grade control at San Gerardo OP is completed with blast holes, although this data is not directly incorporated in the Mineral Resource estimate.

Magnetic surveys correlate with the intrusives, which is an important tool for determining prospective areas for the generation of new targets.

Short-term exploration targets include the upper levels (above 3,300 MASL) of the Integration Zone between El Porvenir and Atacocha, the eastern side of the Santa Bárbara stock at 3,300 MASL and below, and the upper levels (above 3,300 MASL) of San Gerardo.

Six brownfield exploration projects were defined (Machcan, Curiajasha, Longreras, Manuel 05 and Pique Estrella, La Churca, and La Quinoa Chicrin Corridor), based on surface mapping, remote sensing, and geophysics.



Exploration activities for 2023 included 16 exploration diamond drill holes (DDH) for a total of 9,321 m. The drilling programs focused on the extensions of Integration Zone in 3300-3790-4050 Levels, and Porvenir Sur drilling from 3600 Level.

The exploration work planned for the Pasco Complex in 2024 involves a budget of \$2.61 million, and includes 8,500 m of diamond drilling, focused on extending known mineralization within the Integration Zone, drilling from 3300 Level, and VAM, DL, and Porv 9 from 3790 Level.

1.3.6 Mineral Resource Estimates

Mineral Resources have been classified in accordance with the definitions for Mineral Resources in S-K 1300, which are consistent with Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves dated May 10, 2014 (CIM (2014) definitions).

The El Porvenir and Atacocha database closure date was January 31, 2023. Between then and the effective date of this report, 252 DDH and 1,596 channels were completed at El Porvenir and 18 DDH and 32 channels were completed at the San Gerardo open pit at Atacocha. No drilling or channel data was gathered within the underground portion of Atacocha between the database closure and the effective date of this report. The QP reviewed the additional drilling and channel data for El Porvenir and San Gerardo and is of the opinion that it does not have a material impact on the estimated Mineral Resources.

The Mineral Resource estimates were completed using Datamine Studio RM and Leapfrog Geo software. Wireframes for geology and mineralization were constructed in Leapfrog Geo based on geology sections, assay results, lithological information, pit mapping, and structural data.

Assays were capped to various levels based on exploratory data analysis and then composited to one metre lengths at El Porvenir and two metre lengths at Atacocha. Wireframes were filled with blocks and sub-celling at wireframe boundaries.

Blocks were interpolated with grades using ordinary kriging (OK) and inverse distance cubed (ID³) interpolation algorithms, with the final block grades at Atacocha assigned according to an evaluation of the OK and ID³ estimates, including comparison with a nearest neighbour (NN) estimate. Final grades at El Porvenir used the ID³ results. Block estimates were validated using industry standard validation techniques. Classification of blocks used distance-based and mineralization continuity criteria.

Mineral Resources at El Porvenir and Atacocha underground are reported within optimized underground reporting shapes generated in Deswik Stope Optimizer (DSO) software and satisfying minimum mining width. At El Porvenir, NSR cut-off values of US\$67.04/t were used for the SLS Upper Zone, US\$63.98/t for the SLS Intermediate Zone, US\$63.77/t for the SLS Lower Zone, and US\$65.21/t for the SLS Mine Deepening Zone. NSR cut-off values of US\$69.04/t were used for the CAF Upper Zone, US\$66.25/t for the CAF Intermediate Zone, US\$65.77/t for the CAF Lower Zone, and US\$67.21/t for the CAF Mine Deepening Zone. At Atacocha, NSR cut-off values of US\$71.07/t for CAF stopes, and US\$69.00/t for SLS stopes, and continuity criteria.

Mineral Resources at the San Gerardo open pit are reported within a preliminary pit shell generated in Datamine NPV Scheduler software package at a reporting NSR cut-off value of US\$22.44/t. The sub-blocked model for the San Gerardo open pit was re-blocked to the selective mining unit (SMU) prior to reporting Mineral Resources.

The QP is of the opinion that any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.





The Cerro Pasco Complex EOY2023 Mineral Resources are summarized in Table 1-3 and Table 1-4 on a Nexa attributable ownership basis and 100% ownership basis, respectively.

Table 1-3: Summary of Cerro Pasco Complex Mineral Resource Estimate (Nexa Attributable Ownership Basis) - December 31, 2023

Mine	Category	Tonnage (Mt)	Grade					Contained Metal				
			Zn (%)	Cu (%)	Ag (g/t)	Pb (%)	Au (g/t)	Zn (kt)	Cu (kt)	Ag (koz)	Pb (kt)	Au (koz)
Total Cerro Pasco	Measured	2.72	2.37	0.13	43.7	0.92	0.10	64.2	3.6	3,815	25.0	8.4
	Indicated	7.55	2.40	0.16	47.7	0.93	0.09	181.5	12.3	11,586	70.2	22.7
	Total Measured + Indicated	10.27	2.39	0.15	46.7	0.93	0.09	245.8	15.9	15,401	95.2	31.1
	Inferred	16.65	3.73	0.34	76.9	1.27	0.02	620.5	56.4	41,175	210.8	9.1

Notes:

- The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources which are consistent with CIM (2014) definitions.
- Mineral Resources are reported on a Nexa attributable ownership basis, 83.48% for El Porvenir and 75.96% for Atacocha.
- Mineral Resources are estimated at the following NSR cut-off values, calculated based on the LOM costs:
 - El Porvenir UG: varies by mining method from US\$63.77/t to US\$67.04/t for SLS, and from US\$65.77/t to US\$69.04/t for CAF, with an average of US\$66.04/t.
 - Atacocha UG: US\$69.00/t for SLS and US\$71.07/t for CAF
 - Atacocha OP: US\$ 22.44/t
- Mineral Resources are estimated using average long-term metal prices of Zn: US\$3,218.90/t (US\$1.46/lb), Cu: US\$8,820.05/t (US\$4.00/lb), Ag: US\$24.35/oz, Pb: US\$2,300.33/t (US\$1.04/lb), and Au: US\$1,875.57/oz.
- Metallurgical recoveries are based on historical processing data:
 - El Porvenir UG: Zn (89.2%), Pb (80.0%), Cu (14.6%), and Ag (77.5%)
 - Atacocha UG: Zn (89.3%), Pb (80.0%), Cu (15.7%), and Ag (77.5%)
 - Atacocha OP: Zn (70.4%), Pb (84.0%), Ag (75.8%), and Au (65.5%)
- Bulk density is assigned based on rock type and averages:
 - El Porvenir UG: 3.13 t/m³
 - Atacocha UG: 3.53 t/m³
 - Atacocha OP: 2.76 t/m³
- The minimum thickness for underground resource reporting panels is 4 m for CAF and 3 m for SLS. For open pit resource reporting, the minimum height is 6 m.
- Mineral Resources were depleted according to actual production as of September 30, 2023, and forecast production to the effective date of December 31, 2023.
- Mineral Resources are exclusive of Mineral Reserves.
- There are no Cu grades estimated for Atacocha OP and no Au grades estimated for Atacocha UG and El Porvenir UG. This has reduced the Cu and Au average grades for the total Cerro Pasco tonnes.
- Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
- Mineral Resources are constrained within optimized underground reporting shapes for El Porvenir and Atacocha UG and an optimized reporting pit shell for Atacocha OP.
- Numbers may not add due to rounding.





Table 1-4: Summary of Cerro Pasco Complex Mineral Resource Estimate (100% Ownership Basis) - December 31, 2023

Mine	Category	Tonnage (Mt)	Grade					Contained Metal				
			Zn (%)	Cu (%)	Ag (g/t)	Pb (%)	Au (g/t)	Zn (kt)	Cu (kt)	Ag (koz)	Pb (kt)	Au (koz)
Total Cerro Pasco	Measured	3.51	2.34	0.13	43.4	0.92	0.10	82.3	4.6	4,900	32.3	11.0
	Indicated	9.62	2.38	0.16	47.2	0.93	0.10	228.6	15.5	14,604	89.3	29.9
	Total Measured + Indicated	13.13	2.37	0.15	46.2	0.93	0.10	310.9	20.1	19,504	121.6	40.9
	Inferred	20.82	3.72	0.34	76.6	1.26	0.02	774.9	71.6	51,289	263.1	12.0

Notes:

1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources which are consistent with CIM (2014) definitions.
2. Mineral Resources are reported on a 100% ownership basis.
3. Mineral Resources are estimated at the following NSR cut-off values, calculated based on the LOM costs:
 - o El Porvenir UG: varies by mining method from US\$63.77/t to US\$67.04/t for SLS, and from US\$65.77/t to US\$69.04/t for CAF, with an average of US\$66.04/t.
 - o Atacocha UG: US\$69.00/t for SLS and US\$71.07/t for CAF
 - o Atacocha OP: US\$ 22.44/t
4. Mineral Resources are estimated using average long-term metal prices of Zn: US\$3,218.90/t (US\$1.46/lb), Cu: US\$8,820.05/t (US\$4.00/lb), Ag: US\$24.35/oz, Pb: US\$2,300.33/t (US\$1.04/lb), and Au: US\$1,875.57/oz.
5. Metallurgical recoveries are based on historical processing data:
 - o El Porvenir UG: Zn (89.2%), Pb (80.0%), Cu (14.6%), and Ag (77.5%)
 - o Atacocha UG: Zn (89.3%), Pb (80.0%), Cu (15.7%), and Ag (77.5%)
 - o Atacocha OP: Zn (70.4%), Pb (84.0%), Ag (75.8%), and Au (65.5%)
6. Bulk density is assigned based on rock type and averages:
 - o El Porvenir UG: 3.13 t/m³
 - o Atacocha UG: 3.53 t/m³
 - o Atacocha OP: 2.76 t/m³
7. The minimum thickness for underground resource reporting panels is 4 m for CAF and 3 m for SLS. For open pit resource reporting, the minimum height is 6 m.
8. Mineral Resources were depleted according to actual production as of September 30, 2023, and forecast production to the effective date of December 31, 2023.
9. Mineral Resources are exclusive of Mineral Reserves.
10. There are no Cu grades estimated for Atacocha OP and no Au grades estimated for Atacocha UG and El Porvenir UG. This has reduced the Cu and Au average grades for the total Cerro Pasco tonnes.
11. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
12. Mineral Resources are constrained within optimized underground reporting shapes for El Porvenir and Atacocha UG and an optimized reporting pit shell for Atacocha OP.
13. Numbers may not add due to rounding.

1.3.7 Mineral Reserve Estimates

Mineral Reserve estimates for the El Porvenir and Atacocha mines were developed by Nexa and adopted by the SLR QPs.

The El Porvenir and Atacocha underground Mineral Reserves were developed using Deswik's mining software. Stope designs were prepared using a stope optimization tool and were run using Measured and Indicated Mineral Resources and cut-off values for each mining method. NSR calculation takes into account metal prices, which are based on a 10 year forecast





average, metallurgical recoveries, and commercial terms for concentrate sales. Cut-off values were estimated from 2022 actual costs.

Development designs were applied to connect the resulting stopes to existing development. Stope designs were reviewed to exclude shapes found to be isolated, low grade, or within areas with poor ground stability. Stope and development designs were fully scheduled in an appropriate LOM plan and applied to a discounted cash flow model. The Mineral Reserve estimate has demonstrated economically viable extraction.

For San Gerardo open pit Mineral Reserves, different nested pits were evaluated by Nexa using the NPV Scheduler software package from Datamine, which employs the Lerchs-Grossmann pit optimization algorithm. A pit shell was selected for reserve pit design based on a revenue factor of 0.90 of the prices from a set of shells generated using only Measured and Indicated Mineral Resources. NSR block value calculations were based on historical performance of the concentrator and current smelter contracts. Calculated block model NSR values were evaluated against the internal break-even value. Blocks classified as Measured or Indicated Mineral Resources with an NSR value above the internal break-even value were included in the Mineral Reserve. The open pit Mineral Reserve estimates support an open pit LOM production plan of approximately four years before the Atacocha underground mine starts production in 2027.

Table 1-5 and Table 1-6 summarize the Mineral Reserve estimates for the El Porvenir and Atacocha mines on a Nexa attributable ownership basis and 100% ownership basis, respectively.





Table 1-5: Summary of Cerro Pasco Complex Mineral Reserve Estimate (Nexa Attributable Basis) - December 31, 2023

Category	Tonnage (Mt)	Grade					Contained Metal					Recoveries				
		Zn (%)	Cu (%)	Ag (g/t)	Pb (%)	Au (g/t)	Zn (kt)	Cu (kt)	Ag (koz)	Pb (kt)	Au (koz)	Zn (%)	Cu (%)	Ag (%)	Pb (%)	Au (%)
Proven	6.02	3.30	0.20	68.4	1.29	0.06	198.6	12.3	13,221	77.6	11.5	87.8	15.0	77.3	80.9	65.5
Probable	13.84	3.78	0.24	67.9	1.19	0.04	523.5	32.9	30,226	164.7	17.4	88.6	15.0	77.4	80.5	65.5
Total	19.86	3.64	0.23	68.0	1.22	0.05	722.1	45.2	43,447	242.4	28.9	88.4	15.0	77.4	80.6	65.5

Notes:

1. The definitions for Mineral Reserves in S-K 1300 were followed for Mineral Reserves which are consistent with CIM (2014) definitions.
2. Mineral Reserves are reported on an 83.48% and 75.96% Nexa attributable ownership basis for El Porvenir and Atacocha, respectively.
3. El Porvenir and Atacocha UG Mineral Reserves are estimated at break-even NSR cut-off values between US\$63.77/t and US\$69.00/t processed for SLS and between US\$65.77/t and US\$71.07/t processed for CAF depending on the mining zone. A number of marginal stopes with marginal NSR cut-off values between US\$39.86/t and US\$45.09/t processed for SLS and between US\$41.86/t and US\$47.16/t processed for CAF are included in the estimate.
4. Atacocha OP Mineral Reserves are estimated at an NSR cut-off of US\$16.21/t.
5. Mineral Reserves are estimated using average long term prices of Zn: US\$2,799.04/t (US\$1.27/lb); Cu: US\$7,669.61/t (US\$3.48/lb); Ag: US\$21.17/oz; Pb: US\$2,000.29/t (US\$0.91/lb); and Au: US\$1,630.93/oz.
6. Metallurgical recoveries are accounted for in the NSR calculations based on historical processing data and are variable as a function of head grade.
 - o El Porvenir : Zn (89.2%), Pb (80.0%), Cu (14.6%), and Ag (77.5%)
 - o Atacocha UG: Zn (89.3%), Pb (80.0%), Cu (15.7%), and Ag (77.5%),
 - o Atacocha OP: Zn (70.4%), Pb (84.0%), Ag (75.8%), and Au (65.5%)
7. A minimum mining width of 4.0 m was used for SLS stopes and 5.0 m for CAF stopes.
8. A dilution equivalent linear overbreak/slough (ELOS) of 1.0 m and a dilution factor of 10% is added to CAF stopes and SLS stopes respectively.
9. A mining recovery factor of 95% is applied to CAF and 85% is applied to SLS stopes.
10. No mining dilution was applied to Atacocha OP and a 100% mining recovery was assumed.
11. There are no Cu grades estimated for Atacocha OP and no Au grades estimated for Atacocha UG and El Porvenir UG. This has reduced the Cu and Au average grades for the total Cerro Pasco tonnes.
12. Numbers may not add due to rounding.



**Table 1-6: Summary of Cerro Pasco Complex Mineral Reserve Estimate (100%) - December 31, 2023**

Category	Tonnage (Mt)	Grade					Contained Metal					Recoveries				
		Zn (%)	Cu (%)	Ag (g/t)	Pb (%)	Au (g/t)	Zn (kt)	Cu (kt)	Ag (koz)	Pb (kt)	Au (koz)	Zn (%)	Cu (%)	Ag (%)	Pb (%)	Au (%)
Proven	7.53	3.26	0.20	68.0	1.29	0.06	245.5	15.3	16,468	97.2	15.2	87.7	15.0	77.3	80.9	65.5
Probable	17.16	3.76	0.24	67.6	1.19	0.04	645.5	40.9	37,330	204.5	22.9	88.5	15.1	77.4	80.6	65.5
Total	24.70	3.61	0.23	67.8	1.22	0.05	891.0	56.1	53,797	301.7	38.1	88.3	15.1	77.4	80.7	65.5

Notes:

1. The definitions for Mineral Reserves in S-K 1300 were followed for Mineral Reserves which are consistent with CIM (2014) definitions.
2. Mineral Reserves are reported on a 100% Nexa attributable ownership basis. Nexa owns 83.48% of El Porvenir and 75.96% of Atacocha.
3. El Porvenir and Atacocha UG Mineral Reserves are estimated at break-even NSR cut-off values between US\$63.77/t and US\$69.00/t processed for SLS and between US\$65.77/t and US\$71.07/t processed for CAF depending on the mining zone. A number of marginal stopes with marginal NSR cut-off values between US\$39.86/t and US\$45.09/t processed for SLS and between US\$41.86/t and US\$47.16/t processed for CAF are included in the estimate.
4. Atacocha OP Mineral Reserves are estimated at an NSR cut-off of US\$16.21/t.
5. Mineral Reserves are estimated using average long term prices of Zn: US\$2,799.04/t (US\$1.27/lb); Cu: US\$7,669.61/t (US\$3.48/lb); Ag: US\$21.17/oz; Pb: US\$2,000.29 /t (US\$0.91/lb); and Au: US\$1,630.93/oz.
6. Metallurgical recoveries are accounted for in the NSR calculations based on historical processing data and are variable as a function of head grade.
 - o El Porvenir : Zn (89.2%), Pb (80.0%), Cu (14.6%), and Ag (77.5%)
 - o Atacocha UG: Zn (89.3%), Pb (80.0%), Cu (15.7%), and Ag (77.5%),
 - o Atacocha OP: Zn (70.4%), Pb (84.0%), Ag (75.8%), and Au (65.5%)
7. A minimum mining width of 4.0 m was used for SLS stopes and 5.0 m for CAF stopes.
8. A dilution equivalent linear overbreak/slough (ELOS) of 1.0 m and a dilution factor of 10% is added to CAF stopes and SLS stopes respectively.
9. A mining recovery factor of 95% is applied to CAF and 85% is applied to SLS stopes.
10. No mining dilution was applied to Atacocha OP and a 100% mining recovery was assumed.
11. There are no Cu grades estimated for Atacocha OP and no Au grades estimated for Atacocha UG and El Porvenir UG. This has reduced the Cu and Au average grades for the total Cerro Pasco tonnes.
12. Numbers may not add due to rounding.





The QPs are not aware of any risk factors associated with, or changes to, any aspects of the modifying factors such as mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate with the exception of the impacts of faults on the equivalent linear overbreak/slough (ELOS) that have not been accounted for in the geotechnical empirical analyses for the underground mines. SLR has estimated the impact of an increase in ELOS/dilution, and has reduced the Mineral Reserve by 2%.

1.3.8 Mining Methods

1.3.8.1 Atacocha and El Porvenir Underground Mines

The current Atacocha processing plant is being fed by the San Gerardo open pit mine which is scheduled to reach its end of mine life in 2027. Once the pit is depleted, operations at the Atacocha underground mine will be re-started. The underground mine will be integrated with the El Porvenir underground mine, with both mines feeding the El Porvenir processing plant. The Atacocha processing plant and mine site will be shut down and all operations will be transferred to the El Porvenir mine site. As part of the integration plan, a 1,750 m connection ramp between the two mines will be driven on the 2900 Level. The ramp will connect to a system of ore raises and haulage ramps at Atacocha and to the shaft loading pocket at El Porvenir.

Ore from El Porvenir is predominantly mined using overhand CAF mining method, which accounts for approximately 80% of total production. SLS makes up the remainder of ore production. SLS will be increasingly used over the LOM particularly when the veins are steeply dipping. SLS accounts for approximately 55% of ore production over the LOM. The same mining methods were used at Atacocha before the mine closure in 2020 and will continue to be used over the planned LOM.

The ore produced in the CAF and SLS stopes is transported to and dumped in ore passes by load haul dump units (LHD). These ore passes extend to the 2,900 track haulage level where the ore is pulled from chutes and loaded onto mine cars. The mine cars dump at an ore pass grizzly, and the ore is transferred to the shaft's loading pocket on the 2500 Level. From there, the ore is loaded onto skips and hoisted via the shaft to the ore dump. After being discharged at the dump, the ore is transferred to the underground primary crusher. Crushed ore is transported to the processing plant via a conveyor in an inclined drift.

Geotechnical analyses for the underground stope and ground support used a combination of empirical and 2D/3D numerical modelling, based upon core logging, rock testing results, and stress measurements from site.

1.3.8.2 Atacocha (San Gerardo) Open Pit Mine

The open pit is a conventional open pit mining method with drill and blast operations using excavators and trucks operating on bench heights of six metres. The mining contractor provides operators, equipment, and ancillary facilities required for the mining operation.

Mill feed material produced by San Gerardo is hauled to the ore pass to the east of the pit that reports to the 3600 Level of Atacocha underground, where it is trammed by locomotive and rail car to the Atacocha plant. Waste is hauled to the San Gerardo waste dump, which is adjacent to the Atacocha TSF dam.





The open pit Mineral Reserve estimates support an open pit LOM production plan of approximately four years before the underground mine starts production in 2027. Total material mined is limited to 10 million tonnes per annum (Mtpa), or approximately 27 ktpd.

1.3.9 Processing and Recovery Methods

1.3.9.1 El Porvenir

El Porvenir processing plant is located adjacent to the mine at an altitude of 4,100 MASL to 4,200 MASL. The concentrator has an ore processing capacity of approximately 2.37 Mtpa. The El Porvenir concentrator processed 2,220,011 tonnes of ore in 2023. El Porvenir copper and lead concentrates are sold to traders and delivered by road and rail to Callao (approximately 270 km by road) for shipping overseas, while zinc concentrate is transported by road and rail to Nexa’s Cajamarquilla zinc refinery east of Lima. El Porvenir is approximately 315 km from Lima by road. The current LOM plan continues to 2028. Processing consists of conventional crushing, grinding, and flotation to produce separate copper, lead, and zinc concentrates.

Tailings are cycloned and the coarse fraction is used for mine backfill, which constitutes approximately 35% of tailings produced. Water from tailings dewatering is returned to the process. Overflow from the cyclones containing the fine tailings is deposited in the conventional TSF adjacent to the mine and processing plant. Tailings can be discharged at various points in the TSF by means of valved discharge points on the tailings line. Clarified water discharged from the TSF joins natural water flows.

Make-up water is supplied from various streams around the TSF, as well as the Carmen Chico River, approximately 3.2 km south of the processing facility.

El Porvenir lead and zinc concentrates are generally clean and do not attract penalty charges for deleterious elements. The copper concentrate attracts penalties due to elevated arsenic, antimony, bismuth, and lead plus zinc content (approximately 15% combined). The penalty charges are approximately US\$8.00/dry metric tonne (dmt).

1.3.9.2 Atacocha

The Atacocha concentrator processes ore from the San Gerardo open pit mine. The average daily processing rate is approximately 4,200 tonnes. The Atacocha concentrator processed 1,397,192 tonnes of ore in 2023.

The Atacocha concentrator utilizes a conventional crushing, grinding, and sequential flotation scheme to produce lead and zinc concentrates. A flash-flotation step is included in the grinding circuit that recovers lead at a grade sufficiently high to report directly to the final lead concentrate. Low copper grades resulted in a discontinuation of copper concentrate production in 2020. The majority of gold and silver report to the lead concentrate.

The zinc concentrate is transported to the Cajamarquilla zinc refinery near Lima, while the copper and lead concentrates are sold to concentrate traders.

1.3.10 Infrastructure

1.3.10.1 El Porvenir

The El Porvenir infrastructure consists of the following facilities:

- Approximately 6,500 tpd underground mine





- A 2.2 Mtpa processing plant with associated laboratory and maintenance facilities
- Power plant
- Access roads
- Offices and warehouses
- Accommodations
- Waste rock facilities
- Temporary ore stockpiles
- Hydraulic backfill plant
- TSF

The power supply for the El Porvenir Mine comes from two sources, the national power grid and the La Candelaria Hydroelectric Plant.

Raw water is sourced from Tingovado Creek, as well as from other creeks around the TSF. Fresh water supply is obtained from the Carmen Chico River, approximately 3.2 km south of the processing facility.

The EL Porvenir TSF receives tailings generated by both El Porvenir and Atacocha processing plants. A portion of tailings is used for hydraulic backfill at El Porvenir. The TSF was originally constructed in the 1970s, and the current elevation of the dam crest is 4,064 MASL and the dam height is approximately 140 m.

Waste rock from the underground operations is either used as backfill underground or stockpiled on surface. If waste rock is brought to surface in the future, it will be deposited in a designated area near the secondary TSF embankment southwest of the concentrator plant area.

1.3.10.2Atacocha

Site operations comprise an underground mine, open pit mine, and a process plant facility. Supporting on-site infrastructure include maintenance facilities; maintenance buildings for underground and surface equipment, laboratory, and tailings pumping station. Facilities and structures supporting operations include warehouses and laydown areas, offices, dry facilities, hydroelectric generating station, power lines and substation, fuel storage tanks, and accommodation camp. The site has well developed systems in place for water supply and distribution, including fresh water and fire suppression water, sewage collection and disposal, and communications. A network of site roads that are approximately six metres wide and total 15 km in length are used by authorized mine personnel and equipment, including ore and waste haul trucks, concentrate haul trucks, and support and light duty vehicles to provide access to on-site infrastructure.

Power supply for Atacocha comes from three sources, Electroandes, a power supplier located in Paragsha, via a 30 km long 50 kV transmission line, Chaprin Hydro, a hydroelectric generating station with a total capacity of 5.26 MW via a 15 km long 50 kV transmission line, and the Marcopampa hydroelectric generating station with a total capacity of 1.1 MW via a five kilometre long 50 kV transmission line.

Waste rock from the San Gerardo open pit is disposed of in the Atacocha waste dump, which is adjacent to and downstream of the Atacocha TSF. The Atacocha TSF has capacity for expansion to accommodate tailings production over the LOM.



1.3.11 Market Studies

The principal commodities produced at El Porvenir and Atacocha mines, Zn, Pb, Cu, Ag, and Au, are freely traded, at prices and terms that are widely known, so that prospects for sale of any Nexa production are virtually assured.

The final sale products for El Porvenir processing plant (for all underground material processed between years 2024 and 2033) are copper, lead, and zinc concentrates. El Porvenir copper and lead concentrates are sold to traders and delivered by road and rail to Callao, which is approximately 270 km by road, for shipping overseas. Zinc concentrate is transported by road and rail to Nexa’s Cajamarquilla zinc refinery near Lima as per Nexa’s internal planning. Over the LOM Zn concentrate represents 60% of El Porvenir’s gross revenue, while Pb concentrate and Cu concentrate represent 37% and 3%, respectively.

The final sales products for the Atacocha processing plant (for open pit material processed between years 2024 and 2027) are lead concentrate and zinc concentrate. Over the LOM of the Atacocha plant Pb concentrate represents 73% of Atacocha’s gross revenue, while Zn concentrate represents 27% of Atacocha’s gross revenue.

Over the LOM for the Cerro Pasco Complex, considering production from both El Porvenir and Atacocha plants, the gross revenue, broken down by metal sold, is as follows: zinc 54%, lead 16%, copper 2%, silver 27%, and gold 1%

Market information is based on the industry scenario analysis prepared by Nexa’s Market Intelligence team for years 2022 and 2023 based on information sourced from different banks and independent financial institutions, economy and politics research groups, and metals consultants.

Metal prices for the economic analysis have been forecasted by Nexa’s Market Intelligence team based on market information sourced by banks and financial institutions.

In terms of material contracts to run the operation, Nexa has negotiated with different known traders (such as Glencore, Trafigura, Humon, and IXM) the sale of their copper and lead concentrates. In addition to concentrate sales, Nexa has numerous contracts with suppliers for the majority of the operating activities at El Porvenir and Atacocha mine sites, such as underground mine development contractors, material transport, drilling, loading and hauling services, plant maintenance, laboratory services, suppliers for consumables, reagents, maintenance, and general services to support the mine operations.

1.3.12 Environmental Studies, Permitting and Plans, Negotiations, or Agreements with Local Individuals or Groups

Various EIAs and supporting technical reports have been submitted to the regulatory authorities to identify potential environmental effects resulting from project activities for the construction, operation, and closure stages. The monitoring program implemented at the El Porvenir Mine includes monitoring of meteorology, air quality, non-ionizing radiation, noise, surface water quality, springs water quality, effluent discharges, fauna and flora, and physical stability of the tailings dam. The monitoring program implemented at the Atacocha Mine includes effluent discharges, gas emissions, air quality, non-ionizing radiation, noise, surface water quality, groundwater quality, springs water quality, vibrations, soil quality, terrestrial biology (vegetation and wildlife), and aquatic biology. The results of the monitoring program are reported to the Peruvian authorities quarterly.

El Porvenir and Atacocha hold a number of environmental permits and authorizations in support of the current operations. The permits are Directorial Resolutions issued by the Peruvian

authorities upon approval of mining environmental management instruments filed by the mining companies. Nexa maintains an up-to-date record of the legal permits obtained to date. Additional permits will be required in the future for implementation of the Cerro Pasco Complex Integration project.

According to the annual report for 2022 issued by Nexa, the company seeks to create a positive legacy in host communities and maintain a constant and close dialogue with them, working towards building a positive relationship with stakeholders. Nexa's ESG strategy is built around nine Environment, Social and Governance pillars.

A social baseline description, assessment of socio-economic impacts, and identification of mitigation/enhancement measures have been carried out for both El Porvenir and Atacocha to mitigate negative impacts and maximize positive benefits of the mines. These components are generally consistent with social impact assessment practices. Community Relations Plans have been developed for El Porvenir and Atacocha as part of the EIAs outlining objectives, strategies, and specific indicators for social programs. Nexa has a permanent information office dedicated to receiving, managing, and addressing complaints, claims, questions, and information requests from the communities. SLR understands that Nexa has implemented a grievance mechanism for receiving local community questions, concerns, and complaints. Nexa has also developed a communications program to facilitate the interaction with the communities.

According to the annual report for 2023 issued by Nexa Peru, one of the key risks for the Cerro Pasco Complex operations to be managed and mitigated is social conflict with communities within the area of influence, which has the potential to result in blockades, project delays, and/or reputational damage.

A conceptual Mine Closure Plan was approved in 2007 for the El Porvenir Mine components within the context of the Peruvian legislation and has subsequently been amended or updated four times. A conceptual Mine Closure Plan was approved in 2007 for the Atacocha Mine components within the context of the Peruvian legislation and has subsequently been amended or updated five times. The Mine Closure Plan addresses temporary, progressive, and final closure actions, and post closure inspection and monitoring. A closure cost estimate was developed and included in the Mine Closure Plan. The total financial assurance for progressive closure, final closure, and post closure is calculated by Nexa according to the Peruvian regulations (Supreme Decree D.S. N° 262-2012-MEM/DM).

1.3.13 Capital and Operating Cost Estimates

El Porvenir and Atacocha are operating mines, and therefore all capital costs are categorized as sustaining.

Sustaining capital costs have been estimated by Nexa based on historical and actual costs, plus the estimated capital costs for the underground development, infrastructure, and equipment required to complete the Cerro Pasco Complex integration. Based on the SLR QP's review, the sustaining capital costs are estimated to the equivalent of an Association for the Advancement of Cost Engineering (AACE) Class 2 estimate with an accuracy range of -10% to +15%. All costs are expressed in Q4 2023 US dollars.

The summary breakdown of the estimated sustaining capital costs required to achieve the Mineral Reserve LOM production are presented in Table 1-7.



Table 1-7: Sustaining Capital Costs Summary - Cero Pasco Complex

Cost Component	Value (US\$ millions)
El Porvenir Mine Development	166
El Porvenir Processing Plant Improvements	19
El Porvenir Mining Equipment	17
El Porvenir Infrastructure	48
El Porvenir Tailings Storage Facilities	132
El Porvenir Other Projects / Assets Sustaining Capital	18
Atacocha Mine Development	137
Atacocha Processing Plant Improvements	3
Atacocha Mining Equipment	6
Atacocha Infrastructure	22
Atacocha Tailings Storage Facilities	35
Atacocha Other Projects / Assets Sustaining Capital	20
Total Sustaining Capital Costs	622

Notes: Sum of individual values may not match total due to rounding.

The operating costs were estimated based on the actual operating expenditures and current operating budget for both El Porvenir and Atacocha mines, and the forecasted operating costs, considering the operating synergies once the integration process is completed.

The operating expenses estimated for mining, processing, and G&A activities to support the production of the Cerro Pasco Mineral Reserves over the LOM are summarized in Table 1-8.

Table 1-8: Operating Costs Estimate - Cerro Pasco Complex

Cost Component	LOM Total (US\$ millions)	Average Annual ^{1,2} (US\$ millions)	LOM Average (US\$/t milled)
Atacocha Plant (Open Pit material) ¹			
Open Pit Mining (Atacocha Open Pit)	85	21	19.52
Processing - Atacocha Plant	58	15	13.29
G&A - Open Pit	52	13	11.85
El Porvenir Plant (Underground material) ²			
Underground Mining (El Porvenir & Atacocha)	797	86	39.25
Processing - El Porvenir Plant	266	28	13.07
G&A - Underground	154	16	7.56
Combined Site Operating Costs	1,412	152	57.18





Notes:

- 1. For open pit fully operational years (2024 – 2027)
- 2. For underground fully operational years (2025 – 2032)
- 3. Sum of individual values may not match total due to rounding.



2.0 Introduction

SLR Consulting (Canada) Ltd. (SLR) was retained by Nexa Resources S.A. (Nexa) to prepare a Technical Report Summary (TRS) on the integration of Nexa's El Porvenir and Atacocha mines into the Cerro Pasco Complex (Cerro Pasco or the Complex), located in Pasco Province, Peru. The purpose of this TRS is to support the disclosure of the Cerro Pasco Mineral Resource and Mineral Reserve estimates with an effective date of December 31, 2023. The Mineral Resource estimate for the Complex was prepared by Jerry Huaman Abalos, B.Geo., AusIMM CP(Geo), Corporate Mineral Resource Manager with Nexa and a Qualified Person (QP) for this TRS. This TRS conforms to United States Securities and Exchange Commission's (SEC) Modernized Property Disclosure Requirements for Mining Registrants as described in Subpart 229.1300 of Regulation S-K, Disclosure by Registrants Engaged in Mining Operations (S-K 1300) and Item 601 (b)(96) Technical Report Summary.

Nexa is a publicly traded company on the Toronto Stock Exchange (TSX) and the New York Stock Exchange (NYSE). Nexa is a reporting issuer in all provinces and territories of Canada and is under the jurisdiction of the Ontario Securities Commission.

Nexa is a large-scale, low-cost, integrated Zn producer with over 60 years of experience developing and operating mining and smelting assets in Latin America. Nexa has a diversified portfolio of polymetallic mines (Zn, Pb, Cu, Ag, and Au) and also greenfield projects at various stages of development in Brazil and Peru. In Brazil, Nexa owns and operates three underground mines, Vazante and Morro Agudo (Zn and Pb), and Aripuanã (Zn, Pb, Cu, Au, and Ag). It also operates two zinc smelters in Brazil (Três Marias and Juiz de Fora). In Peru, Nexa operates the Cerro Pasco Complex, which includes the El Porvenir (Zn, Pb, Cu, and Ag) and Atacocha (Zn, Cu, Pb, Au, and Ag) mines, and the Cerro Lindo (Zn, Cu, Pb, and Ag) Mine, as well as the Cajamarquilla zinc smelter near Lima. Nexa's development projects in Peru include Magistral, Shalipayco, Florida Canyon (JV with Solitario), Hilarión, and Pukaqaqa. .

The El Porvenir Mine is 100% owned by Nexa Resources El Porvenir S.A.C. (Nexa El Porvenir), a 99.99%-owned subsidiary of Nexa Resources Peru S.S.A. (Nexa Peru). Nexa's resulting interest in the El Porvenir Mine is 83.48% that corresponds to the sum of Nexa's direct interest in Nexa Peru (0.18%) and indirect interest of Nexa in Nexa Peru (83.37%) through its controlled company Nexa Resources Cajamarquilla S.A. (99.916%), and the remaining 16.45% are floating shares.

The Atacocha Mine is 100% owned by Nexa Resources Atacocha S.A.A. (Nexa Atacocha). Nexa's resulting interest in the Atacocha Mine is 75.96% that corresponds to the sum of Nexa's direct interest in Nexa Peru (0.18%), and Nexa Peru's indirect interest in Nexa Atacocha (90.999%) through its controlled company Nexa El Porvenir (99.99%), the remaining 9.001% are floating shares, and indirect participation of Nexa in Nexa Peru (83.37%) through its controlled company Nexa Resources Cajamarquilla S.A. (99.916%), and the remaining 16.45% are floating shares.

The integration project is intended to capture synergies between the two mining operations, resulting from their proximity and operational similarities, with the ore from both underground mines being processed in the El Porvenir treatment plant. The goal is to achieve cost and investment savings, thereby reducing the environmental footprint and extending the combined mine life of the two mines.

The integration project has been developed over the past several years. The first stage involved the administrative integration of both mines, which was completed in 2014. The second stage involved the integration of the tailings disposal system, which allowed the Atacocha plant to



send tailings to the El Porvenir dam within the short term, thereby helping reduce the environmental footprint. The third stage, completed in 2016, involved the construction of a new energy transmission line with a 138 kilovolt (kV) connection that supplies both mines, replacing the prior 50 kV transmission lines. The development of a 3.5 km tunnel, connecting both underground mines and enabling exploration program in the Integration Zone between the mines, was part of the fourth stage, concluded in 2019.

In 2021, the modernization and debottleneck studies to evaluate the deepening of the mine and extension of the life of mine (LOM) for El Porvenir were postponed due to the prioritization of a capital allocation strategy and the reassessment of the integration with the Atacocha underground mine. In 2022, Nexa advanced the integration project with an optimization study of the integration of the El Porvenir and Atacocha underground mines by evaluating increasing the capacity of tailings and shaft and optimizing the processing plant, to potentially increase production and extend the LOM.

In 2023, Nexa continued to advance the integration project with technical studies to sustain and expand production, such as mine design and studies for the underground interconnection, shaft upgrade and engineering assessment of the plant, as well as key routes to improve capacity to provide a long-term solution for tailings disposal. A Front-End Loading (FEL) 3 study to increase El Porvenir hoisting was completed in Q1 2023 and a FEL3 tailings pumping system study was completed in early Q2 2023.

The integration plan includes:

- restarting and rehabilitation of the Atacocha underground mine,
- development of an approximately 2 km long connection tunnel (Tunnel 2900), linking Atacocha underground to the bottom of Picasso shaft in El Porvenir, allowing the production from both underground mines to be hoisted to feed the El Porvenir processing plant,
- Picasso shaft capacity expansion to support production and extraction at both underground mines,
- closure of the Atacocha processing plant, with the exhaustion of Atacocha open pit reserves, in 2027,
- a new tailing pumping and pipeline system to be built, that will allow tailings from El Porvenir to be sent to the Atacocha dam, bringing a long term solution for tailings, supporting the extension of the combined life of the two mines.

2.1 Site Visits and QPs

SLR's QPs visited the site from January 15 to 17, 2024. Nexa's QP, Jerry Huaman Abalos, B.Geo., AusIMM CP(Geo), visited the site over the same time period.

During the site visit, the QPs inspected the open pit and underground operations, the processing plants, and the tailings facilities and held discussions with Nexa Perú personnel.

Jerry Huaman Abalos, the geologist QP for this TRS, visited the open pit and underground operations, examined drill holes and mineralized open pit and underground mineralized exposures, reviewed interpreted plans and sections, core logging, sampling, quality assurance and quality control (QA/QC), modelling procedures for long-term and grade control purposes, and discussed the geological setting of the deposit as well as the geological interpretations, mineralization control and mine geology procedures with the El Porvenir and Atacocha mine geology staff.





The SLR mining engineer QP visited the open pit and underground operation and discussed parameters for Mineral Reserve estimation with El Porvenir and Atacocha mine staff.

The SLR metallurgist QP visited the Atacocha and El Porvenir process facilities including the office facilities, underground crushing and conveying, concentrators, tailings pumping station, electrical substations, and laboratories.

The SLR environmental QP visited the tailings disposal facilities at El Porvenir and Atacocha and some components of the water management infrastructure. The QP had discussions with Nexa Perú personnel responsible for environmental management and community relations activities.

Table 2-1 lists the QPs' responsibilities for this TRS.

Table 2-1: QP Responsibilities

Qualified Person	Responsibilities
SLR Consulting (Canada) Ltd. (the SLR QPs)	Sections 1.1.1.2 to 1.1.1.7, 1.1.2.2 to 1.1.2.5, 1.2, 1.3.7 to 1.3.13, 2, 10, 12 to 19, 21, 22.2 to 22.7, 23.2 to 23.5, 25, and relevant references in Section 24.
Jerry Huaman Abalos, B.Geo., AusIMM CP(Geo), Corporate Mineral Resource Manager, Nexa	Sections 1.1.1.1, 1.1.2.1, 1.3.1 to 1.3.6, 3 to 9, 11, 20, 22.1, 23.1, and relevant references in Section 24.

2.2 Sources of Information

During the preparation of this TRS, discussions were held with personnel from Nexa:

- Filipe Fonseca Silva, Management and Strategy Manager, Nexa
- Jose Antonio Lopes, Corporate Mineral Resource Manager, Nexa
- Jerry H. Abalos, Corporate Mineral Resource Manager, Nexa Peru
- Vitor Teixeira De Aguilar, Technical Services Manager, Nexa
- Paulo Henrique Araujo Calazans, Mining Engineer, Nexa
- José Cayetano, Environmental Management Superintendent, Nexa
- Carlos Quiñones, Social Management Superintendent, Nexa
- Alder Osorio, El Porvenir Social Management Manager, Nexa
- Daniel Saenz, Corporate Resource Geologist, Nexa Peru
- Wilfredo Astete, Processing General Manager
- Fernando Villanova, Corporate Geologist, Nexa
- Cecilia Pastor, Land and Mineral Rights Manager, Nexa Peru
- Magaly Bardales Rojas, Corporate Legal Counsel, Nexa Peru
- Renato Piazzon, Legal Counsel, Nexa Peru





Previously, SLR (which now includes Roscoe Postle Associates Inc. [RPA]) has been involved in the preparation of National Instrument 43-101 Technical Reports for both the Atacocha (RPA, 2019) and El Porvenir (SLR, 2021) mines and an S-K 1300 TRS for the El Porvenir Mine (SLR, 2021).

The documentation reviewed, and other sources of information, are listed at the end of this TRS in Section 24.0 References.





2.3 List of Abbreviations

Units of measurement used in this TRS conform to the metric system. All currency in this TRS is US dollars (US\$) unless otherwise noted.

m	micron	kVA	kilovolt-amperes
mg	microgram	kW	kilowatt
a	annum	kWh	kilowatt-hour
A	ampere	L	litre
bbl	barrels	lb	pound
Btu	British thermal units	L/s	litres per second
°C	degree Celsius	m	metre
C\$	Canadian dollars	M	mega (million); molar
cal	calorie	m ²	square metre
cfm	cubic feet per minute	m ³	cubic metre
cm	centimetre	MASL	metres above sea level
cm ²	square centimetre	m ³ /h	cubic metres per hour
d	day	mi	mile
dia	diameter	min	minute
dmt	dry metric tonne	mm	micrometre
dwt	dead-weight ton	mm	millimetre
°F	degree Fahrenheit	mph	miles per hour
ft	foot	MVA	megavolt-amperes
ft ²	square foot	MW	megawatt
ft ³	cubic foot	MWh	megawatt-hour
ft/s	foot per second	oz	Troy ounce (31.1035g)
g	gram	oz/st, opt	ounce per short ton
G	giga (billion)	ppb	part per billion
Gal	Imperial gallon	ppm	part per million
g/L	gram per litre	psia	pound per square inch absolute
Gpm	Imperial gallons per minute	psig	pound per square inch gauge
g/t	gram per tonne	RL	relative elevation
gr/ft ³	grain per cubic foot	s	second
gr/m ³	grain per cubic metre	st	short ton
ha	hectare	stpa	short ton per year
hp	horsepower	stpd	short ton per day
hr	hour	t	metric tonne
Hz	hertz	tpa	metric tonne per year
in.	inch	tpd	metric tonne per day
in ²	square inch	US\$	United States dollar
J	joule	USg	United States gallon
k	kilo (thousand)	USgpm	US gallon per minute
kcal	kilocalorie	V	volt
kg	kilogram	W	watt
km	kilometre	wmt	wet metric tonne
km ²	square kilometre	wt%	weight percent
km/h	kilometre per hour	yd ³	cubic yard
kPa	kilopascal	yr	year





3.0 Property Description

3.1 Location

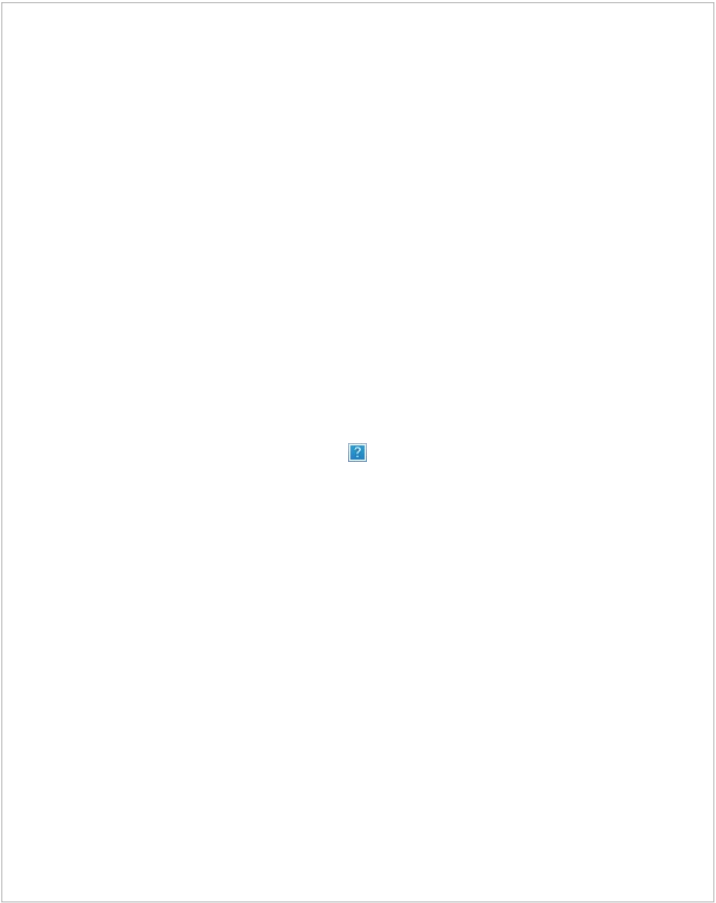
The Complex is located in Peru’s Central Andes region at an elevation of approximately 4,050 MASL to 4,200 MASL. It is situated in the districts of San Francisco de Asís de Yarusyacán and Yanacancha, in the province and department of Pasco (Figure 3-1).

El Porvenir and Atacocha are located 13 km and 16 km north of the city of Cerro de Pasco, which is located approximately 315 km by road from the national capital, Lima, when travelling by the Carretera Central and the La Oroya-Huánuco highway. El Porvenir’s coordinates are 10°36’36" S, 76°12’37" W (Latitude/Longitude decimals -10.6100, -76.2102), and approximately 367,600m E, 8,826,850m N using Universal Transverse Mercator (UTM) WGS84 datum Zone 18S. Atacocha’s coordinates are 10°34’37" S, 76°11’26" W (Latitude/Longitude decimals -10.5769, -76.1906), and approximately 367,160m E, 8,830,400m N using the UTM WGS84 Zone 18S. The mines are located approximately 3.5 km of each other.





Figure 3-1: Location Map



3.2 Mineral Rights in Peru

3.2.1 Mineral Concessions

According to Peruvian General Mining Law (the Law):

- 1 Mineral concessions grant their holder the right to explore, develop, and mine metallic or non-metallic minerals located within their internal boundaries.
- 2 A mineral claim is an application to obtain a mineral concession. Exploration, development, and exploitation rights are obtained once the title to the concession has been granted, except in those areas that overlap with priority claims or priority mining concessions. Upon completion of the title procedure, resolutions awarding title must be recorded with the Public Registry to create enforceability against third parties and the Peruvian State.
- 3 Mineral rights are separate from surface rights. They are freely transferable.
- 4 A mineral concession by itself does not authorize the titleholder to carry out exploration or exploitation activities, but rather the titleholder must first:
 - a) Obtain approval from the Culture Ministry of the applicable archaeological declarations, authorizations, or certificates.
 - b) Obtain the environmental certification issued by the competent environmental authority, subject to the rules of public participation.
 - c) Obtain permission for the use of land (i.e., obtain surface rights) by agreement with the owner of the land or the completion of the administrative easement procedure, in accordance with the applicable regulation.
 - d) Obtain the applicable governmental licences, permits, and authorizations, according to the nature and location of the activities to be undertaken.
 - e) Carry out consultations with Indigenous Peoples under the Culture Ministry, should there be any communities affected by potential exploitation of the mineral concession, as per International Labour Organization (ILO) Convention 169.
- 5 Mineral rights holders must comply with the payment of an annual fee equal to \$3.00/ha, on or before June 30 of each year.
- 6 Holders of mineral concessions must meet a Minimum Annual Production Target or a Minimum Annual Investment before a statutory deadline. When such deadline is not met, a penalty must be paid as described below:
 - a) Mineral concessions must meet a statutory Minimum Annual Production Target of 1 Tax Unit (Unidad Impositiva Tributaria, or UIT) per hectare per year for metallic concessions, within a statutory term of ten years from the title date. The applicable penalty is 2% of the Minimum Annual Production Target per hectare per year as of the 11th year until the 15th year. Starting in the 16th year and until the 20th year, the applicable penalty is 5% of the Minimum Annual Production Target per year and starting in the 21st year until the 30th year, the applicable penalty is 10% of the Minimum Annual Production Target per year. After the 30th year, if the Minimum Annual Production Target is not met, the mining concession will lapse automatically.

- 7 Mineral concessions may not be revoked as long as the titleholder complies with the Good Standing Obligations according to which mineral concessions will lapse automatically if any of the following events take place.
 - a) The annual fee is not paid for two consecutive years.
 - b) The applicable penalty is not paid for two consecutive years.
 - c) A concession expires if it does not reach the minimum production in Year 30 and cannot justify the non-compliance up to five additional years due to reasons of force majeure described in the current legislation.
- 8 Agreements involving mineral rights (such as an option to acquire a mining lease or the transfer of a mineral concession) must be formalized through a deed issued by a public notary and must be recorded with the Public Registry to create enforceability against third parties and the Peruvian State.

3.2.2 Beneficiation Concessions

According to Peruvian General Mining Law (the Law):

- 1 The beneficiation concession grants the right to use physical, chemical, and physical-chemical processes to concentrate minerals or purify, smelt, or refine metals.
- 2 As from the year in which the beneficiation concession was requested, the holder shall be obliged to pay the Mining Concession Fee in an annual amount according to its installed capacity, as follows:
 - a) 350 tpd or less: 0.0014 of one UIT per tpd.
 - b) from more than 350 tpd to 1,000 tpd: 1.00 UIT
 - c) from 1,000 tpd to 5,000 tpd: 1.5 UIT
 - d) for every 5,000 tpd in excess: 2.00 UIT

Note. "tpd" refers to the installed treatment capacity. In the case of expansions, the payment that accompanies the application is based on the increase in capacity.

3.3 Land Tenure

The QPs rely upon a legal opinion provided by Nexa regarding ownership information (Bardales Rojas, 2024).

El Porvenir consists of 25 mining concessions covering an area of 4,846.68 ha and one beneficiation concession covering an area of 323.79 ha. As of December 31, 2023, the concessions are held in the name of Nexa El Porvenir, Nexa Atacocha, Nexa Peru, and S.M.R.L. CMA No. 54 (50% Nexa El Porvenir and 50% Nexa Atacocha).

Atacocha consists of 147 mineral concessions covering an area of 2,872.47 ha and one beneficiation concession covering an area of 413.23 ha. As of December 31, 2023, the Atacocha concessions are held in the name of Nexa Atacocha, Nexa Peru, and Nexa El Porvenir.

The titles of all mineral concessions have been granted and duly recorded in the Public Registry. The UTM coordinates of these mineral concessions, which determine their location within the official grid, have been recorded in the Mining Cadaster.



None of the concessions are in urban expansion areas, protected natural areas, or archaeological sites.

The mineral concessions for El Porvenir are tabulated in Table 3-1 and for Atacocha in Table 3-3. The beneficiation concessions for El Porvenir are tabulated in Table 3-2 and for Atacocha in Table 3-4.

Mineral rights maps are provided in Figure 3-2 and Figure 3-3 for El Porvenir and Atacocha, respectively.





Table 3-1: El Porvenir Mineral Concessions

No	Concession Code	Concession Name	Title Holder	Status	Date	Public Registry Record	Granted Area (ha)	Available Area (ha)	2023 Fee (US\$)	2023 Penalty (US\$)	2023 Total Paid (US\$)
1	010000515L	ACUMULACION EL PORVENIR	NEXA RESOURCES EL PORVENIR S.A.C.	Acumulación D.M. Titulada	03/04/1877	P-11248335	5,040.79	4,600.52	13,801.55	0.00	13,801.55
2	010000116L	ACUMULACION EL PORVENIR 1	NEXA RESOURCES EL PORVENIR S.A.C.	Acumulación D.M. Titulada	25/01/2016	P-11242512	7.99	7.99	23.96	0.00	23.96
3	04010149X01	C.M.A. Nº 55	NEXA RESOURCES ATACOCHA S.A.A. - Assigned to Nexa Resources El Porvenir	D.M. Titulado D.L. 109	04/06/1955	P-02016190	1.00	1.00	3.00	0.00	3.00
4	04002731X01	KITTY	NEXA RESOURCES ATACOCHA S.A.A. - Assigned to Nexa Resources El Porvenir	D.M. Titulado D.L. 109	24/02/1906	P-02010298	6.00	5.99	17.98	0.00	17.98
5	04010070X01	ATACOCHA Nº 1	NEXA RESOURCES ATACOCHA S.A.A. - Assigned to Nexa Resources El Porvenir	D.M. Titulado D.L. 109	09/11/1954	P-20000404	2.77	1.60	4.79	0.00	4.79
6	04013393X01	CARLITOS	NEXA RESOURCES EL PORVENIR S.A.C.	D.M. Titulado D.L. 109	04/05/1987	P-20002989	20.00	20.00	60.00	48.64	108.64
7	04013362X01	PUCAYACU	NEXA RESOURCES EL PORVENIR S.A.C.	D.M. Titulado D.L. 109	17/06/1986	P-20002923	36.00	36.00	108.00	87.56	195.56
8	04005441X01	ANGELICA SEGUNDA	NEXA RESOURCES ATACOCHA S.A.A. - Assigned to Nexa Resources El Porvenir	D.M. Titulado D.L. 109	06/11/1915	P-02005830	2.00	2.00	5.99	48.58	54.57





No	Concession Code	Concession Name	Title Holder	Status	Date	Public Registry Record	Granted Area (ha)	Available Area (ha)	2023 Fee (US\$)	2023 Penalty (US\$)	2023 Total Paid (US\$)
9	04010249X01	ATACOCHA Nº 2	NEXA RESOURCES ATACOCHA S.A.A. - Assigned to Nexa Resources El Porvenir	D.M. Titulado D.L. 109	09/12/1955	P-02014333	2.99	2.77	8.30	67.26	75.56
10	04010074X01	C.M.A. Nº 41	NEXA RESOURCES ATACOCHA S.A.A. - Assigned to Nexa Resources El Porvenir	D.M. Titulado D.L. 109	13/11/1954	P-02013928	66.00	65.91	197.72	1,602.99	1,800.71
11	04010073X01	C.M.A. Nº 42	NEXA RESOURCES ATACOCHA S.A.A. - Assigned to Nexa Resources El Porvenir	D.M. Titulado D.L. 109	11/11/1954	P-02013917	3.00	3.00	8.99	72.86	81.85
12	04010071X01	C.M.A. Nº 43	NEXA RESOURCES ATACOCHA S.A.A. - Assigned to Nexa Resources El Porvenir	D.M. Titulado D.L. 109	10/11/1954	P-02010565	5.00	4.99	14.98	121.45	136.43
13	04010072X01	C.M.A. Nº 44	NEXA RESOURCES ATACOCHA S.A.A. - Assigned to Nexa Resources El Porvenir	D.M. Titulado D.L. 109	11/11/1954	P-02013919	8.00	7.99	23.97	194.30	218.27
14	04010063X02	C.M.A. Nº 45	NEXA RESOURCES ATACOCHA S.A.A. - Assigned to Nexa Resources El Porvenir	D.M. Titulado D.L. 109	13/11/1954	P-02014009	24.00	23.97	71.90	582.91	654.81
15	04005426X01	ITHACA	NEXA RESOURCES ATACOCHA S.A.A. - Assigned to Nexa Resources El Porvenir	D.M. Titulado D.L. 109	07/10/1915	P-02010173	4.00	3.99	11.98	79.90	91.88
16	04002471X01	KATHLEEN	NEXA RESOURCES ATACOCHA S.A.A. - Assigned to Nexa Resources El Porvenir	D.M. Titulado D.L. 109	03/06/1905	P-02010553	6.00	5.99	17.98	119.84	137.82





No	Concession Code	Concession Name	Title Holder	Status	Date	Public Registry Record	Granted Area (ha)	Available Area (ha)	2023 Fee (US\$)	2023 Penalty (US\$)	2023 Total Paid (US\$)
17	04005356X01	LA TUNDA	NEXA RESOURCES ATACOCHA S.A.A. - Assigned to Nexa Resources El Porvenir	D.M. Titulado D.L. 109	28/10/1935	P-02010176	6.00	5.99	17.98	119.84	137.82
18	04005383X01	MANUEL NUMERO DOS	NEXA RESOURCES ATACOCHA S.A.A. - Assigned to Nexa Resources El Porvenir	D.M. Titulado D.L. 109	19/06/1915	P-02005462	8.00	7.99	23.97	194.33	218.30
19	04005372X01	MELBOURNE	NEXA RESOURCES ATACOCHA S.A.A. - Assigned to Nexa Resources El Porvenir	D.M. Titulado D.L. 109	27/05/1915	P-02010281	12.00	11.98	35.95	239.69	275.64
20	04005505X01	TRALEE	NEXA RESOURCES ATACOCHA S.A.A. - Assigned to Nexa Resources El Porvenir	D.M. Titulado D.L. 109	23/02/1916	P-02010297	2.00	2.00	5.99	39.95	45.94
21	04012874X01	C.M.A. Nº 95	NEXA RESOURCES ATACOCHA S.A.A. / NEXA RESOURCES PERU S.A.A. - Assigned to Nexa Resources El Porvenir	D.M. Titulado D.L. 109	07/12/1978	P-20000331	4.00	3.96	11.89	96.38	108.27
22	04012875X01	C.M.A. Nº 96	NEXA RESOURCES ATACOCHA S.A.A. / NEXA RESOURCES PERU S.A.A. - Assigned to Nexa Resources El Porvenir	D.M. Titulado D.L. 109	07/12/1978	P-20000332	4.00	3.99	11.98	97.15	109.13
23	010079393	MACAPATA	NEXA RESOURCES PERU S.A.A. - Assigned to Nexa Resources El Porvenir	D.M. Titulado D.L. 708	27/05/1993	P-20004829	100.00	14.08	42.23	342.42	384.65





No	Concession Code	Concession Name	Title Holder	Status	Date	Public Registry Record	Granted Area (ha)	Available Area (ha)	2023 Fee (US\$)	2023 Penalty (US\$)	2023 Total Paid (US\$)
24	04010148X01	C.M.A. Nº 54	S.M.R.L. CMA Nº 54 - Assigned to Nexa Resources El Porvenir	D.M. Titulado D.L. 109	04/06/1955	P-11105479	2.00	2.00	5.99	39.94	45.93
25	04012134X01	DEMASIA AM-Nº 1	S.M.R.L. CMA Nº 54 - Assigned to Nexa Resources El Porvenir	D.M. Titulado D.L. 109	13/03/1973	P-20001500	1.00	1.00	3.00	19.97	22.97
Totals							5,374.53	4,846.68	14,540.07	4,215.97	18,756.04

Note: Exchange rate: 3.782 Peruvian Nuevo Sol per US\$





Table 3-2: El Porvenir Beneficiation Concession

No.	Concession Code	Concession Name	Title Holder	Status	Date	Public Registry Record	Granted Area (ha)	2023 Annual Fee (Peruvian Nueva Sol)	2023 Total Paid (US\$)
1	P000000613	ACUMULACION AGUILAS 101	NEXA RESOURCES EL PORVENIR S.A.C.	Planta de Beneficio	21/06/2013	P-11209158	323.79	18,166.50	4,803.41
Totals							323.79	18,166.50	4,803.41

Note: Exchange rate: 3.782 Peruvian Nuevo Sol per US\$





Table 3-3: Atacocha Mineral Concessions

No.	Concession Code	Concession Name	Title Holder	Status	Date	Public Registry Record	Granted Area (ha)	Available Area (ha)	2023 Annual Fee (US\$)	2023 Annual Penalty (US\$)	2023 Total Payment (US\$)
1	010000216L	ACUMULACION ATACOCHA 1	NEXA RESOURCES ATACOCHA S.A.A.	Acumulación D.M. Titulada	25/01/2016	P-11246469	43.94	43.94	131.81	0.00	131.81
2	04009516X01	AGUSTIN	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	07/06/1951	P-02013182	4.00	3.99	11.98	0.00	11.98
3	04007683X01	ALICIA	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	27/07/1927	P-02003967	4.00	4.00	11.99	0.00	11.99
4	04012577X01	AMERICA DEL SUR	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	06/06/1979	P-20004303	20.00	19.97	59.90	0.00	59.90
5	04005440X01	ANGELICA	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	06/11/1915	P-02005828	6.00	5.99	17.98	0.00	17.98
6	04008194X01	ANITA	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	17/12/1935	P-02010141	12.00	11.98	35.95	0.00	35.95
7	04005504X01	ANTRIM	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	23/02/1916	P-02010284	2.00	2.00	5.99	0.00	5.99
8	04007294X01	ARDA TROYA	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	05/05/1924	P-02010189	3.45	3.60	10.81	0.00	10.81
9	04010250X01	ATACOCHA Nº 3	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	09/12/1955	P-02014140	4.89	4.91	14.72	0.00	14.72



No.	Concession Code	Concession Name	Title Holder	Status	Date	Public Registry Record	Granted Area (ha)	Available Area (ha)	2023 Annual Fee (US\$)	2023 Annual Penalty (US\$)	2023 Total Payment (US\$)
10	04010501X01	ATACOCHA Nº 4	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	19/06/1957	P-02014782	1.93	1.69	5.06	0.00	5.06
11	04010502X01	ATACOCHA Nº 5	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	19/06/1957	P-02013944	1.75	1.70	5.11	0.00	5.11
12	04008462X01	C.M.A. Nº 1	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	10/10/1939	P-02010140	4.00	4.00	11.99	0.00	11.99
13	04009575X01	C.M.A. Nº 12	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	20/10/1951	P-02013903	100.00	99.87	299.61	0.00	299.61
14	04009757X01	C.M.A. Nº 13	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	24/04/1952	P-02013942	25.00	24.97	74.90	0.00	74.90
15	04009758X01	C.M.A. Nº 14	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	24/04/1952	P-02013971	21.00	20.97	62.92	0.00	62.92
16	04009759X01	C.M.A. Nº 15	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	24/04/1952	P-02014165	100.00	99.87	299.61	0.00	299.61
17	04009760X01	C.M.A. Nº 16	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	24/04/1952	P-02014115	40.00	39.95	119.84	0.00	119.84
18	04009837X01	C.M.A. Nº 17	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	11/08/1952	P-02014006	1.00	1.00	3.00	0.00	3.00
19	04009838X01	C.M.A. Nº 18	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	11/08/1952	P-02013989	2.00	2.00	5.99	0.00	5.99



No.	Concession Code	Concession Name	Title Holder	Status	Date	Public Registry Record	Granted Area (ha)	Available Area (ha)	2023 Annual Fee (US\$)	2023 Annual Penalty (US\$)	2023 Total Payment (US\$)
20	04009839X01	C.M.A. Nº 19	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	11/08/1952	P-02014005	2.00	2.00	5.99	0.00	5.99
21	04008508X01	C.M.A. Nº 2	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	27/04/1940	P-02009998	8.00	7.99	23.97	0.00	23.97
22	04009825X01	C.M.A. Nº 20	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	11/07/1952	P-02014839	56.00	55.92	167.76	0.00	167.76
23	04009826X01	C.M.A. Nº 21	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	11/07/1952	P-02014328	16.00	15.98	47.94	0.00	47.94
24	04009908X01	C.M.A. Nº 24	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	29/01/1953	P-02014002	36.00	35.95	107.85	0.00	107.85
25	04009909X01	C.M.A. Nº 25	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	29/01/1953	P-02014110	3.00	3.00	8.99	0.00	8.99
26	04009912X01	C.M.A. Nº 26	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	11/02/1953	P-02013931	1.00	1.00	3.00	0.00	3.00
27	04010002X01	C.M.A. Nº 28	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	22/05/1954	P-02013246	80.00	79.90	239.71	0.00	239.71
28	04010003X01	C.M.A. Nº 29	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	22/05/1954	P-02013174	18.00	17.98	53.93	0.00	53.93
29	04009168X01	C.M.A. Nº 3	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	16/12/1947	P-02010179	36.00	35.95	107.86	0.00	107.86





No.	Concession Code	Concession Name	Title Holder	Status	Date	Public Registry Record	Granted Area (ha)	Available Area (ha)	2023 Annual Fee (US\$)	2023 Annual Penalty (US\$)	2023 Total Payment (US\$)
30	04010004X01	C.M.A. Nº 30	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	22/05/1954	P-02014189	200.00	199.74	599.22	0.00	599.22
31	04010004X02	C.M.A. Nº 31	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	22/05/1954	P-02014004	104.00	103.85	311.55	0.00	311.55
32	04010063X01	C.M.A. Nº 32	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	04/11/1954	P-02014026	170.00	169.78	509.33	0.00	509.33
33	04009169X01	C.M.A. Nº 4	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	16/12/1947	P-02010150	30.00	29.96	89.88	0.00	89.88
34	04010218X01	C.M.A. Nº 40	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	15/11/1955	P-02014023	2.00	2.00	5.99	0.00	5.99
35	04010076X01	C.M.A. Nº 46	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	20/11/1954	P-02014003	96.00	95.86	287.59	0.00	287.59
36	04010116X01	C.M.A. Nº 48	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	14/02/1955	P-02011771	3.00	3.00	8.99	0.00	8.99
37	04010358X01	C.M.A. Nº 49	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	13/08/1956	P-02013916	40.00	39.94	119.83	0.00	119.83
38	04009170X01	C.M.A. Nº 5	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	16/11/1947	P-02010000	10.00	9.99	29.96	0.00	29.96
39	04010132X01	C.M.A. Nº 50	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	29/04/1955	P-02014008	8.00	7.99	23.97	0.00	23.97





No.	Concession Code	Concession Name	Title Holder	Status	Date	Public Registry Record	Granted Area (ha)	Available Area (ha)	2023 Annual Fee (US\$)	2023 Annual Penalty (US\$)	2023 Total Payment (US\$)
40	04010133X01	C.M.A. Nº 51	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	29/04/1955	P-02014007	1.00	1.00	3.00	0.00	3.00
41	04010359X01	C.M.A. Nº 52	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	13/08/1956	P-02014091	3.00	3.00	8.99	0.00	8.99
42	04010360X01	C.M.A. Nº 53	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	13/08/1956	P-02014131	1.00	1.00	3.00	0.00	3.00
43	04009171X01	C.M.A. Nº 6	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	16/12/1947	P-01010147	8.00	7.99	23.97	0.00	23.97
44	04010219X01	C.M.A. Nº 61	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	15/11/1955	P-02014268	18.00	17.98	53.93	0.00	53.93
45	04010220X01	C.M.A. Nº 62	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	15/11/1955	P-02014167	3.00	3.00	8.99	0.00	8.99
46	04010222X01	C.M.A. Nº 64	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	15/11/1955	P-02014332	10.00	9.99	29.96	0.00	29.96
47	04010229X01	C.M.A. Nº 65	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	15/11/1955	P-02014341	10.00	9.99	29.96	0.00	29.96
48	04010224X01	C.M.A. Nº 66	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	15/11/1955	P-02014157	12.00	11.98	35.95	0.00	35.95
49	04010225X01	C.M.A. Nº 67	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	15/11/1955	P-02014521	6.00	5.99	17.98	0.00	17.98





No.	Concession Code	Concession Name	Title Holder	Status	Date	Public Registry Record	Granted Area (ha)	Available Area (ha)	2023 Annual Fee (US\$)	2023 Annual Penalty (US\$)	2023 Total Payment (US\$)
50	04010226X01	C.M.A. Nº 68	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	15/11/1955	P-02014118	3.00	3.00	8.99	0.00	8.99
51	04010227X01	C.M.A. Nº 69	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	15/11/1955	P-02014147	16.00	15.98	47.94	0.00	47.94
52	04009315X01	C.M.A. Nº 7	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	09/06/1949	P-02011772	54.00	53.93	161.79	0.00	161.79
53	04010228X01	C.M.A. Nº 70	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	15/11/1955	P-02013990	2.00	2.00	5.99	0.00	5.99
54	04010229X02	C.M.A. Nº 71	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	15/11/1955	P-02014344	2.00	2.00	5.99	0.00	5.99
55	04010230X01	C.M.A. Nº 72	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	15/11/1955	P-02014265	2.00	2.00	5.99	0.00	5.99
56	04010231X01	C.M.A. Nº 73	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	15/11/1955	P-02014178	2.00	2.00	5.99	0.00	5.99
57	04010232X01	C.M.A. Nº 74	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	15/11/1955	P-02014179	1.00	1.00	3.00	0.00	3.00
58	04010233X01	C.M.A. Nº 75	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	15/11/1955	P-02014190	10.00	9.99	29.96	0.00	29.96
59	04010235X01	C.M.A. Nº 77	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	25/11/1955	P-02014116	4.00	3.99	11.98	0.00	11.98





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60	04010236X01	C.M.A. Nº 78	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	25/11/1955	P-02014169	1.00	1.00	3.00	0.00	3.00
61	04010311X01	C.M.A. Nº 79	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	23/05/1956	P-02010274	4.00	3.99	11.98	0.00	11.98
62	04009317X01	C.M.A. Nº 8	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	15/06/1949	P-02011770	16.00	15.98	47.94	0.00	47.94
63	04010312X01	C.M.A. Nº 80	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	23/05/1956	P-02014342	2.00	2.00	5.99	0.00	5.99
64	04010313X01	C.M.A. Nº 81	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	23/05/1956	P-02013168	1.00	1.00	3.00	0.00	3.00
65	04010314X01	C.M.A. Nº 82	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	23/05/1956	P-02014122	4.00	3.99	11.98	0.00	11.98
66	04010316X01	C.M.A. Nº 83	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	25/05/1956	P-02014121	2.00	2.00	5.99	0.00	5.99
67	04010317X01	C.M.A. Nº 84	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	25/05/1950	P-02013237	1.00	1.00	3.00	0.00	3.00
68	04010318X01	C.M.A. Nº 85	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	25/05/1956	P-02014335	5.00	4.99	14.98	0.00	14.98
69	04010320X01	C.M.A. Nº 86	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	18/06/1956	P-02013238	18.00	17.98	53.93	0.00	53.93





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70	04001032X01	C.M.A. Nº 87	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	18/06/1956	P-02013235	6.00	6.01	18.04	0.00	18.04
71	04010322X01	C.M.A. Nº 88	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	18/06/1956	P-02014132	4.00	3.99	11.98	0.00	11.98
72	04010323X01	C.M.A. Nº 89	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	18/06/1956	P-02014024	3.00	3.00	8.99	0.00	8.99
73	04009316X01	C.M.A. Nº 9	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	15/06/1949	P-02009985	6.00	5.99	17.98	0.00	17.98
74	04010344X01	C.M.A. Nº 90	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	07/07/1956	P-02014030	36.00	35.95	107.86	0.00	107.86
75	04010345X01	C.M.A. Nº 91	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	07/07/1956	P-02014031	4.00	4.00	11.99	0.00	11.99
76	04010346X01	C.M.A. Nº 92	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	07/07/1956	P-02014119	2.00	2.00	5.99	0.00	5.99
77	04010347X01	C.M.A. Nº 93	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	07/07/1956	P-02014017	1.00	0.62	1.85	0.00	1.85
78	04010906X01	C.M.A. Nº 94	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	01/12/1960	P-20000405	12.00	11.98	35.95	0.00	35.95
79	04012507X01	C.M.A. Nº 97	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	07/12/1978	P-20000333	2.00	2.00	5.99	0.00	5.99



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80	04008218X01	CANTABRIA	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	15/09/1915	P-02010552	6.00	5.99	17.98	0.00	17.98
81	04008335X01	CARLOS CHINO	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	05/06/1937	P-02003965	6.00	5.99	17.98	0.00	17.98
82	04007322X01	CARMEN	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	23/12/1924	P-02003971	2.00	2.00	5.99	0.00	5.99
83	04009644X01	CARMEN ROSA	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	22/12/1951	P-02007797	4.00	3.99	11.98	0.00	11.98
84	04010284X01	CARMEN ROSA Nº 2	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	12/03/1956	P-02013169	2.00	2.00	5.99	0.00	5.99
85	04009210X01	CARMENCITA	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	02/06/1948	P-02007000	2.00	2.00	5.99	0.00	5.99
86	04005459X01	CAVEL	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	17/12/1915	P-02006247	3.99	3.42	10.27	0.00	10.27
87	04009528X01	CHAMACO	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	21/06/1951	P-02007804	60.00	59.92	179.77	0.00	179.77
88	04010332X01	CIPRIANO CUATRO	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	28/06/1956	P-02013236	0.52	0.50	1.49	0.00	1.49
89	04010331X01	CIPRIANO DOS	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	28/06/1956	P-02013175	1.57	1.48	4.45	0.00	4.45



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90	04008683X01	CIPRIANO PRIMERO	NEXA RESOURCES ATACOCOA S.A.A.	D.M. Titulado D.L. 109	23/02/1942	P-02003974	4.00	3.99	11.96	0.00	11.96
91	04010330X01	CIPRIANO UNO	NEXA RESOURCES ATACOCOA S.A.A.	D.M. Titulado D.L. 109	28/06/1956	P-02013173	0.80	0.80	2.40	0.00	2.40
92	04003312X01	COLQUIMARCA	NEXA RESOURCES ATACOCOA S.A.A.	D.M. Titulado D.L. 109	06/09/1907	P-02010327	0.90	0.90	2.70	0.00	2.70
93	04005371X01	CRISTINA	NEXA RESOURCES ATACOCOA S.A.A.	D.M. Titulado D.L. 109	27/05/1915	P-02005618	42.00	41.94	125.83	0.00	125.83
94	04010670X01	DEMASIA ATACOCOA Nº 6	NEXA RESOURCES ATACOCOA S.A.A.	D.M. Titulado D.L. 109	11/05/1959	P-02013832	0.26	0.26	0.77	0.00	0.77
95	04010671X01	DEMASIA ATACOCOA Nº 7	NEXA RESOURCES ATACOCOA S.A.A.	D.M. Titulado D.L. 109	11/05/1959	P-20001140	2.04	2.01	6.04	0.00	6.04
96	04010672X01	DEMASIA ATACOCOA Nº 8	NEXA RESOURCES ATACOCOA S.A.A.	D.M. Titulado D.L. 109	11/05/1959	P-02013904	1.52	1.51	4.54	0.00	4.54
97	04005461X01	DEWAR	NEXA RESOURCES ATACOCOA S.A.A.	D.M. Titulado D.L. 109	07/12/1915	P-02010504	4.24	3.94	11.82	0.00	11.82
98	04007291X01	DORA	NEXA RESOURCES ATACOCOA S.A.A.	D.M. Titulado D.L. 109	05/03/1924	P-02010236	20.00	19.97	59.92	0.00	59.92
99	04006984X01	EL PORVENIR	NEXA RESOURCES ATACOCOA S.A.A.	D.M. Titulado D.L. 109	01/09/1921	P-02003970	10.00	9.99	29.96	0.00	29.96





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100	04000425X01	ESTRELLA	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	18/10/1901	P-02010178	8.00	7.99	23.97	0.00	23.97
101	04007292X01	FRANK	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	05/05/1924	P-02010145	2.00	2.00	5.99	0.00	5.99
102	04009460X01	JUAN ANTONIO	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	03/01/1951	P-02013167	6.00	6.00	17.99	0.00	17.99
103	04008684X01	JUAN MANUEL	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	23/02/1942	P-02003976	4.00	3.99	11.98	0.00	11.98
104	04005502X01	KILKENNY	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	15/02/1916	P-02010146	50.00	49.93	149.79	0.00	149.79
105	04005548X01	LA PRADERA	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	01/03/1916	P-02004216	12.00	11.98	35.95	0.00	35.95
106	04007289X01	LIBERTAD	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	05/03/1924	P-02010200	8.00	7.99	23.97	0.00	23.97
107	04007283X01	LIZANDRO	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	14/04/1924	P-02003964	8.00	7.99	23.97	0.00	23.97
108	04005382X01	MANUEL NUMERO UNO	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	19/06/1915	P-02006191	18.00	17.98	53.93	0.00	53.93
109	04005432X01	MANUEL SEGUNDO	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	16/10/1915	P-02006197	6.22	5.79	17.38	0.00	17.38





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110	04009209X01	MARIA	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	02/06/1948	P-02007001	6.00	5.99	17.98	0.00	17.98
111	04009461X01	MARIA CECILIA	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	03/01/1951	P-02015793	10.00	9.99	29.96	0.00	29.96
112	04009517X01	MARUJA	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	07/06/1951	P-02007796	3.00	2.92	8.76	0.00	8.76
113	04004256X01	MIGUEL	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	30/05/1911	P-02006190	2.00	2.00	5.99	0.00	5.99
114	04008270X01	MILAGROS	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	30/11/1936	P-02007004	8.00	7.93	23.80	0.00	23.80
115	04005578X01	MULL	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	08/04/1916	P-02010177	4.74	4.45	13.35	0.00	13.35
116	04005577X01	NELL	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	08/04/1916	P-02010168	12.00	11.98	35.95	0.00	35.95
117	04008183X01	OLVIDADA	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	08/11/1935	P-02010289	0.34	0.33	0.98	0.00	0.98
118	04008219X01	PACO	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	07/05/1936	P-02010296	2.00	2.00	5.99	0.00	5.99
119	04007281X01	PALMIRA	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	01/05/1924	P-02003972	16.00	15.98	47.94	0.00	47.94





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120	04007293X01	PHOENIX	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	05/05/1924	P-02009999	2.54	2.41	7.23	0.00	7.23
121	010125494	PORVENIR 62	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 708	10/03/1994	P-11030784	1,000.00	358.96	1,076.87	0.00	1,076.87
122	010125594	PORVENIR 63	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 708	10/03/1994	P-11030789	1,000.00	184.52	553.57	0.00	553.57
123	010373394A	PORVENIR 66A	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 708	21/06/1994	P-11030775	100.00	0.28	0.85	0.00	0.85
124	010683595	PORVENIR 69	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 708	06/03/1995	P-11031070	100.00	0.53	1.59	0.00	1.59
125	04009527X01	PRECAUCION Nº 3	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	21/06/1951	P-02007793	1.00	1.00	3.00	0.00	3.00
126	04007684X01	PRECAUCION NUMERO UNO	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	27/07/1927	P-02003966	2.00	2.00	5.99	0.00	5.99
127	04005802X01	PURISIMA	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	09/04/1917	P-02003977	16.00	15.98	47.94	0.00	47.94
128	04009078X01	RICARDO	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	13/11/1946	P-02003973	8.00	7.99	23.97	0.00	23.97
129	04010305X01	ROBERTO	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	16/05/1956	P-02015851	0.08	0.08	0.25	0.00	0.25



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130	04007283X02	SANTA CESILIA	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	01/03/1924	P-02003975	4.00	3.99	11.98	0.00	11.98
131	04005401X01	SEGUNDA DOCENA	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	26/07/1915	P-02009700	4.00	3.99	11.98	0.00	11.98
132	04005373X01	SIDNEY	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	27/05/1915	P-02010170	6.00	5.99	17.98	0.00	17.98
133	04005368X01	SOCAVON CHERCHERE	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	27/05/1915	P-02010174	8.00	7.99	23.97	0.00	23.97
134	04009244X01	SOL DE PLATA	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	25/10/1948	P-02010167	18.00	17.98	53.93	0.00	53.93
135	04005402X01	TERCERA DOCENA	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	26/07/1915	P-02010169	6.00	5.99	17.98	0.00	17.98
136	04005350X01	TIGER	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	03/05/1915	P-02005063	30.00	29.96	89.88	0.00	89.88
137	04007290X01	TRES MOSQUETEROS	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	05/05/1924	P-02010188	16.00	15.98	47.94	0.00	47.94
138	04008217X01	VASCONIA	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	07/12/1907	P-20000406	2.00	2.00	5.99	0.00	5.99
139	04004780X01	VIOLETA SEGUNDA	NEXA RESOURCES ATACOCHA S.A.A.	D.M. Titulado D.L. 109	27/01/1913	P-02007634	12.00	11.98	35.95	0.00	35.95



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140	04005427X01	AZTEC	NEXA RESOURCES PERU S.A.A. - Assigned to Nexa Resources Atacocha	D.M. Titulado D.L. 109	11/10/1915	P-02004921	2.00	2.00	5.99	0.00	5.99
141	04005428X01	CROW	NEXA RESOURCES PERU S.A.A. - Assigned to Nexa Resources Atacocha	D.M. Titulado D.L. 109	11/10/1915	P-02006258	17.55	15.58	46.75	0.00	46.75
142	04005460X01	CURIE	NEXA RESOURCES PERU S.A.A. - Assigned to Nexa Resources Atacocha	D.M. Titulado D.L. 109	07/12/1915	P-02007248	1.13	1.14	3.42	0.00	3.42
143	04005366X01	LA FLOR DE ATACOCHA	NEXA RESOURCES PERU S.A.A. - Assigned to Nexa Resources Atacocha	D.M. Titulado D.L. 109	27/05/1915	P-02004495	6.00	5.99	17.98	0.00	17.98
144	04012661X01	PORVENIR 29	NEXA RESOURCES PERU S.A.A. - Assigned to Nexa Resources Atacocha	D.M. Titulado D.L. 109	22/10/1979	P-20000337	9.00	9.53	28.60	0.00	28.60
145	04012666X01	PORVENIR 34	NEXA RESOURCES PERU S.A.A. - Assigned to Nexa Resources Atacocha	D.M. Titulado D.L. 109	22/10/1979	P-20000357	8.00	7.99	23.96	0.00	23.96
146	04009221X01	PORVENIR CUATRO	NEXA RESOURCES PERU S.A.A. - Assigned to Nexa Resources Atacocha	D.M. Titulado D.L. 109	16/08/1948	P-02006696	24.00	23.97	71.91	0.00	71.91





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147	010125694A	PORVENIR 64A	NEXA RESOURCES EL PORVENIR S.A.C. - Assigned to Nexa Resources Atacocha	D.M. Titulado D.L. 708	10/03/1994	P-11199132	500.00	157.43	472.30	3,829.16	4,301.46
Totals							4,877.38	2,872.47	8,617.43	3,829.16	12,446.59

Note: Exchange rate: 3.782 Peruvian Nuevo Sol per US\$





Table 3-4: Atacocha Beneficiation Concession

No.	Concession Code	Concession Name	Title Holder	Status	Date	Public Registry Record	Granted Area (ha)	2023 Annual Fee (Peruvian Nueva Sol)	2023 Total Payment (US\$)
1	P0100471	CHICRIN Nº 2	NEXA RESOURCES ATACOCHA S.A.A.	Planta de Beneficio	8/05/1970	P-02016586	413.2300	14,058.00	3,716.58
Totals								14,058.00	3,716.58

Note: Exchange rate: 3.782 Peruvian Nuevo Sol per US\$





Figure 3-2: El Porvenir Mineral Rights

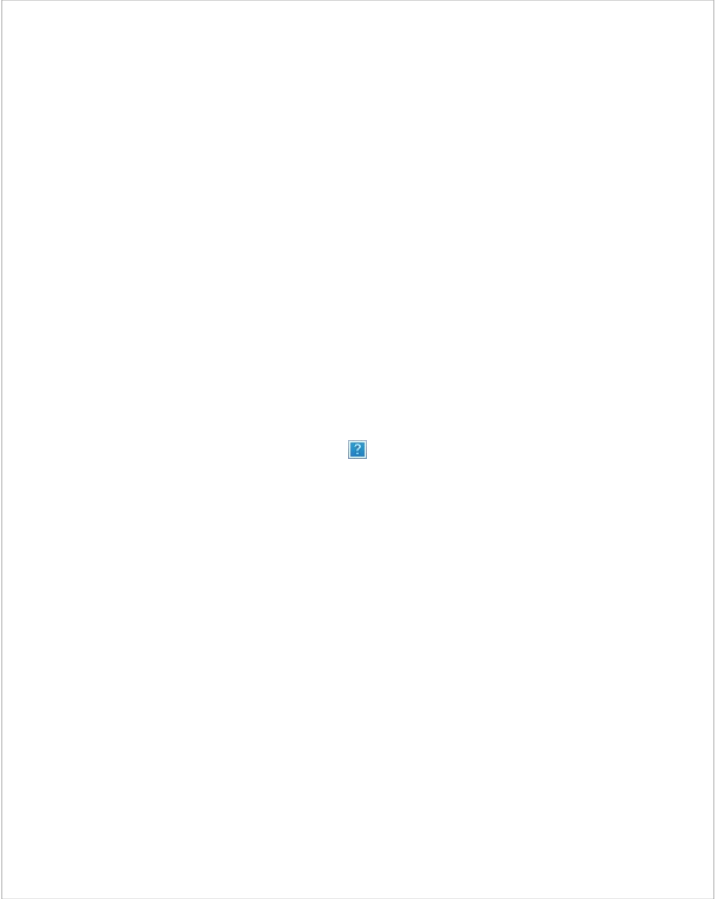
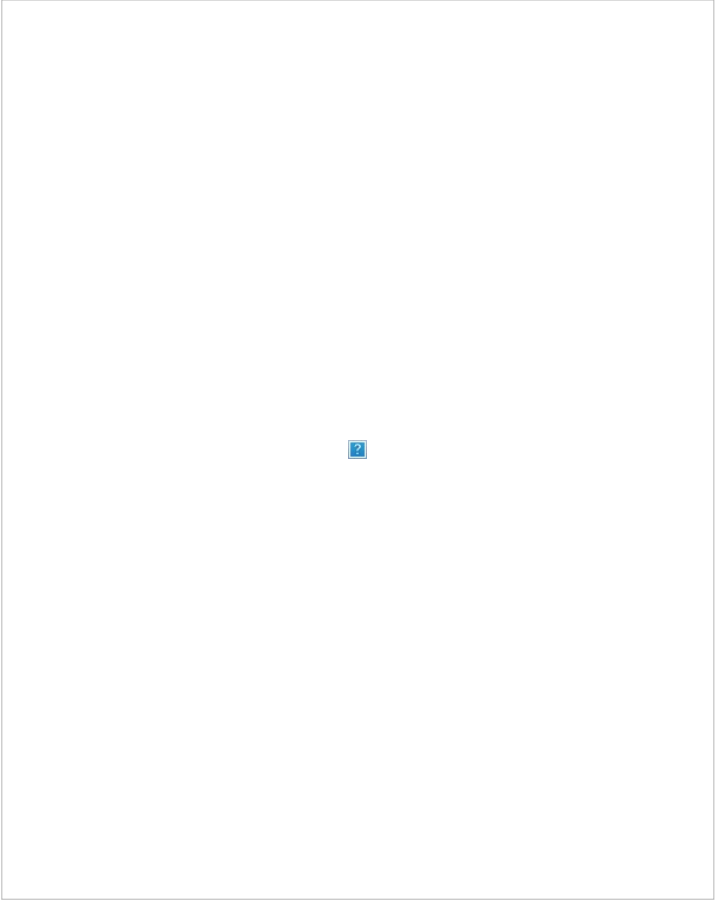




Figure 3-3: Atacocha Mineral Rights





3.4 Annual Fees

3.4.1 Fees

For El Porvenir, all annual fees applicable to the mineral concessions and beneficiation concessions have been paid in full as of the effective date of the report. These totalled US\$14,540.07 and US\$4,803.41, respectively, in 2023 (Table 3-1 and Table 3-2).

For Atacocha, all annual fees applicable to the mineral concessions and beneficiation concessions have been paid in full as of the effective date of the report. These totalled US\$8,617.43 and US\$3,716.58, respectively, in 2023 (Table 3-3 and Table 3-4).

3.4.2 Penalties

Some of the mineral concessions have been subject to penalties, payable to INGEMMET of the Peruvian Government, since the minimum required levels of production or exploration expenditures were not met. The minimum annual production is equal to a UIT per granted hectare. The minimum annual investment is the penalty to be paid multiplied by 10.

All penalties applicable to the El Porvenir mineral concessions comprising the mine have been paid as indicated in Table 3-1. The penalties on concessions included in UEA El Porvenir (Nos. 1 through 5 in Table 3-1) are not due because the Minimum Annual Production Target was met for these concessions. The payment of 2023 penalties for the remaining concessions was US\$4,215.97.

All penalties applicable to the Atacocha mineral concessions comprising the mine have been paid as indicated in Table 3-3. The penalties on concessions included in the UEA Atacocha (Nos. 1 through 146 in Table 3-3) are not due because the Minimum Annual Production Target was met for these concessions. The payment of 2023 penalties for the remaining concessions was US\$3,829.16.

The penalty amounts shown for these concessions represent the annual amounts that would be payable if the Minimum Annual Production Target was not met.

3.4.3 Recorded Liens and Encumbrances

Pursuant to the information gathered from the Public Registry, there are the following encumbrances:

- Assignment agreement (2006). Concessions assigned to Nexa El Porvenir and Nexa Atacocha as listed in Table 3-1 and Table 3-3.

3.4.4 Royalties

According to an agreement signed on July 14, 2010, the portions of El Porvenir listed in Table 3-5 are subject to royalty payments to Moraima Zevallos and others. These are calculated according to 1.5% NSR of the mineral value of the produced ore:





Table 3-5: El Porvenir Royalties Payable to Moraima Zevallos and Others

Vertice	East	North
A	370,079.14	8,826,116.63
B	370,232.12	8,826,235.63
C	370,261.09	8,826,416.07
D	370,608.06	8,826,360.35
E	370,354.60	8,824,781.89
F	369,762.67	8,824,876.94
G	369,806.62	8,825,150.60
H	369,993.94	8,825,222.05
I	369,922.72	8,825,408.77
J	370,202.79	8,825,515.59
K	370,293.61	8,825,277.49
L	370,386.97	8,825,313.10

Note: PSAD56 UTM Zone 18S (EPSG:24878)

According to a lease agreement signed on January 2, 2006, twenty of the El Porvenir mineral concessions are subject to royalty payments to Nexa Atacocha (Table 3-6), while seven of the Atacocha concessions are subject to royalty payments to Nexa Resources El Porvenir (Table 3-7). In each case, these are calculated according to the mineral value of the produced ore (Table 3-8).



**Table 3-6: El Porvenir Concessions Subject to Atacocha Royalty Payments**

No.	Concession Code	Concession Name	Title Holder	Public Registry Record
1	04010149X01	C.M.A. Nº 55	Payable to Nexa Resources Atacocha	P-02016190
2	04002731X01	KITTY	Payable to Nexa Resources Atacocha	P-02010298
3	04010070X01	ATACocha Nº 1	Payable to Nexa Resources Atacocha	P-20000404
4	04005441X01	ANGELICA SEGUNDA	Payable to Nexa Resources Atacocha	P-02005830
5	04010249X01	ATACocha Nº 2	Payable to Nexa Resources Atacocha	P-02014333
6	04010074X01	C.M.A. Nº 41	Payable to Nexa Resources Atacocha	P-02013928
7	04010073X01	C.M.A. Nº 42	Payable to Nexa Resources Atacocha	P-02013917
8	04010071X01	C.M.A. Nº 43	Payable to Nexa Resources Atacocha	P-02010565
9	04010072X01	C.M.A. Nº 44	Payable to Nexa Resources Atacocha	P-02013919
10	04010063X02	C.M.A. Nº 45	Payable to Nexa Resources Atacocha	P-02014009
11	04005426X01	ITHACA	Payable to Nexa Resources Atacocha	P-02010173
12	04002471X01	KATHLEEN	Payable to Nexa Resources Atacocha	P-02010553
13	04005356X01	LA TUNDA	Payable to Nexa Resources Atacocha	P-02010176
14	04005383X01	MANUEL NUMERO DOS	Payable to Nexa Resources Atacocha	P-02005462
15	04005372X01	MELBOURNE	Payable to Nexa Resources Atacocha	P-02010281
16	04005505X01	TRALEE	Payable to Nexa Resources Atacocha	P-02010297
17	04012874X01	C.M.A. Nº 95	50% Payable to Nexa Resources Atacocha	P-20000331
18	04012875X01	C.M.A. Nº 96	50% Payable to Nexa Resources Atacocha	P-20000332
19	04010148X01	C.M.A. Nº 54	Payable to S.M.R.L. CMA Nº 54 (accionariado: 50% Atacocha /50% El Porvenir)	P-11105479
20	04012134X01	DEMASIA AM-Nº 1	Payable to S.M.R.L. CMA Nº 54 (accionariado: 50% Atacocha /50% El Porvenir)	P-20001500



Table 3-7: Atacocha Concessions Subject to El Porvenir Royalty Payments

No.	Concession Code	Concession Name	Title Holder	Public Registry Record
1	04005427X01	AZTEC	Payable to Nexa Resources El Porvenir	P-02004921
2	04005428X01	CROW	Payable to Nexa Resources El Porvenir	P-02006258
3	04005460X01	CURIE	Payable to Nexa Resources El Porvenir	P-02007248
4	04005366X01	LA FLOR DE ATACOCHA	Payable to Nexa Resources El Porvenir	P-02004495
5	04012661X01	PORVENIR 29	Payable to Nexa Resources El Porvenir	P-20000337
6	04012666X01	PORVENIR 34	Payable to Nexa Resources El Porvenir	P-20000357
7	04009221X01	PORVENIR CUATRO	Payable to Nexa Resources El Porvenir	P-02006696

Table 3-8: Royalty Percentages

Royalty	Mineral Value
7%	Up to US\$40/t
8%	US\$40/t to US\$50/t
10%	US\$50/t to US\$60/t
12%	US\$60/t to US\$70/t
13%	US\$70/t to US\$80/t
15%	US\$80/t to US\$100/t
18%	Above US\$100/t

3.5 Surface Rights and Easements

According to the General Mining Law and related legislation, surface rights are independent of mineral rights.

The law requires that the holder of a Mining Concession reach either an agreement with the landowner before starting relevant mining activities (i.e., exploration, exploitation, etc.) or the completion of the administrative easement procedure, in accordance with the applicable regulation.

Surface property is acquired through the transfer of ownership by agreement of the parties (derivative title), or by acquisitive prescription of domain (original title).



Temporary rights to use and/or enjoy derived powers from a surface property right may be obtained through usufruct and easement rights.

The El Porvenir Mine has 30 related surface rights, with key rights shown in Figure 3-4.

The Atacocha Mine has 18 related surface rights, with key rights shown in Figure 3-5.





Figure 3-4: El Porvenir Surface Rights

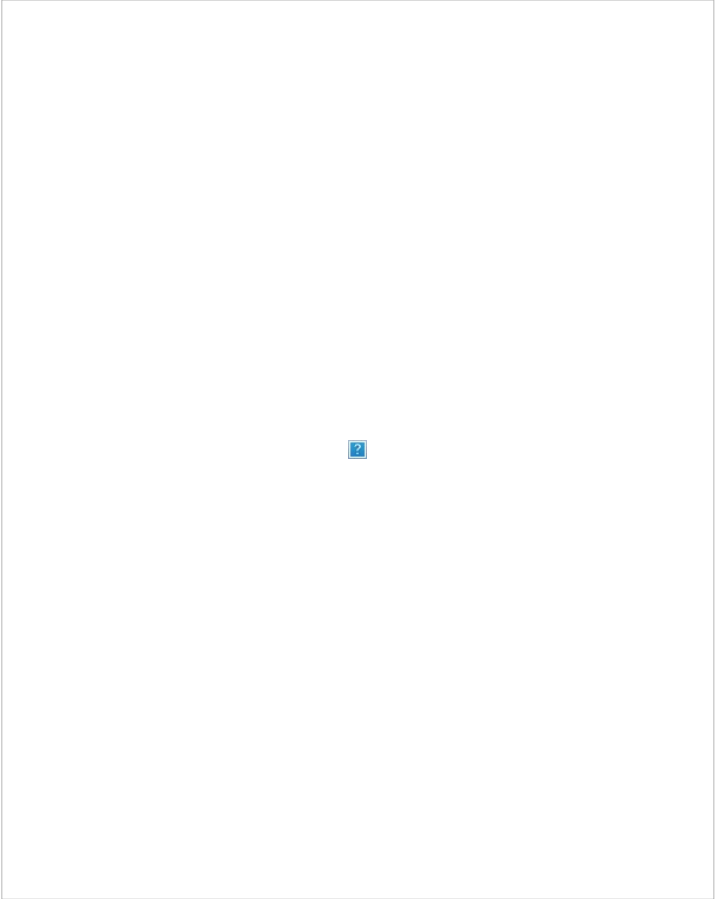
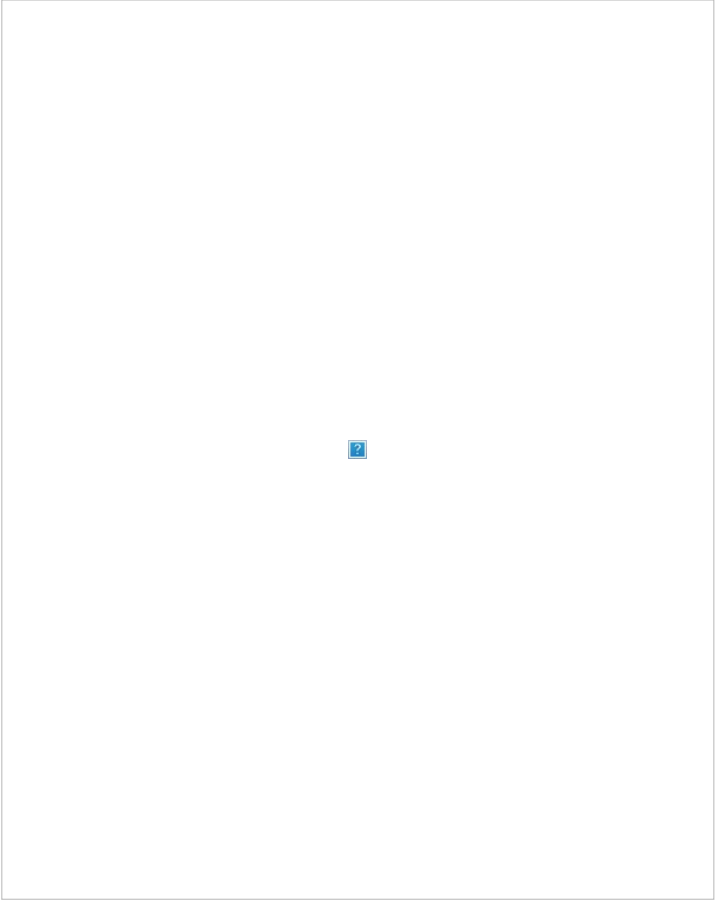




Figure 3-5: Atacocha Surface Rights





3.6 Required Permits and Status

This subsection details the material Governmental Consents required to carry out the operation in compliance with applicable Peruvian laws and regulations. These material Governmental Consents correspond to those permits, licences, authorizations, etc., issued by the applicable governmental authorities, which entitle Nexa Peru to build the components and/or perform the activities that are critical and typical to a mining operation. These components/activities may include: (i) mining activities and related facilities; (ii) beneficiation plant and related activities; (iii) water supply; (iv) effluent discharge and related facilities; (v) use of explosives; and (vi) power supply.

As of December 31, 2023, Nexa El Porvenir and Nexa Atacocha have continued to be in total compliance with their environmental obligations and successfully obtained and/or renewed their main permits and authorizations.

The main consents for El Porvenir are tabulated in Table 3-9.

Table 3-9: El Porvenir Main Government Consents

No.	Government Consent	Resolution	Approval Date
Environmental Certification			
1	Adaptation and Environmental Management Program	Directorate Resolution No. 23-97-EM/DGM	17/01/1997
2	Modification of the Adaptation and Environmental Management Program – Candelaria Power Station	Directorate Resolution 28-1997-EM/DGM	23/01/1997
3	El Porvenir Environmental Impact Assessment	Directorate Resolution 379-2001-EM/DGAA	26/11/2001
4	First amendment to El Porvenir Environmental Impact Assessment (expansion of processing capacity to 5,500 tpd).	Directorate Resolution 271-2011-MEM/AAM	02/09/2011
5	Second amendment to El Porvenir Environmental Impact Assessment (expansion of processing capacity to 7,500 tpd).	Directorate Resolution 203-2012-MEM/AAM	25/06/2012
6	EIA for the power supply components (transmission power line).	Directorate Resolution 110-2013-MEM/AAM	17/04/2013
7	Technical Report to Directorate Resolution 110-2013- MEM/AAM (Optimized the design of the power transmission line).	Directorate Resolution 159-2014-MEM-DGAAM	02/04/2014
8	Technical Report to Directorate Resolution 203-2012- MEM/AAM (integrate the tailings disposals from the Atacocha Mine and the Operation).	Directorate Resolution 526-2014-MEM-DGAAM	20/10/2014
9	Second Technical Report to Directorate Resolution 110-2013-MEM/AAM (Optimized the design of the power transmission line).	Directorate Resolution 271-2015-MEM-DGAAM	09/07/2015
10	Technical Report for 9,000 tpd expansion	Directorate Resolution 319-2017-SENACE-DCA	24/10/2017





No.	Government Consent	Resolution	Approval Date
11	Technical Report for modifications of ancillary components	Directorate Resolution 058-2018-SENACE-PE/DEAR	13/12/2018
12	Technical Report for modification of the 9,000 tpd expansion and tailings pipe connection to Atacocha	Directorate Resolution 051-2020-SENACE-PE/DEAR	10/03/2020
13	Seventh Technical Report for modifications of ancillary components	Directorate Resolution 00036-2021-SENACE-PE/DEAR	04/03/2021
14	Eight Technical Report (Optimized the tailings pipe connection to Atacocha and other ancillary components)	Directorate Resolution	08/02/2024
Mine Closure Plan			
1	El Porvenir Mine Closure Plan.	Directorate Resolution 166-2009-MEM/AAM	17/60/2009
2	First Amendment to the Mine Closure Plan.	Directorate Resolution 286-2011-MEM/AAM	15/09/2011
3	Updated Mine Closure Plan	Directorate Resolution 034-2013-MEM/AAM	30/01/2013
4	Second Amendment to the Mine Closure Plan.	Directorate Resolution 277-2016-MEM-DGAAM	15/09/2016
5	Third Amendment to the Mine Closure Plan.	Directorate Resolution 034-2021-MINEM-DGAAM	20/02/2021
Beneficiation Plant and Tailing Storage Facilities			
1	Beneficiation Concession Title.	Directorate Resolution 1058-1965	31/12/1965
2	Authorization to operate the beneficiation plant with 2,000 tpd capacity.	Resolution 180-79- EM/DCFM	01/10/1979
3	Beneficiation Concession Titles “AQUILES 104” (tailings disposal over 18 ha).	Directorate Resolution 280-97-EM/DGM	12/08/1997
4	Beneficiation Concession Titles “AQUILES 103” (tailings disposal over 48 ha).	Directorate Resolution 281-97-EM/DGM	12/08/1997
5	Authorization to operate the beneficiation plant at 2,850 tpd.	S/N-99-EM-DGM/DPDM	03/03/1999
6	Authorization to operate the beneficiation plant at 4,000 tpd.	Auto Directorial 113-2004- MEM-DGM/DPM	08/03/2004
7	Authorization to operate the tailing deposit “El Porvenir” to a height of 4,043 MASL	Resolution 356-2010-MEM	07/04/2010





No.	Government Consent	Resolution	Approval Date
8	Authorization to operate the beneficiation plant at 4,700 tpd.	Resolution 206-2011- MEM-DGM/V	23/06/2011
9	Authorization to operate additional components for the beneficiation plant without extending the processing capacity.	Resolution 37-2012- MEM-DGM/V	18/01/2012
10	Authorization to operate the beneficiation plant at 5,600 tpd.	Resolution 235-2013- MEM-DGM/V	31/05/2013
11	Beneficiation concession "ACUMULACION AQUILES 101" (Accumulate beneficiations concessions "AQUILES 104" and "AQUIES 103")	Directorate Resolution 178-2013-MEM/DGM	04/07/2013
12	Authorization to construct the tailing deposit "El Porvenir" to a height of 4,115 MASL	Resolution 429-2013-MEM-DGM/V	15/11/2013
13	Authorization to operate the tailings deposit "El Porvenir" at a height of 4,047 MASL and extend the area of such beneficiation concession to a total of 323.7932.	Resolution 612-2015- MEM/DGM	12/06/2015
14	Authorization to operate additional components that integrate the tailings disposal from Atacocha Mine and the Operation into the tailings deposit "El Porvenir".	Resolution: 251-2015- MEM-DGM/V	19/06/2015
15	Authorization to operate the beneficiation plant at 6,70 tpd.	Resolution 597-2015- MEM-DGM/V	03/12/2015
16	Authorization to operate additional components for the beneficiation plant without extending the processing capacity.	Resolution 635-2015- MEM-DGM/V	12/12/2015
17	Authorization to operate the tailing deposit "El Porvenir" to a height of 4,048.5 MASL	Resolution 0499-2016-MEM-DGM/V	18/08/2016
18	Authorization to operate the tailing deposit "El Porvenir" to a height of 4,056 MASL	Resolution 828-2017-MEM-DGM/V	25/09/2017
19	Authorization to increase the tailing deposit "El Porvenir" to a height of 4,060 MASL	Resolution 0498-2019-MINEM-DGM/V	07/10/2017
20	Authorization to increase the tailing deposit "El Porvenir" to a height of 4,062 MASL	Resolution 0155-2022-MEM-DGM	26/04/2022
21	Authorization to increase the tailing deposit "El Porvenir" to a height of 4,064 MASL	Resolution 0278-2023-MINEM-DGM/V	25/05/2023
22	Approval of extension of the Beneficiation Concession area by 53.90 ha	Directorate Resolution	22
Water Abstraction, Transportation and Usage Facilities			





No.	Government Consent	Resolution	Approval Date
1	License to use surface water from the rivers “Lloclla”, “Yanacachi”, “Chuncana” and “Tulluraica” for energetic purposes.	Directorate Resolution 86-2016-ANA/AAAHUALLAGA	11/02/2016
2	Update to the Licence to use surface water from the ravines “Pucayacu - Huarmipukuio” and “Pucayacu - Carmen Chico” for mining purposes due to title holder name change	Directorate Resolution 322-2019-ANA/AAAHUALLAGA-ALA ALTO HUALLAGA	03/10/2019
Effluent Discharge to the Environmental			
1	Authorization to discharge treated industrial effluents to rivers “Huallaga” and “Lloclla”.	Directorate Resolution 192-2019-ANA-DGCRH	15/11/2019
Power Generation and Transmission Lines			
1	Authorization to generate electricity for 1936 kW in the hydroelectric plant “Candelaria”.	Ministerial Resolution 395-93-EM/DGE	31/12/1993
2	Authorization to auto-generate electricity in the thermoelectric plant “Milpo”.	Ministerial Resolution 394-93-EM/DGE	31/12/1993
3	Authorization to generate electricity for 3 187,50 kW in the hydroelectric plant “Candelaria”.	Supreme Resolution 541-98-EM/VME	03/11/1998
4	Power transmission concession for the 50 kV Power Transmission Line - Hydroelectric Plant “Candelaria” - S.E. N° 3 at El Porvenir Mine.	Supreme Resolution 75-2010-EM	25/11/2010
5	Approve the transfer of the power transmission concession to Nexa Resources El Porvenir	Supreme Resolution 004-2015-EM	06/03/2015
6	Power transmission concession for the 138 kV Power Transmission Line - Paragsha II - S.E. Milpo and 50 kV Power Transmission Line S.E. Milpo - V1C	Ministerial Resolution 361-2016-MEM/DM	31/08/2016
Use of Explosives			
1	Authorization to operate an underground magazine - Explosives	Management Resolution 01500-2023-SUCAMEC/GEPP	02/02/2024
2	Authorization to operate an underground magazine - Accessories	Management Resolution 01369-2023-SUCAMEC/GEPP	16/02/2024
3	Authorization to operate an underground magazine - Accessories	Management Resolution 01368-2023-SUCAMEC/GEPP	05/02/2024
4	Authorization to use and acquire explosives for UEA Milpo No. 1	Management Resolution 950-2023-SUCAMEC/GEPP	08/03/2024





The main consents for Atacocha are tabulated in Table 3-10.

Table 3-10: Atacocha Main Consents

No.	Government Consent	Resolution	Approval Date
Environmental Certification			
1	Adaptation and Environmental Management Program	Directorate Resolution No. 89-97-EM/DGM	06/03/1997
2	Environmental Impact Assessment - Tailing deposit Vaso Cajamarquilla	Directorate Resolution 234-2005-MEM/DGAAM	08/06/2005
3	Environmental Impact Assessment - Tailing deposit Vaso Atacocha	Directorate Resolution 361-2007 MEM/AAM	30/10/2007
4	First amendment to Atacocha Environmental Impact Assessment (Expansion of processing capacity to 5,000 tpd)	Directorate Resolution 284-2012 MEM/AAM	05/09/2012
5	Environmental Impact Assessment for the transmission power line 50 kV S.E. El Porvenir - S.E. Nueva Chicrín	Directorate Resolution 347-2013 MEM AAM	13/09/2013
6	Technical Report (Optimized open-pit mining exploitation)	Directorate Resolution 170-2014 MEM-DGAAM	10/04/2014
7	Second Technical Report (Tailings disposal modification)	Directorate Resolution 527-2014-MEM-DGAAM	20/10/2014
8	Detailed Technical Memorandum	Directorate Resolution 243-2016-MEM-DGAAM	11/08/2016
9	Second amendment to Atacocha Environmental Impact Assessment	Directorate Resolution 119-2018 SENACE-JEF/DEAR	21/08/2018
10	Second Technical Report to integrate the tailings disposals from Atacocha Mine into the tailings deposit El Porvenir	Directorate Resolution 00028-2020-SENACE-PE/DEAR	10/02/2020
11	Third Technical Report for modifications of ancillary components	Directorate Resolution 0092-2021-SENACE-PE/DEAR	21/06/2021
Mine Closure Plan			
1	Atacocha Mine Closure Plan.	Directorate Resolution 198-2009-MEM/AAM	08/07/2009
2	First Amendment to the Mine Closure Plan.	Directorate Resolution 139-2012-MEM/AAM	03/05/2012
3	Updated Mine Closure Plan	Directorate Resolution 387-2012-MEM/AAM	22/11/2012
4	Second Amendment to the Mine Closure Plan.	Directorate Resolution 098-2016-MEM-DGAAM	04/04/2016





No.	Government Consent	Resolution	Approval Date
5	Third Amendment to the Mine Closure Plan.	Directorate Resolution 136-2020-MEM-DGAAM	09/10/2020
6	Fourth Amendment to the Mine Closure Plan.	Directorate Resolution 0278-2022-MINEM-DGAAM	29/09/2022
Beneficiation Plant and Tailing Storage Facilities			
1	Beneficiation Concession Title	Resolution 192-74-DGM/DC	02/10/1974
2	Authorization to operate the beneficiation plant at 3,500 tpd.	Resolution 400-2000-EM-DGM/DPDM	28/11/2000
3	Authorization to construct the tailing deposit "Vaso Atacocha"	Resolution 1139-2007-MEM-DGM/V	15/11/2007
4	Authorization to construct the tailing deposit "Vaso Atacocha" to a height of 4,081 MASL	Resolution 001-2008-MEM-DGM/V	04/01/2008
5	Authorization to operate the tailing deposit "Vaso Atacocha" and extend the area of such beneficiation concession	Resolution 892-2008-MEM-DGM	21/02/2008
6	Authorization to construct the tailing deposit "Vaso Atacocha" to a height of 4,081 MASL (Second Stage)	Resolution 689-2008-MEM-DGM/V	18/11/2008
7	Authorization to operate the tailing deposit "Vaso Atacocha" to a height of 4,081 MASL (Second Stage)	Resolution 860-2009-MEM-DGM/V	03/11/2009
8	Authorization to construct the tailing deposit "Vaso Atacocha" to a height of 4,093 MASL	Resolution 996-2009-MEM-DGM/V	23/12/2009
9	Authorization to operate the beneficiation plant at 4,380 tpd	Resolution 411-2010-MEM-DGM/V	08/11/2010
10	Authorization to operate the tailing deposit "Vaso Atacocha" to a height of 4,090.50 MASL	Resolution 021-2011- MEM-DGM/V	18/01/2011
11	Authorization to operate additional components for the beneficiation plant without extending the processing capacity	Resolution 191-2011-MEM-DGM/V	24/06/2011
12	Authorization to construct the tailing deposit "Vaso Atacocha" to a height of 4,097 MASL	Resolution 266-2011-MEM-DGM/V	02/08/2011
13	Authorization to operate additional components for the beneficiation plant without extending the processing capacity	Resolution 326-2011-MEM-DGM/V	25/08/2011
14	Authorization to operate the tailing deposit "Vaso Atacocha" to a height of 4,097 MASL	Resolution 063-2012-MEM-DGM/V	21/02/2012
15	Authorization to construct the tailing deposit "Vaso Atacocha" to a height of 4,105 MASL	Resolution 092-2012-MEM-DGM/V	15/03/2012



No.	Government Consent	Resolution	Approval Date
16	Authorization to operate additional components for the beneficiation plant without extending the processing capacity	Resolution 137-2013- MEM-DGM/V	25/03/2013
17	Authorization to operate additional components for the beneficiation plant without extending the processing capacity	Resolution 207-2013- MEM-DGM/V	10/05/2013
18	Authorization to construct the tailing deposit "Vaso Atacocha" to a height of 4,105 MASL	Resolution 263-2013-MEM-DGM/V	31/05/2013
19	Authorization to operate additional components for the beneficiation plant without extending the processing capacity	Resolution 137-2013-MEM-DGM-V	25/03/2013
20	Authorization to operate additional components for the beneficiation plant without extending the processing capacity	Resolution 207-2013-MEM-DGM-V	10/05/2013
21	Authorization to operate the tailing deposit "Vaso Atacocha" to a height of 4,105 MASL	Resolution 236-2013-MEM-DGM-V	31/05/2013
22	Authorization to construct the tailing deposit "Vaso Atacocha" to a height of 4,128 MASL	Resolution 375-2013-MEM-DGM-V	19/09/2013
23	Authorization to construct components that integrate the tailings disposals from Atacocha Mine into the tailings deposit "El Porvenir".	Resolution 594-2014-MEM-DGM-V	31/12/2014
24	Authorization to operate components that integrate the tailings disposals from Atacocha Mine into the tailings deposit "El Porvenir".	Resolution 267-2015-MEM-DGM-V	03/07/2015
25	Authorization to construct the beneficiation plant at 5,000 tpd	120-2016-MEM-DGM-V	04/04/2016
26	Authorization to operate the beneficiation plant at 4,600 tpd	754-2016-MEM-DGM-V	22/11/2016
27	Authorization to construct the tailing deposit "Vaso Atacocha" to a height of 4,110 MASL	0210-2016-MEM-DGM/V	04/05/2016
28	Authorization to operate the beneficiation plant at 4,600 tpd (Part I) and additional components	0754-2016-MEM-DGM/V	22/11/2016
29	Authorization to operate "Glory Hole"	1158-2017-MEM-DGM/V	18/12/2017
30	Authorization to construct the tailing deposit "Vaso Atacocha" to a height of 4,110 MASL in four stages.	00064-2018-MEM-DGM/V	01/02/2019
31	Authorization to operate the tailing deposit "Vaso Atacocha" to a height of 4,110 MASL	0249-2019-MEM-DGM/V	23/05/2019
32	Authorization to construct the tailing deposit "Vaso Atacocha" to a height of 4,128 MASL in four stages.	238-2020-MEM-DGM/V	08/09/2020
33	Authorization to operate the tailing deposit "Vaso Atacocha" to a height of 4,126 MASL	0437-2021-MINEM-DGM/V	15/11/2021
Water Abstraction, Transportation and Usage Facilities			



No.	Government Consent	Resolution	Approval Date
1	Licence to use surface water from the “Atoghuarco” stream for domestic purposes	Administrative Resolution 082-2006-AG-DRA-P/ATDRP	02/02/2006
2	Licence to use surface water from the “Huallpaguaja” ravine for domestic purposes	Administrative Resolution 012-2006-AG-DRA-P/ATDRP	03/04/2006
3	License to use surface water from “Centro de Explotación Minera” and “Ñahualpum” Lake for domestic purposes	Administrative Resolution 021-99-CTARP-DRA/INRENA-ATDRP	12/03/1999
4	Licence to use surface water for mining purposes – Don Paco Tunnel	Administrative Resolution 519-2019-ANA-AAA HUALLAGA	01/07/2019
5	Licence to use surface water for mining purposes – Huallaga River and Ñahualpum Lake	Directorate Resolution 470-2019-ANA/AAA-HUALLAGA	03/09/2019
6	Licence to use surface water for energetic purposes – Huallaga River	Administrative Resolution 019-99-CTARP-DRA/INRENA/ATDRP	12/03/1999
7	Licence to use surface water for energetic purposes – Huallaga River (Marcopampa Sector)	Directorate Resolution 522-2019-ANA/AAA-HUALLAGA	02/10/2019
Effluent Discharge to the Environmental			
1	Wastewater Discharge Permit – Domestic Effluents	Directorate Resolution 303-2016-ANA-DGCRH	30/12/2016
2	Industrial Wastewater Discharge Permit – Industrial Effluents	Directorate Resolution 179-2019-ANA-DGCRH	14/10/2019
Power Generation and Transmission Lines			
1	Hydroelectric Power concession for hydroelectric power plant “Marcopampa”	Supreme Resolution 66	07/11/1956
2	Hydroelectric Power concession for hydroelectric power plant “Chapín”	Supreme Resolution 67	07/11/1956
3	Authorization to generate electricity in the hydroelectric power plant “Chapín”.	Ministerial Resolution 313-94-EM/DGE	05/07/1994
4	Authorization to generate electricity for 1,936 kW in the hydroelectric plant “Marcopampa”.	Ministerial Resolution 014-95-EM/DGE	20/01/1995
5	Power transmission concession for the 50 kV Power Transmission Line – S.E.Paragsha – S.E. Chicrín – C.H. Chaprín – S.E. Atacocha	Supreme Resolution 016-96-EM	02/04/1996





No.	Government Consent	Resolution	Approval Date
6	Authorization to extending the capacity - Transmission Line "S.E.Nueva Chicrín"	Ministerial Resolution 152-2008-MEM-DGM/V	05/02/2008
Use of Explosives			
1	Authorization to operate an underground magazine - Explosives	Management Resolution 1022-2022-SUCAMEC/GEPP	26/01/2024
2	Authorization to operate an underground magazine - Accessories	Management Resolution 2085-2023-SUCAMEC/GEPP	12/06/2023
3	Authorization to operate an underground magazine - Silos	Management Resolution 3036-2023-SUCAMEC/GEPP	21/08/2023
4	Authorization to use and acquire explosives for UEA Atacocha	Management Resolution 00897-2023-SUCAMEC/GEPP	06/03/2024

3.7 Other Significant Factors and Risks

The QP is not aware of any environmental liabilities on the property. Nexa has all required permits to conduct the proposed work on the property. The QP is not aware of any other significant factors and risks that may affect access, title, or the right or ability to perform the proposed work program on the property.





4.0 Accessibility, Climate, Local Resources, Infrastructure and Physiography

4.1 Accessibility

El Porvenir and Atacocha are located approximately 13 km and 16 km northeast of the city of Cerro de Pasco, respectively. Cerro de Pasco is situated approximately 315 km from Lima, the national capital, when travelling via the Carretera Central and La Oroya-Huanuco highways, which are paved roads. Alternatively, Highway 20A provides a shorter drive from Lima but is mostly unpaved.

The nearest airport to the Complex is Alférez FAP David Figuroa Fernandini Airport (HUU) which is located approximately 130 km to the north of the Complex, just outside of Huanuco. Two regional airlines provide daily flights between the airport and Lima. From the city of Huánuco access is via the Carretera Central highway to the town of Chicrin (at km 324). From the town of Chicrin, an approximately 4.5 km long unpaved road provides access to Atacocha. El Porvenir is accessed by the same unpaved road from Chicrin after approximately 15 km.

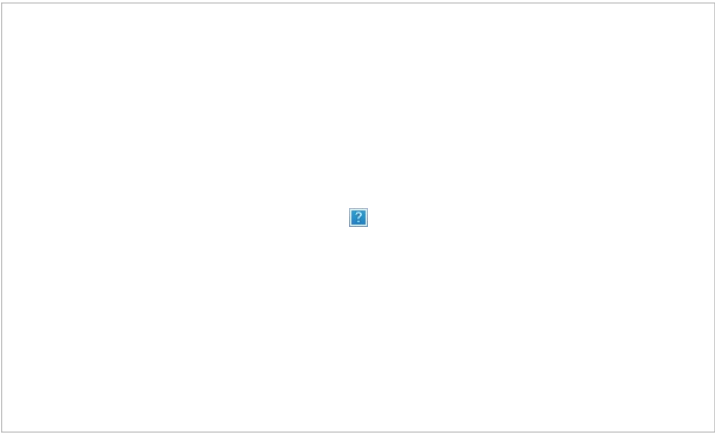
4.2 Climate

The climate at Cerro Pasco is cold and humid and is generally typical of the Central Andes Mountain Region, where elevations exceed 4,000 MASL. The area has an ET Köppen climate classification, corresponding to Polar Tundra (Weather-Atlas.com, 2024). The temperature is relatively uniform throughout the year, ranging from approximately 0°C to +14°C (Figure 4-1). Precipitation in the region totals approximately 1,100 mm annually, mainly falling during the rainy season from November to March; conversely the months of June to August are mostly dry. Snowfall occurs at any time of the year, most commonly at dawn. Relative humidity is uniform throughout the year averaging between 72% and 82%. Mining operations are not affected by the climate and are carried out year-round.





Figure 4-1: Mean Monthly Temperature Range and Mean Precipitation



Source: Weather-Atlas.com, 2024

4.3 Local Resources

Various services including temporary and permanent accommodations and medical services are available at the city of Cerro de Pasco, which has a population of approximately 60,000. A greater range of general services are available at Huánuco, which has a population of approximately 190,000. Most supplies used in the mining operation are delivered by truck from Lima.

Raw water is supplied from various creeks. Fresh water is obtained from the Carmen Chico River.

4.4 Infrastructure

- The Complex infrastructure consists of the following facilities:
- Power from the national power grid and the La Candelaria Hydroelectric Plant
 - Tailings from Atacocha and Porvenir will be combined in the Atacocha TSF
 - Atacocha and Porvenir mines to be connected underground allowing production from both mines to be delivered to the Porvenir concentrator for processing.
 - El Porvenir:
 - o Approximately 6,000 tpd underground mine





- o A 6,500 tpd, 2.37 million tonnes per annum (Mtpa) processing plant with associated laboratory and maintenance facilities
- o Access roads
- o Offices and warehouses
- o Accommodations
- o Waste rock facilities
- o Temporary ore stockpiles
- o Hydraulic backfill plant
- o Porvenir tailings storage facility
- Atacocha:
 - o 2,740 tpd underground mine to be processed at the El Porvenir plant concentrator
 - o 4,400 tpd San Gerardo open pit (including Satellite East and Satellite West open pits) to be processed at the Atacocha concentrator.
 - o 4,400 tpd, 1.68 Mtpa, Atacocha processing plant with associated laboratory and maintenance facilities
 - o Atacocha waste dump
 - o Atacocha tailings storage facility
 - o Temporary ore stockpile
 - o Topsoil stockpile
 - o Sediment pond
 - o San Felipe and Chicrín camps
 - o Closed waste dumps (3600, 3900, 4000)
 - o Inactive tailings storage facilities in closure (Chicrín Antiguo, Chicrín Actual, Cajamarquilla, Titlacayán, Malauchaca)

Additional information on infrastructure is provided in Section 15.

4.5 Physiography

El Porvenir and Atacocha are located in a glacial valley with rugged mountains in the central highland of Perú, in the Western Cordillera. There are three geomorphological zones in the Complex area: the Puna surface, the Cordilleran Zone, and the Periglacial Valleys Zone. The elevation at El Porvenir is approximately 4,200 MASL. Atacocha is located at approximately 4,050 MASL. The Atacocha processing plant is located in the Huallaga River valley, surrounded by rugged hills/mountains, at an elevation of approximately 3,600 MASL. El Porvenir's TSF, processing plant, and other buildings are located at the valley's base. A creek running through the valley drains into the Huallaga River further downstream at the village of La Quinua. Topographical relief consists of deep, long, narrow valleys with steep slopes. Some rivers cross through the area and have moderate slopes and some scattered peaks. The main valley has a general inclination from south to north.



5.0 History

5.1 Ownership History

In 1936, Compañía Minera Atacocha S.A.A. (Minera Atacocha) was formed to explore, develop, and exploit Cu-Pb-Zn deposits in the Atacocha area, with the Atacocha Mine commencing operations that year. Early work focused on developing the San Ramon tunnel to exploit veins on the 4000 Level. A hydroelectric plant and the first processing plant were built in 1936. The Atacocha flotation plant in Chicrín was built in 1952, with construction of the 3600 Level to a length of 2,700 m completed in the same year, which allowed a new main level of access and transportation to underground work, while facilitating the extraction and transportation of the mineral to the new concentrate plant located in Chicrín.

El Porvenir Mine began operating as a small-scale artisanal mine in 1949, with Compañía Minera Milpo S.A. (Milpo) incorporated the same year to operate it. Exploration was conducted simultaneously with underground development and included geological mapping, diamond core drilling, and channel sampling (SRK, 2017). No documentation on exploration is available prior to 2006.

Milpo conducted exploration and development work in Atacocha from 1949 onwards, with most exploration consisting of diamond drilling conducted simultaneously with underground development and channel sampling following drifting. Prior to 1997, only a small quantity of sporadic drilling was completed and no channel sampling was documented prior to 2001.

A gravity separation plant was built at El Porvenir in 1953, and a flotation plant was completed in 1979. The mine’s output increased steadily over the decades, attaining its current production rate of approximately 5,600 tpd in 2014.

Milpo acquired the Atacocha Mine in 2008.

In 2010, Nexa, then VM Holding, gained control of Milpo and its assets, including El Porvenir and Atacocha. In 2014, VM Holding began integrating the El Porvenir and Atacocha operations, including administration infrastructure, the TSFs, the electrical power supply, and mineral processing. VM Holding changed its corporate name to Nexa Resources S.A. in 2017, accompanied by initial public offerings on the New York Stock Exchange and Toronto Stock Exchange.

El Porvenir’s operations were interrupted from March 10, 2020 to May 15, 2020, due to the COVID-19 pandemic. Although the San Gerardo open pit remains operational, the Atacocha underground mine did not resume operations after the mandatory restriction period imposed by the Peruvian Government was lifted in June 2020.

5.2 Exploration and Development History

Table 5-1 summarizes the history of the Complex.

Table 5-1: History of Cerro Pasco Complex

Year	Work Description
1936	Atacocha Mine commences operation under Minera Atacocha Construction of a hydroelectric plant and the first processing plant.



Year	Work Description
1939	The El Porvenir site is granted June 30, 1939 through Resolución Jefatural N° 076-88-EM-DGM/JRMCP.
1949	El Porvenir began operating as a small-scale artisanal mine. Milpo was incorporated on April 6, 1949, by founders Mr. Aquiles Venegas, Mr. Amador Nycander, Mr. Ernesto Baertl, Mr. Manuel Montori, and Mr. Luis Cáceres P.
1952	Construction of the Atacocha flotation plant in Chicrín. Construction of the 3600 Level to a length of 2,700 m.
1953	Milpo built a gravity separation plant at El Porvenir, which had a capacity 54,000 t/month. The plant was expanded several times until 1978.
1979	Construction of the flotation plant at El Porvenir was completed, capacity 1,800 tpd.
1997	A new mineralized zone called Porvenir Nueve was discovered.
1999	Production at El Porvenir increased to 3,000 tpd.
2008	Milpo acquired the Atacocha Mine.
2010	VM Holding S.A. (now Nexa) gained control of Milpo and its assets, including El Porvenir.
2012	El Porvenir's production increased to 5,600 tpd.
2013	VM Holding S.A. initiated the process of integrating the Atacocha and El Porvenir mines, forming the Cerro Pasco Complex.
2014	The 1st stage integration was initiated, which consisted of integrating the administrative functions of the two operations.
2015	The 2nd stage integration was initiated, which consisted of integrating TSFs of Atacocha and El Porvenir.
2016	The 3rd stage integration was initiated, which consisted of integrating the electric power supply of the two mines.
2017	VM Holding S.A. changed its name to Nexa. The integration process continued: The two underground mines were connected by a drift allowing an exploration program to proceed in the integration area.
2018	Nexa implemented the Avoca version of the sub-level stoping (SLS) mining method at El Porvenir. Discovery of the Sara Deposit, in which the mineralization occurs in sandstone.
2019	The tailings dam level was increased to the 4,060 MASL elevation, which extended its useful life by an additional five years. The Avoca/SLS mining method contributed to 6% of El Porvenir's total production. Nexa initiated a program called the Nexa Way Experience (La Manera Nexa Experience) aiming to optimize organizational performance through autonomous work groups and employee self-management.
2020	The Nexa Way Experience program continued and, at El Porvenir, focused on lowering costs by reducing shotcrete consumption. El Porvenir's operations were halted from March 18 to May 15 due to the COVID-19 pandemic. Operations were reinitiated with the application procedures and sanitary controls to prevent the spread of the contagion. Operations at the Atacocha underground mine were not resumed following the mandatory restriction period from the Peruvian Government was lifted in June 2020.



5.3 Past Production

Past production at the El Porvenir Mine is summarized in Table 5-2. Past production at the Atacocha Mine is summarized in Table 5-3.

Table 5-2: El Porvenir Past Production

Year	Treated Ore Tonnage (t)	Average Ore Grade				
		Au (oz/t)	Ag (oz/t)	Pb (%)	Zn (%)	Cu (%)
2003	1,313,346	-	3.51	2.45	7.69	-
2004	1,342,451	-	2.21	1.41	7.61	-
2005	1,395,991	-	2.44	1.64	6.87	-
2006	1,390,940	-	2.51	1.68	6.1	-
2007	1,333,313	-	1.9	1.19	5.31	-
2008	1,389,947	-	1.6	0.88	4.23	-
2009	1,712,188	-	1.3	0.68	4.07	-
2010	1,712,188	-	1.23	0.6	4.04	-
2011	1,742,129	-	1.23	0.54	4	-
2012	1,898,901	-	1.13	0.48	4.04	-
2013	1,943,490	-	1.37	0.82	3.48	-
2014	2,107,212	-	1.49	0.88	3.39	-
2015	2,106,519	0.02	1.75	0.93	3.21	0.17
2016	2,154,152	0.01	1.94	0.98	3.22	0.14
2017	1,834,511	0.02	2.05	1.04	2.86	0.13
2018	2,149,928	0.01	1.92	0.98	3.04	0.15
2019	2,120,765	0.02	2.08	1.01	2.92	0.15
2020	1,502,618	0.01	2	0.93	2.65	0.17
2021	2,077,591	0.01	2.1	1.08	2.83	0.19
2022	2,111,961	0.01	2.46	1.34	2.8	0.16
2023	2,220,011	0.01	2.34	1.37	2.86	0.16



Table 5-3: Atacocha Past Production

Year	Treated Ore Tonnage (t)	Average Ore Grade				
		Au (oz/t)	Ag (oz/t)	Pb (%)	Zn (%)	Cu (%)
2003	1,211,200	0.02	4.58	3.53	5.79	0.33
2004	1,237,184	0.01	4.76	3.25	5.24	0.32
2005	1,241,967	0.01	4.57	3.45	5.00	0.31
2006	1,264,387	0.01	2.57	1.66	4.96	0.27
2007	1,304,279	0.01	2.15	1.19	4.77	0.35
2008	1,260,388	0.01	1.60	0.98	5.14	0.27
2009	1,424,995	0.01	1.2	0.72	4.7	0.26
2010	1,537,390	0.01	1.24	0.72	4.26	0.24
2011	1,540,647	0.01	1.39	0.73	3.37	0.27
2012	1,455,482	0.01	1.27	0.76	3.43	0.22
2013	1,480,429	0.01	1.4	0.79	3.34	0.24
2014	1,540,713	0.01	1.48	0.89	2.74	0.2
2015	1,431,315	0.01	1.54	1.1	2.4	0.16
2016	1,487,390	0.02	1.73	1.31	1.8	0.11
2017	1,506,830	0.02	1.43	1.22	1.42	0.09
2018	1,551,470	0.02	1.42	1.18	1.43	0.1
2019	1,505,428	0.01	1.52	1.3	1.43	0.08
2020	1,065,363	0.01	1.39	1.15	1.2	0.05
2021	1,271,107	0.01	1.01	0.82	0.88	0.03
2022	1,353,681	0.01	1.05	0.97	0.89	0.03
2023	1,397,192	0.01	1.21	0.93	0.77	0.04



6.0 Geological Setting, Mineralization, and Deposit

This section is largely based upon geological descriptions within Nexa internal El Porvenir and Atacocha reports (Nexa, 2023a and Nexa, 2023b).

6.1 Regional Geology

The South American Platform is mainly composed of metamorphic and igneous complexes from the Archean/Proterozoic era and constitutes the continental interior of South America. The Platform was consolidated during late Proterozoic to early Paleozoic times in the Brazilian/Pan-African orogenic cycle during which the union of different continents and micro-continents with the closure of several ocean basins led to the formation of the supercontinent Gondwana. Archean and Proterozoic rocks are exposed in three main shield areas within the framework of the Neoproterozoic folding strips (Guiana, Central Brazil, and Atlantic Shields). The western continental margin of the South American Plate developed from approximately Neoproterozoic to early Paleozoic times and constitutes a convergent margin, along which the eastward subduction of the Pacific oceanic plates takes place under the South American plate. Through this process, the Andean Range was developed. The eastern margin of the South American Plate forms a divergent margin more than 10,000 km long, which developed as a result of the separation of the South American Plate and the African Plate from the Mesozoic through the opening of the South Atlantic and the rupture of Gondwana. The northern and southern margins of the South American Plate developed along transform faults in transient tectonic regimes due to the collision of the South American Plate with the Caribbean and Scottish plates. The South American Plate reveals a long and complex geological history (Engler, 2009).

Most of the stratigraphy, tectonics, magmatism, volcanism, and mineralization in Peru is spatially and genetically related to the evolution of the Andean Cordillera off the western coast of South America. The mountain range was formed by actions related to important events (for example subduction) that have continued to the present since approximately the Cambrian (Peterson, 1999) or the late Precambrian (Clark et al., 1990; Benavides-Cáceres, 1999). The formation of the Andean Cordillera is, however, the result of a narrower period extending from the Triassic to the present when the division of the African and South American continents formed the Atlantic Ocean. Two periods of this subsequent subduction activity have been identified (Benavides-Cáceres, 1999): Mariana-type subduction from the late Triassic to the late Cretaceous; and Andean-type subduction from the late Cretaceous to the present.

The geology of Peru, from the Peru-Chile trench in the Pacific to the Brazilian Shield, is defined as three main parallel regions, from west to east: the Andean Antearco, the high Andes, and the Andean Antepaís Basin. All three regions were formed during the Meso-Cenozoic evolution of the central Andes. The property is located within the high Andes region. A simplified geological and structural map of Peru is shown in Figure 6-1.

The Andes can be divided into three sections, from west to east:

- The Western Cordillera is formed by rocks of the Mesozoic-Tertiary age, dominated by the coastal batholith, which consists of multiple intrusions with ages ranging from the Lower Jurassic to the Upper Eocene. The belt is up to 65 km wide and 1,600 km long and extends in a sub-parallel direction from the Pacific coast to Ecuador and Chile. El Porvenir is located within the Western Cordillera.
- The Altiplano is a high plain with internal drainage located at an average elevation of almost 4,000 m, slightly below the average altitudes of the Western and Eastern



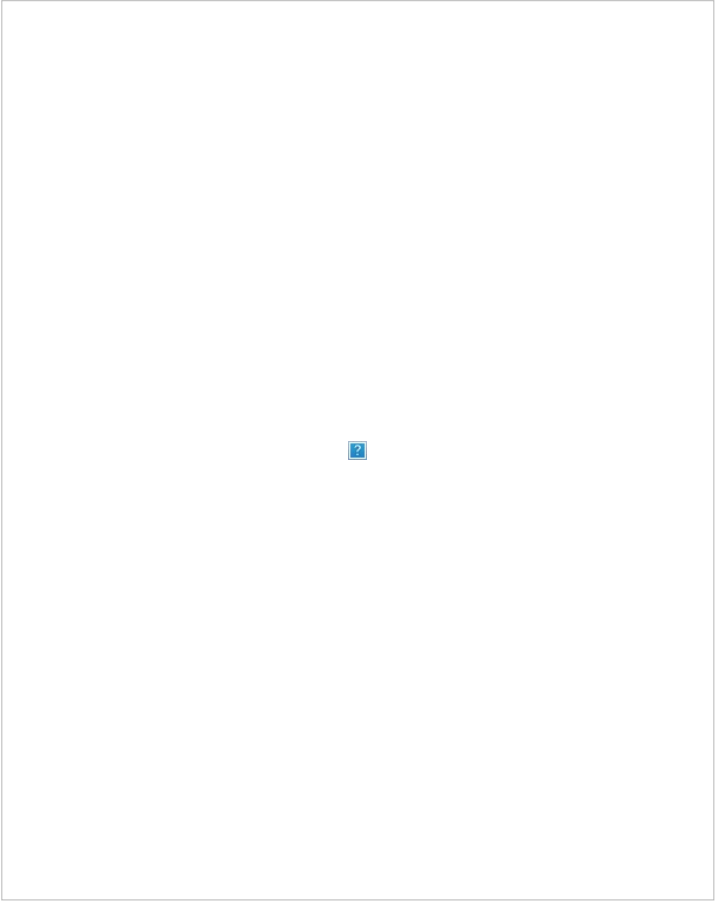
Cordillera. It is 150 km wide and 1,500 km long, stretching from the north of Argentina to the south of Peru.

The Eastern Cordillera forms a plateau 4,000 m high and 150 km wide. During the Cenozoic era, the arch has risen forming the Eastern Cordillera. Stratigraphically, the zone of the high Andes is composed, from west to east, of an intra-arch channel, a deep basin, a continental shelf, and the Marañón metamorphic complex (the Marañón complex). In general, the formations are progressively older from west to east, spanning from the mid-Tertiary to the Neoproterozoic-Paleozoic.





Figure 6-1: Simplified Geological Map of the Central Andes





6.2 Local Geology

The Complex is situated in the Pasco region of the Western Cordillera of the Andes, within the Eocene-Miocene Polymetallic and Miocene Au-Ag Epithermal Belts.

6.2.1 Stratigraphy

The oldest rocks in the region are part of the Excelsior Formation (Devonian), comprising metamorphosed siliciclastic sediments or phyllite and quartzite.

The Upper Permian-Middle Triassic Mitu Group comprises clastic and volcanic sediments, including red sandstone, shale, and minor conglomerate. At the base of the Mitu Group there is a polymictic conglomerate unit which is approximately 45 m thick. Conglomerate clasts are sub-angular, comprising shale, phyllite, quartzite, and minor limestone. The conglomerate matrix is a well cemented, fine grained, reddish sandy material. Thin, grey to reddish siltstone layers are also present, and exhibit laminar stratification. The middle part of the Mitu Group comprises sequences of fine grained, reddish sandstone, with cross-stratification and interbedded with polymictic conglomerate layers. The Mitu Group was deposited during the Late Hercynian Tectonic Phase (based on the fossil record, and radiometric age dating). An angular unconformity exists between the underlying Excelsior Formation and overlying Mitu Group. The sediment package has accumulated with increasing thickness to the east, locally up to approximately 2,000 m, thinning to possibly as little as 100 m thickness in areas.

The Norian-Toarcian Pucará Group was deposited in the Pucará Basin, a north-northwest trending trough associated with a transtensional shear zone accommodating rifting and sinistral movement, on the Mitu Group with an erosional and angular unconformity. The Pucará Group is dominated by carbonate platform sequences which were primarily deposited in a shallow water environment during the first marine progression of the Andean Orogenic Cycle from the Upper Triassic to Lower Jurassic. The Pucará comprises interbedded grey to black limestone, dolostone, and shale with varying thicknesses of up to 60 cm, and is sub-divided into three formations: Chambará, Aramachay, and Condorsinga (Mégard, 1968).

The Norian to Rhaetian Chambará Formation overall comprises massive, grey to pale limestone beds with some layers containing chert nodules, and horizons of grey to beige calcareous siltstone with variable oxides and red shale. Thicknesses vary from approximately 600 m to over 3,000 m. This formation is further sub-divided into stratigraphic units at the project scale.

The Hettangian to Sinemurian Aramachay Formation is characterized by dark grey bituminous calcareous shales and limestone beds over 15 cm thick. This formation was deposited in a deeper-water environment.

The Sinemurian to Toarcian Condorsinga Formation comprises beige to grey, thin to massive, interbedded limestone and dolostone. The thicknesses vary from approximately 500 m to over 1,500 m.

The Hauterivian to Aptian Goyllarisquiza Group, composed of siliciclastic sediments, vary from 150 m to 600 m thick and was deposited during the Lower Cretaceous with an erosional and angular unconformity over the Pucará Group during the Lower Cretaceous. Variable and discontinuous units of conglomerate, chert, and/or shale with carbonaceous fragments occur at the base of this group, which correlates with the Chimú Formation. A sequence of approximately 40 m thick comprising bitumen-bearing siltstone, with carbonaceous layers and laminar stratification is located above the Chimú Formation. Continuing up in the stratigraphic sequence is a section approximately 25 m thick comprising medium grain, reddish sandstone with thin





micro-conglomerate layers, alternating with white sandstone further up in the sequence. These sequences correlate with the Santa and Carhuaz formations. The majority of the Goyllarisquizga Group comprises cross-bedded grey to white, medium to coarse grained, quartz-rich sandstone, approximately 90 m thick or more, which correlates with the Farrat Formation. Over one metre thick limestone units are present locally in the upper parts of this formation. Thin terrestrial red beds and basalt layers one to two metres thick may be interbedded near the upper contact.

A discontinuous, predominantly basaltic flow occurs in the Goyllarisquizga Group. Thin, red beds of sandstone and shale occur within the basalt unit.

The equivalent Machay and Chicrín formations comprise of approximately 250 m of massive to thinly interbedded grey calcareous sandstone, grey to brown marly limestone, grey calcareous conglomerate with clasts of fine to muddy sandstone, and fine-grained red sandstone. These rocks were deposited onto the basalt flows during the Middle Cretaceous.

Another unit of predominantly basalt flows with thin beds of red sandstone and shale was unconformably deposited on top of the Machay/Chicrín Formation.

The Upper Eocene Pocobamba Formation comprises breccias with sub-angular to sub-rounded limestone clasts derived from the Pucará Formation; sub-divided into the Cacuán and Shuco members. The Pocobamba Formation was deposited as debris in a continental environment.

Figure 6-2 illustrates the local geology. The regional stratigraphic column is shown in Figure 6-3.





Figure 6-2: Local Geology

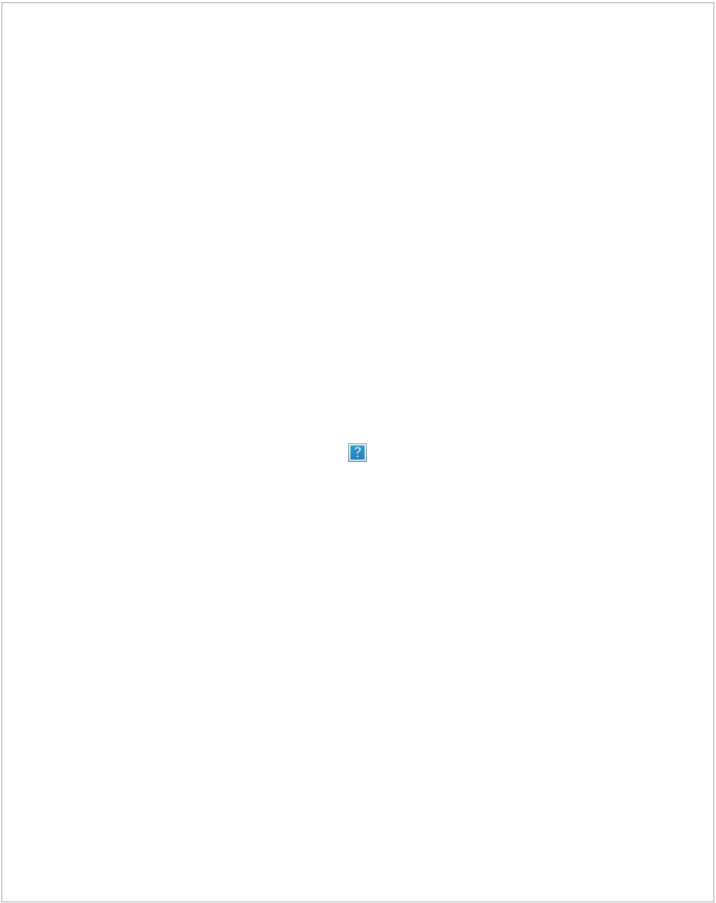
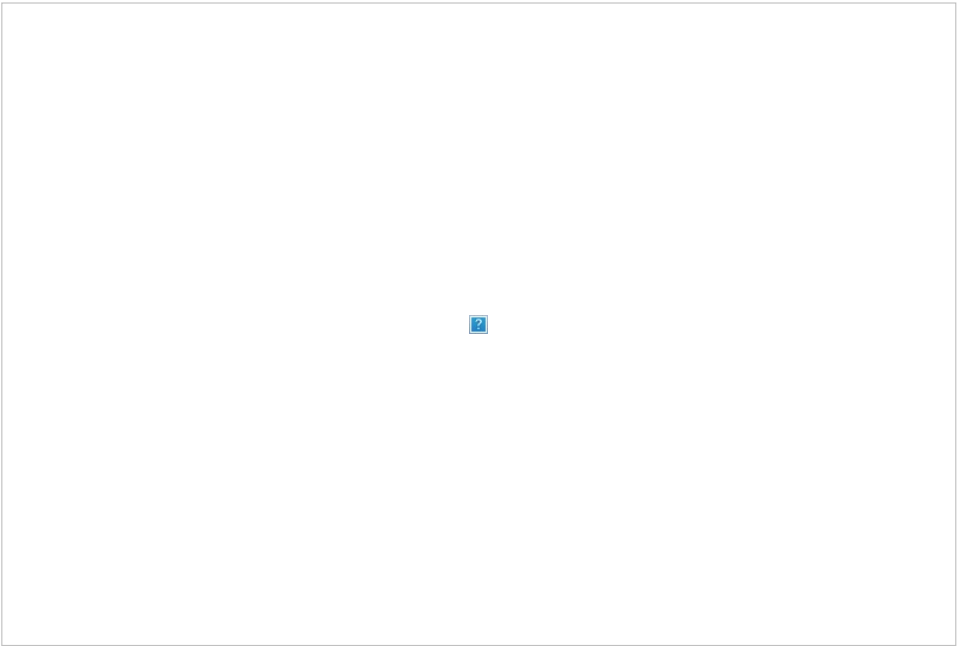




Figure 6-3: Generalized Stratigraphic Column



6.2.2 Intrusive Rocks

Two generations of magmatism are recognized in the region, including the Milpo-Atacocha-Vinchos (29 Ma to 26 Ma) and Cerro de Pasco-Colquijirca (16 Ma to 10 Ma) belts (Cobeñas, 2008, and references therein). Both magmatic belts are oriented north-northeast to south-southwest, approximately parallel to the Andean trend.

The Milpo-Atacocha-Vinchos intrusive rocks are characterized as small hypabyssal stocks (less than one square kilometre), dikes, and sills of granodiorite (dacite) to diorite and tonalite composition and occur within high-K Calc-Alkaline Series and Shoshonitic Series. These intrusive rocks generally exhibit a porphyritic texture with plagioclase as the dominant mineral forming the matrix, and variable phenocrysts of quartz, hornblende, biotite, and pyroxenes. The matrix comprises fine-grained quartz and feldspar-plagioclase.

Magmatic emplacement occurred during the Oligocene based on two K-Ar age dates of porphyritic granodioritic samples with partially carbonate and sericite altered plagioclase (29.3 ± 2.5 Ma and 25.9 ± 1.5 Ma) (Soler and Bonhomme, 1988). Recently, 12 intrusive rocks samples from the El Porvenir and Atacocha areas were analyzed by U-Pb geochronology at the University of Tasmania and provided age dates of intrusive crystallization from 28.58 ± 0.38 Ma to 30.11 ± 0.23 Ma.

Intrusives in the region exhibit an elongate geometry, trending north-south to northwest-southeast, parallel to the regional fold axis, and are mostly spatially associated with the Milpo-Atacocha fault, suggesting an apparent structural control on magmatic emplacement.

Metamorphic contact aureoles are variably formed around these intrusive bodies. The most intense contact aureole is recognized in the Atacocha area, where Pucará Group rocks are completely silicified with pyrite impregnations for up to 200 m.

The Cerro de Pasco-Colquijirca volcanic to sub-volcanic intrusive rocks are characterized by dacitic, trachytic, and monzonitic composition. Texture varies from porphyritic to aphanitic. Composition is dominated by quartz and plagioclase, with lesser amphiboles, biotite, and K-feldspar. Age dating from the Cerro de Pasco, Marcapunta, and Yanamate complexes reveals ages ranging from 16 Ma to 10 Ma.

6.2.3 Structure

Regional tectonics during the Mesozoic and Cenozoic are collectively referred to as the Andean Cycle which comprises multiple sedimentation and deformational events. The Andean Cycle is sub-divided into at least seven deformational phases (Ellison et al., 1989):

- Peruana (Upper Cretaceous).
- Incaica (Paleogene/Eocene).
- Quechua 1 (early Oligocene).
- Quechua 2 (late Oligocene to early Miocene).
- Quechua 3 (middle Miocene).
- Quechua 4 (late Miocene).
- Quechua 5 (late Miocene).

Three episodes of regional folding are recognized occurring during the Paleogene and possibly earlier and are separated by periods of tension. Throughout the region, the tectonics are



characterized by northeast-southwest to east-west oriented compression, which occurred during the second Andean deformation phase (Incaico), from the Eocene to Oligocene. Most Mesozoic rocks appear to have been folded conformably generally forming a series of anticlines and synclines, parallel to the principal Andean trend, with a north-northwest to south-southeast oriented fold-axis, plunging to the south. Most folds described throughout the region have gently to moderately dipping ($<60^\circ$) limbs.

The Milpo-Atacocha fault is a major structural feature in the region, which can be traced for nearly 15 km from Yarusyacán in the north to Carmen Chico in the south. The Milpo-Atacocha fault strikes north-south, dipping steeply to the east, with as much as 2,000 m of reverse displacement (east-block up) and probable sinistral movement. Mégard (1968) considers that the Milpo-Atacocha fault may be part of a fault system active since at least the Triassic, and during the Upper Cretaceous.

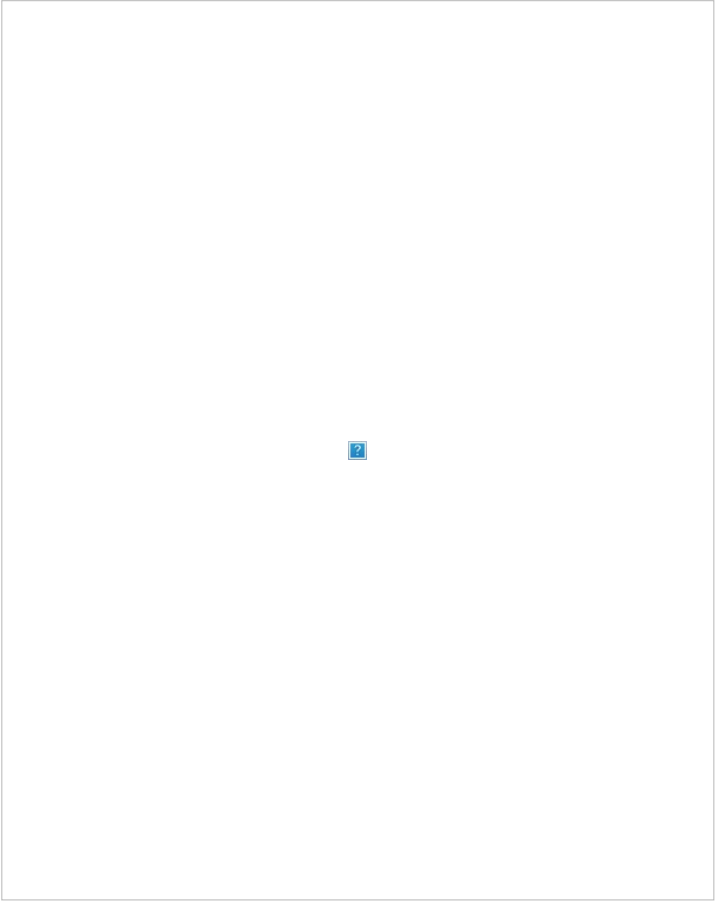
A series of fracture sets reportedly formed in response to the northeast-southwest tectonic compression, including:

- North-northeast trending dextral faults.
- Southwest trending sinistral faults.
- Northeast trending tensional joints.
- Northwest trending tensional joints.





Figure 6-4: Regional Geological Setting with Major Structures



6.3 Property Geology

Figure 6-5 and Figure 6-6 show representative geologic cross sections through the El Porvenir and Atacocha areas, respectively.

Within the property area, the stratigraphic units of primary interest are the Pucará and the Goyllarisquizga groups.

The Pucará Group is sub-divided into six units: A, B, C, D, which correspond to the Chambará Formation; and E and F, which correspond to the Aramachay and Condorsinga formations, respectively:

- Unit A is located to the east of the Atacocha fault. It consists of a grey to dark grey limestone with thin dolomite layers, calcarenites and fine, greenish volcanic siltstones at the base of the Chambará Formation. Yellowish grey limonites to compact dolomicrites are also observed.
- Unit B is located to the east of, and stratigraphically above, Unit A. Dark grey to black coloured limestones, dolomicrites, and micrites are observed in thin layers to tabular strata with lenticular bituminous horizons. It can be seen in many parts of the property due to its obliteration of marble and silicification. The more competent rocks are located at the intermediate zone in the Chambará Formation.
- Unit C is located to the east of the mine area. Monotonous grey chertic limestones in metric strata are observed. The unit also contains dolomitic horizons. It represents the intermediate zone of the Chambará Formation.
- Unit D is widely distributed within the Atacocha and Santa Bárbara sections. The limestones are beige varying from mudstone to grainstone with light beige dolomitic intercalations. Cherts and bituminous horizons are also observed. Unit D corresponds to the upper zone of the Chambará Formation.
- Unit E consists of black micritic limestones and black lutite. In many places, this package is obliterated by marble, silica, silica-sericite-clay, etc. In many places of the property, the rock is altered becoming recrystallized and discoloured, adopting clearer tones without converting to marble (loss of calcium). These rocks correspond to the Aramachay Formation of the Pucará Group.
- Unit F is grey to light grey limestones, mudstone to packstone, with fossil horizons and dolomitic levels.

The Goyllarisquizga Group outcrops in the area of the deposit consisting of quartz rich sandstone, corresponding to the Goyllarisquizga Formation. Sandstones may vary from quartz arenite to arkose. The matrix is argillaceous to siliceous. Above the 4000 Level, the lithology and stratification are well defined and easy to recognize. Below the 4000 Level, strong alteration has obliterated the original rock intensity forming siliceous breccias and massive silica where it is still possible to recognize quartz grains and in few places the stratification.

Localized basalt units are observed in some drill holes to the southwest of the mine, below the Cherchere and San Gerardo zones. The units consist of grey to greenish basalt with green vacuoles of zeolites with traces of flows with olivine phenocrystals, limonite, and magnetite.

Intrusive rocks within the property are variably porphyritic dacite to quartz diorite with hornblende and biotite phenocrysts. Dacitic dikes are sub-divided into two units: porphyritic with feldspar phenocrysts and minor quartz restricted to the groundmass; and porphyritic with abundant quartz phenocrysts, with minor biotite and hornblende. The quartz diorite comprises

feldspar phenocrysts up to 6 mm long, with variable quartz “eyes”, and aggregates of biotite and hornblende. The groundmass is microcrystalline quartz and plagioclase. These intrusive rocks generally form dikes trending north-south and are observed in three areas: Santa Bárbara/central, south along/parallel to the Atacocha fault, and the southern Section 3. These intrusive rocks are part of the Milpo-Atacocha-Vinchos Belt (28 Ma to 30 Ma).

6.4 Alteration

Skarn-related alteration has been characterized according to dominant key mineral assemblages: silica-wollastonite, garnet, silica, and pyrite-argillic.

Garnet-skarn is dominated by >50% garnet (by volume), generally brown to greenish and medium to fine grained, or light brown to yellowish (andradite) and light green (grosularia). Pyroxene, where present, is light green, very fine grained, and associated with minor sulphides. Magnetite is spatially associated with green garnet areas, as well as lesser pyrite and pyrrhotite.

Silica-skarn is defined where silica content exceeds 50%. Silica may occur in veinlets or as disseminations. Silica-wollastonite alteration appears to form a sub-division of the silica-dominant group and forms light grey to milky white zones with brecciated to massive/patchy textures. Wollastonite may form radiating fibrous crystals. Locally, a silica-skarn-chlorite assemblage may be present, exhibiting strong structural controls. White to grey silica developed early, followed by green skarn with variably associated chlorite and hematite.

Pyrite-argillic skarn comprises 30% to 80% massive pyrite, with 10% to 30% undistinguished whitish clays, and up to 20% greenish garnet. Locally, pyrite appears to be pseudomorphic replacing garnet.

An alteration assemblage comprising silica-sericite-argillic (halloysite, montmorillonite, and kaolinite) is associated with hydrothermal mineralization. Locally this alteration assemblage is strong, and possibly replaces original rocks completely in areas below the 4000 Level.

West of the Milpo-Atacocha fault below the 4000 Level, strong siliceous alteration has variably obliterated the original rock; within the Goyllarisquiza Group, it is possible to recognize quartz grains and stratification in a few places. Locally, siliceous cemented breccias with silica-sericite-clays matrix (halloysite, montmorillonite, and kaolinite) and massive silica hydrothermal breccias have formed.

Marbleization of limestone and dolomite units appears to be spatially associated with intrusive units and skarn related alteration.



Figure 6-5: Representative Cross Section through El Porvenir Area

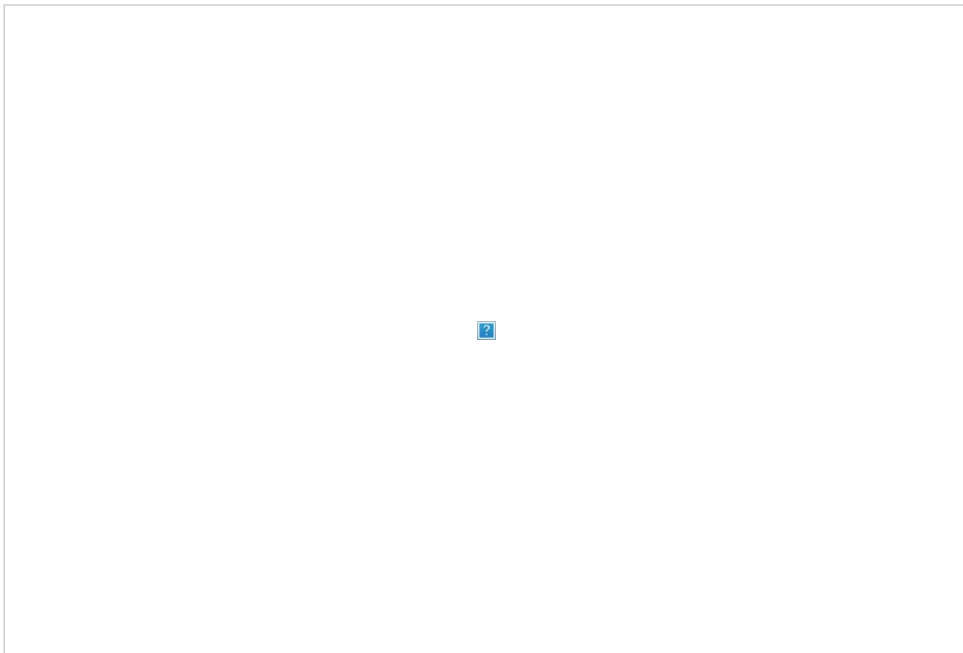
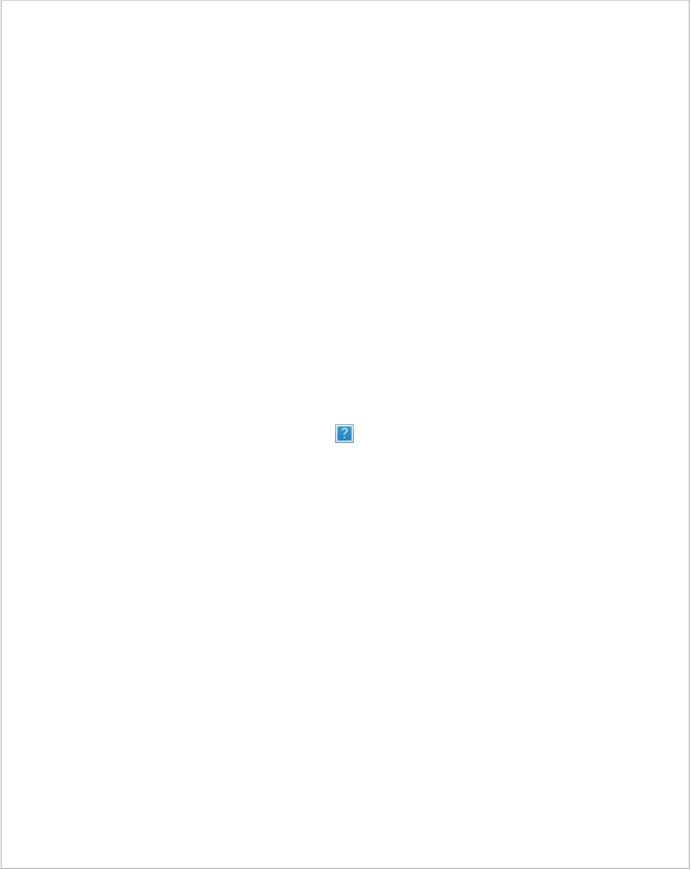




Figure 6-6: Representative Cross Section through Atacocha Area



6.5 Mineralization

6.5.1 El Porvenir

At El Porvenir, mineralization is characterized as a skarn, intermediate sulphidation epithermal vein/breccia style, or stratabound mineralization in the Goyllarisquizga Formation.

Skarn related mineralization associated with the Milpo stock is paragenetically earlier, followed by hydrothermal mineralization. Skarn-related mineralization is commonly associated with the garnet and silica-skarn-chlorite assemblages, comprising pyrite, chalcopyrite, sphalerite, galena and minor pyrrhotite, pyrite, bornite, covellite, orpiment, and realgar within the Pucará Group sediments around the Milpo stock. Molybdenite may occur proximal to the skarn related mineralization. Elevated Bi and Au contents are reported to be associated with skarn related mineralization. Veins and veinlets with pyrite, chalcopyrite, sphalerite, galena, quartz, and carbonates occur within marble units, and are spatially associated with skarn bodies.

The silica breccia consists of sub-rounded to sub-angular white to milky grey opaline silica clasts, millimetres to centimetres in size, and to a lesser extent, sandstone, and limestone clasts. The silica breccia clasts are cemented by white granular silica, with occasional cross-cutting veins of white silica.

The massive (siliceous) breccia forms zones of pervasive alteration comprising predominantly fine grained and massive white silica.

The granular (siliceous) breccia comprises loose white to grey grains of silica within a poorly cemented (undifferentiated) clay matrix.

The Ag-Pb-Zn breccias are sub-divided into calcareous, polymictic-monomictic, and karst (collapse). Breccia clasts include limestone, marble, silica (massive), and skarn; the composition of the clasts indicates that brecciation occurred later than skarn development. Massive silica alteration may cross-cut skarns.

The calcareous breccia comprises sub-angular to sub-rounded clasts of limestone and marble, cemented by a grey to dark grey calcareous matrix, with occasional bituminous material and rare pyrite. Pyrite, sphalerite, galena, and other sulphides including orpiment, realgar, tetrahedrite, alabandite, stannite, as well as quartz, calcite, rhodochrosite and rhodonite occur within the matrix. The geochemical-mineralogical zoning is evident whereby galena (Pb) and Mn bearing minerals are more abundant distally relative to sphalerite (Zn). Bi and Sn bearing minerals are most elevated in the magmatic-hydrothermal system.

The polymictic to monomictic breccias are overall grey and comprise sub-angular clasts of black limestone, shale, white silica with veins of silica-pyrite, and marble with silica, wollastonite, and calcite. Monomictic breccias comprise sub-angular limestone or intrusive clasts. Polymictic and monomictic breccia clasts vary in size and are cemented with an amorphous black material with disseminated pyrite. Pyrite, chalcopyrite, sphalerite, galena, and possibly other sulphides occur within the matrix, forming veins/veinlets, pockets, or disseminations. Karst breccias contain clasts of limestone, marble, silica, skarn, and intrusive rocks. They are sub-angular to sub-rounded, occurring within a matrix of sub-horizontal laminated limestone and silica-sericite-clay material.

The stratabound Pb-Ag-Zn mineralization occurs in the sandstone strata (mantos) at the base of the Goyllarisquisga Formation (near the contact with the Pucará Group). Several disseminated sulphide mantos have recently been identified at Sara and Porvenir 2W within the quartz

sandstone, generally in contact with layers of silt and microconglomerates. The minerals include galena with Ag content, sphalerite, and pyrite. Au is also present.

6.5.2 Atacocha

At Atacocha, mineralization is characterized as a skarn, intermediate sulphidation epithermal vein/breccia-style, or porphyry mineralization.

Skarn/metasomatic-related mineralization spatially associated with the Santa Bárbara stock or San Gerardo stock is paragenetically earlier, followed by the hydrothermal mineralization. Skarn-related mineralization is commonly associated with the garnet and silica-skarn-chlorite assemblages, comprising pyrite, chalcopyrite, sphalerite, galena, and lesser pyrrhotite, pyrite, bournonite, covellite, orpiment, and realgar occurring within the Pucará Group sediments around the Santa Bárbara stock.

Skarn-related mineralization is characterized by pyrite, chalcopyrite, sphalerite, galena, with lesser bismuthinite and a variety of sulphosalts (Bi-bearing) and pyrrhotite, bornite, and covellite at lower elevation. Molybdenite may occur proximal to the skarn-related mineralization. Elevated Bi and Au are reported to be associated with skarn-related mineralization. Veins and veinlets with pyrite, chalcopyrite, sphalerite, galena, with quartz and carbonate occur within marble units, and are spatially associated with skarn bodies.

The intermediate sulphidation epithermal mineralization occurs in the upper part of the system (i.e., at higher elevations) as veins and breccias, characterized by galena, Ag-bearing sulphosalts, sphalerite, and free Au. Gangue mineralogy comprises quartz (silica), pyrite, specularite/hematite, adularia, rhodochrosite, rhodonite, and alabandite. The silica-sericite-halloysite alteration assemblage is generally associated with this epithermal system. These veins and breccias are mostly between the San Gerardo stock and Fault 1, appearing to be at least partly controlled by the northwest-trending Fault 13. Breccias have been grouped into either Ag-Pb-Zn hydrothermal breccias or siliceous breccias based on their mineralogical assemblages and textural characteristics.

Siliceous breccias are further sub-divided into three groups: silica, granular (“terrosa”), and massive. Collectively the siliceous breccias may form large, relatively continuous bodies based on various interpretations; some appear to be spatially associated with the San Gerardo and Santa Bárbara intrusives and structurally controlled by the Milpo-Atacocha, Longreras, 13, 1, and Laquia faults. Veinlets of pyrite, galena, sphalerite, and possibly other fine undistinguished sulphides may occur within the variable silica-sericite-clay matrix.

The silica breccia comprises clasts of milky white to grey opaline silica, sub-rounded to sub-angular, from millimetre to centimetre size; as well as less common sandstone and limestone clasts. The silica-breccia clasts are cemented by a white granular silica, with occasional cross-cutting thin white silica veinlets.

The massive (siliceous) breccia forms zones of pervasive alteration comprising predominantly fine grained and massive white silica.

The granular-(siliceous) breccia comprises loose white to grey silica grains, within a poorly cemented clay (undifferentiated) matrix.

The Ag-Pb-Zn breccias are sub-divided into calcareous, polymictic-monomictic, and karst/collapse. Breccia clasts include limestone, marble, silica (massive), and skarn; the composition of the clasts indicates that brecciation occurred later than skarn development. Massive silica alteration may cross-cut skarns.

The calcareous breccia comprises sub-angular to sub-rounded clasts of limestone and marble; cemented by a grey to dark grey calcareous matrix, with occasional bituminous material and rare pyrite. Pyrite, sphalerite, galena, and other sulphides/sulphosalts including orpiment, realgar, tetrahedrite, alabandite, stannite, as well as quartz, calcite, rhodochrosite, and rhodonite occur within the matrix. Minor mineralization may occur within marble where the calcareous breccias cross-cut these units.

Geochemical/mineralogical zonation is apparent whereby galena (Pb) and Mn-bearing minerals are more abundant distally relative to sphalerite (Zn). Bi- and Sn-bearing minerals are more elevated proximally.

The polymictic to monomictic breccias are overall grey, and comprise sub-angular clasts of black limestone, mudstone, white silica with silica-pyrite veinlets, and marble with silica-wollastonite and calcite. Monomictic breccias comprise sub-angular clasts of limestone or predominantly intrusive rocks. Both polymictic and monomictic breccias clasts vary in size and are cemented with a black amorphous material with disseminated pyrite. Pyrite, chalcopyrite, sphalerite, galena, and possibly other sulphides occur within the matrix forming veins/veinlets, pockets, or disseminations.

Karst/collapse breccias contain clasts of limestone, marble, silica, skarn, and intrusive rocks, are sub-angular to sub-rounded, within a matrix of sub-horizontal laminated limestone and silica-sericite-clay material.

The Cu-Au±Mo porphyry mineralization is found in the Santa Bárbara stock. It consists of porphyry quartz monzodiorite with potentially economic grades (i.e., 0.3% Cu, 0.3 g/t Au) of Cu-Au ± Mo. The San Gerardo stock is made of the same quartz monzodiorite, but with weaker alteration and much lower grades of all metals of interest. In the Milpo stock, the porphyry potential was poorly investigated, however, A- and B-type stockwork veinlets with low Cu grades were recorded in the past and the stock warrants future investigation.

6.6 Deposit Types

Four types of mineral deposits are recognized at the Complex:

- Skarn (exoskarn and endoskarn).
- Intermediate sulphidation epithermal veins and breccias.
- Stratabound (El Porvenir).
- Porphyry (Atacocha).

The description of the skarn deposit is largely derived from Einaudi and Burt (1982), Hammarstrom et al. (1991), and references therein. The hydrothermal vein deposit description is largely derived from Baumgartner et al. (2008) and references therein.

6.6.1 Skarn

Skarn deposits are generally considered as replacement style mineralization within or associated with carbonate dominant rocks. Skarns are classified as either endoskarn or exoskarn, referring to the location of skarn related mineralization either within an associated intrusive unit, or within carbonate lithology, respectively. Additionally, skarns can be divided into two broad groups: magnesian and calcic skarns, based on a dolomite dominated or limestone-dominated host lithology, respectively.

Skarn development commonly includes metamorphic and metasomatic processes associated with carbonate and intrusive rocks, and an associated hydrothermal system. Mineralization

occurs via a physio-chemical reaction between circulating hydrothermal fluids and the host lithology, and results in irregular shaped bodies. The hydrothermal system is generally believed to be related to and expelled from a cooling igneous body, which then undergoes a chemical reaction and cools as the fluid interacts with the usually carbonate dominant host lithology. The lithochemistry of the host rocks (i.e., Ca or Mg rich carbonate, or calc-silicate assemblage) strongly controls or influences mineralization. Replacement mineralogy commonly comprises Ca and Mg bearing silicates, however, Fe, Al, and Mn bearing minerals may also be important. Mineral and metal zonation is common. Three generalized dynamic processes responsible for the formation of all skarns are described as:

- Isochemical contact metamorphism during pluton emplacement.
- Prograde metasomatic (infiltration) skarn formation as the pluton cools and an ore fluid develops.
- Retrograde alteration of earlier formed mineral assemblages.

The style of mineralization at El Porvenir appears to be best represented by the base and precious metal skarn category of the calcic skarn group. In terms of a conceptual model, Zn + Pb combined may average 10% to 15%, commonly with significant Ag (from 30 g/t to 300 g/t) as well as Cu, Au, and W. Cu mineralization commonly occurs proximal to the associated intrusive unit, whereas Zn and Pb mineralization typically occurs more distally to the associated intrusive. Mineralization commonly occurs as sulphides, including sphalerite, galena, chalcopyrite, and a variety of Ag-bearing sulphosalts. Gangue mineralogy may be dominated by Mn-bearing pyroxenes and garnet. Mineral textures vary from commonly coarse grained, associated with Ca rich host lithology and in close proximity to the related intrusion, to fine-grained, more distal and associated with calc-silicate rocks.

The tectonic setting of Zn-Pb skarns are commonly reported at continental margins and formed during syn- to late orogenic processes. Plutons are commonly absent but, if present, occur as stocks and dikes and may vary in composition from granite to granodiorite to syenite to diorite. Replacement mineralogy within carbonates is usually Fe, Mn, and S rich, and low in Al; and alteration within associated intrusions may comprise locally intense epidote, pyroxene, and garnet.

6.6.2 Hydrothermal Vein and Breccia

The hydrothermal veins and breccias at El Porvenir and Atacocha fall into a class of epithermal polymetallic base metal deposits (also referred to as Cordilleran base metal veins), which form in the upper parts of a magmatic-hydrothermal system (i.e., porphyry environment).

The Cordilleran base metal deposits have the following features:

- Close temporal and spatial association with calc-alkaline intrusions.
- Mineralization occurred under epithermal conditions (i.e., near Earth's surface).
- Sulphide-rich mineralogy, including a Cu-Zn-Pb-(Ag-Au-Bi) metal suite, and high Ag/Au ratio.
- Well-developed mineral zonation and alteration minerals, with Zn-Pb mineralization formed more distally (Pb-Ag-Au assemblage in the upper zone and Cu-Au association in the deeper zones).
- Early pyrite-quartz associated with low sulphidation mineralogy.



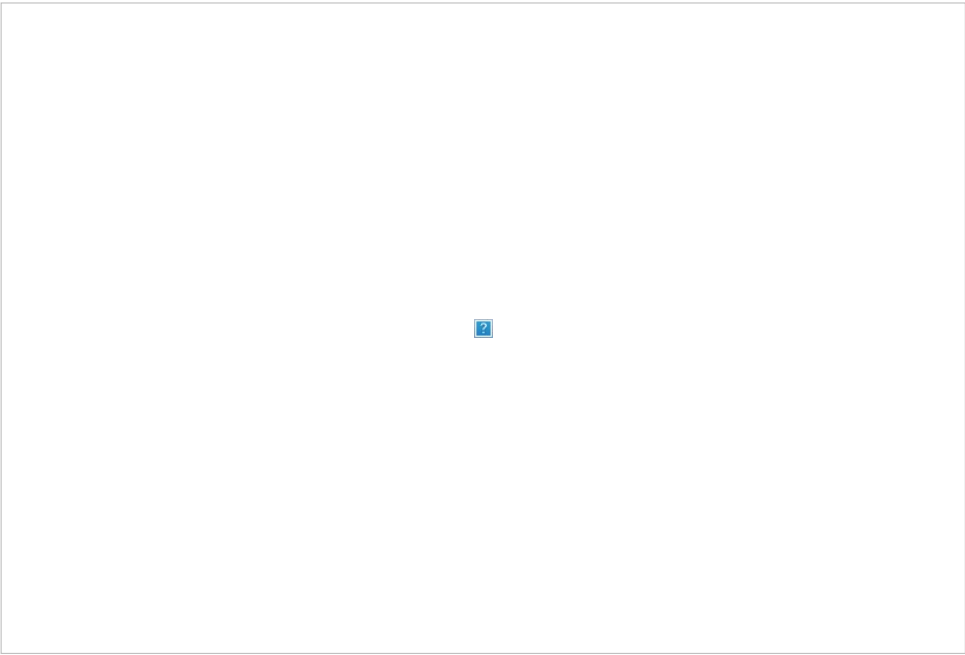
- Mineralization textures may be open-spacing filling in silicate host rocks, or as replacement in carbonate rocks.
- Mineralization occurred late in the temporal evolution of the magmatic-hydrothermal system.

Figure 6-7 is a schematic diagram showing the spatial relationship of skarn, replacement, and hydrothermal vein mineralization with intrusive rocks.





Figure 6-7: Schematic Diagram of Skarn, Replacement and Hydrothermal Vein Mineralization



6.6.3 Stratabound (El Porvenir)

Stratabound deposits have been described by Fontboté et al. (1990), who defined the stratabound deposit model as deposits formed through volcanogenic, hydrothermal, metamorphic, diagenetic, and sedimentary processes both penecontemporaneously and much later than the host rock, which can be volcanic or sedimentary.

The empirical link of mineralization and host rock can be used to classify the stratabound deposit according to the age and geotectonic position of the enclosing rock. A systematic classification could be achieved with mineral deposits hosted by rocks of the Andean Cycle (Mesozoic-Recent) because the regional geology and geotectonic interpretation of the rocks of this period are well known. According to Fontboté et al. (1990), three metallogenic “stages” can be distinguished in the Central Andes. Each stage is characterized by its tectonic style, magmatic activity, and basin evolution; and in each stage, characteristic types of stratabound deposits occur.

The sandstone hosted stratiform Pb-Zn occurrences in the Goyllarisquizga Formation near Milpo were included by Samaniego (1982) in the Santa Metallotect, however, the possibility that they were formed by impregnation in relation with the Tertiary skarn deposits of the Milpo-Atacocha district (Soler, 1986) is supported by Pb isotopic data (Gunnesh et al., 1990).

6.6.4 Porphyry (Atacocha)

Porphyry deposits are large, low to medium grade deposits in which primary (hypogene) ore minerals are dominantly structurally controlled and which are spatially and genetically related to felsic to intermediate porphyritic intrusions (Kirkham, 1972). The large size and structural control (e.g., veins, vein sets, stockworks, fractures, “crackle zones”, and breccia pipes) serve to distinguish porphyry deposits from a variety of deposits that may be peripherally associated, including skarns, high temperature mantos, breccia pipes, peripheral mesothermal veins, and epithermal precious metal deposits (Sinclair, 2007).

Porphyry deposits range in age from Archean to Recent, although are predominantly associated with Mesozoic to Cenozoic orogenic belts. They occur throughout the world in a series of extensive, relatively narrow, linear metallogenic provinces. Porphyry deposits occur in close association with porphyritic epizonal and mesozonal intrusions, typically in the root zones of andesitic stratovolcanoes. A close temporal relationship exists between magmatic activity and hydrothermal mineralization in porphyry deposits (Kirkham, 1971). Magma composition and petrogenesis of related intrusions exert a fundamental control on the metal content of porphyry deposits. Intrusive rocks associated with porphyry Cu, porphyry Cu-Mo, porphyry Cu-Au and porphyry Au tend to be low-silica, relatively primitive dioritic to granodioritic plutons whereas porphyry deposits of Mo, W-Mo, W, and Sn are typically associated with high-silica, strongly differentiated granitic plutons.

The overall form of individual porphyry deposits is highly varied and includes irregular, oval, solid, or “hollow” cylindrical and inverted cup shapes. Deposits may occur separately or overlap and, in some cases, are stacked. Individual deposits measure hundreds to thousands of metres in three dimensions. Deposits are characteristically zoned, with barren cores and crudely concentric metal zones that are surrounded by barren pyretic halos with or without peripheral veins, skarns, replacement manto zones and epithermal precious metal deposits. The Cu-Fe sulphides reside primarily in veins and hydrothermal breccias, with lesser amounts occurring as disseminations in the altered wall rocks. Complex, irregular mineralization and alteration patterns are due, in part, to the superposition and spatial separation of mineral and alteration zones of different ages.



The mineralogy of porphyry deposits is highly varied, although pyrite is typically the dominant sulphide mineral in Cu, Cu-Mo, Cu-Au, Au, and Ag deposits. The principal ore and associated minerals in porphyry Cu-Au deposits are chalcopyrite, bornite, chalcocite, tennantite, enargite, other Cu minerals, native Au, electrum, and tellurides. Associated minerals include pyrite, arsenopyrite, magnetite, quartz, biotite, K-feldspar, anhydrite, epidote, chlorite, scapolite, albite, calcite, fluorite, and garnet.

Hydrothermal alteration is extensive and typically zoned, both on a deposit scale and around individual veins and fractures. In many porphyry deposits, alteration zones on a deposit scale consist of an inner potassic zone and an outer zone of propylitic alteration. Zones of phyllic alteration and argillic alteration may be part of the zonal pattern between the potassic and propylitic zones, or can be irregular or tabular, younger zones superimposed on older alteration and sulphide assemblages.

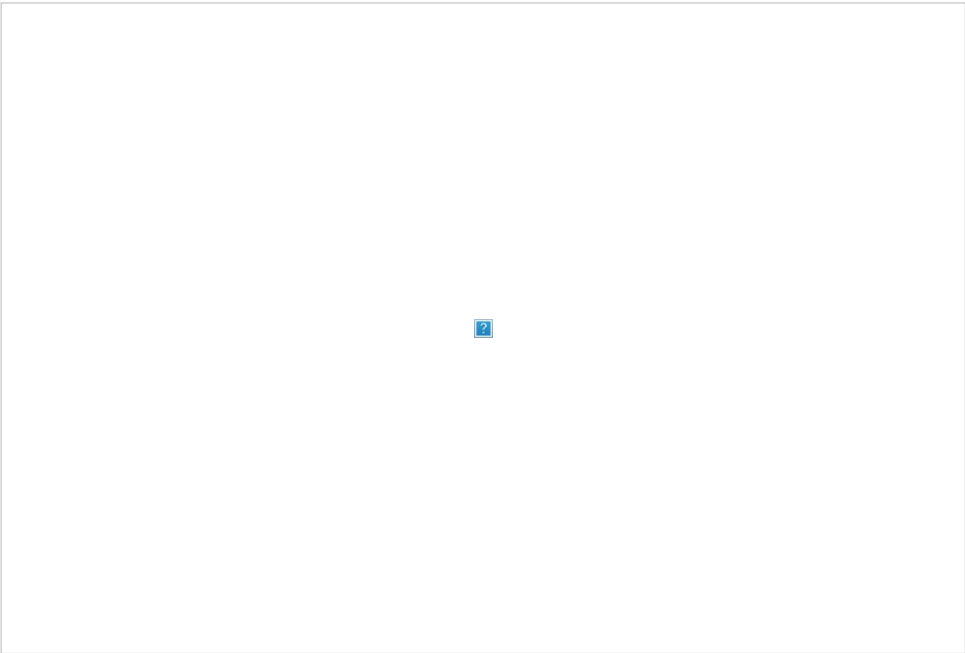
Figure 6-8 is a schematic diagram through a typical porphyry system showing mineral zonation and possible relationship to other deposit types like skarn, manto, "mesothermal", or "intermediate" precious-metal and base-metal vein and replacement, and epithermal precious-metal (Kirkham and Sinclair, 1995).

During the 2018 drilling campaign, an andesitic porphyry was intersected. This andesitic porphyry is associated with the Santa Bárbara diorite intrusive and consists of quartz veins and phyllic alteration.





Figure 6-8: Schematic Diagram through Typical Porphyry System



7.0 Exploration

7.1 Exploration

Exploration and development work has taken place at El Porvenir and Atacocha since 1936 and 1949, respectively. Exploration by the current operator, Nexa, has taken place since 2010.

Exploration at El Porvenir and Atacocha takes place within the broader context of an integrated exploration program for the Cerro Pasco Complex. This involves diamond drilling, mapping, sampling, and interpretations of known mineralized zones extensions and brownfield-type satellite targets.

Generally, exploration work is conducted simultaneously with underground development, which involves surface and underground diamond core drilling, as well as channel sampling following underground drifting. The channel sampling informs grade control at the El Porvenir and Atacocha underground operations but is also incorporated into the Long-Term Model (LTM). Grade control at San Gerardo is completed using blast hole data although this data is not directly included in the LTM.

Systematic underground geological mapping is completed at a scale of either 1:500 or 1:250, following underground development on all levels and sub-levels. A total of 26 underground levels have been developed at El Porvenir, with additional development on sub-levels. A total of 29 underground levels have been developed at Atacocha, with additional development on sub-levels. Geological mapping is completed by the mine/production geologists, with maps drawn on paper in the field and subsequently digitized with the help of a modelling assistant. The geological level plan maps are updated and incorporated into a three dimensional (3D) geological model daily to aid future exploration and mine development planning.

Airborne and ground magnetic surveys have been completed for the Cerro Pasco Complex, which show good correlation between Magnetization Vector Inversion (MVI) and the intrusives.

The El Porvenir and Atacocha mines are currently connected through two active tunnels; at the 3300 and 4070 levels, with the zone between the two mines termed the Integration Zone. Several additional connections are planned, which will facilitate underground exploration. Drilling within the Integration Zone has subsequently identified mineralization, which forms one of Nexa's highest priority exploration targets (Section 7.8).

In addition to the Integration Zone, Nexa has identified short term targets for exploration at the eastern side of the Santa Bárbara stock below 3,300 MASL and the San Gerardo above 3,300 MASL. Nexa has also identified several long-term brownfield target areas.

Exploration in 2022 included 1,656 m of diamond core drilling, focused on defining new potential mineralization zones at three different targets; Carmen Norte, Porvenir Sur, and the Integration Zone.

Exploration activities for 2023 included 16 diamond drill holes (DDH) for a total of 9,321 m. The drilling programs focused on the extensions of Integration Zone in 3300-3790-4050 Levels, and Porvenir Sur drilling from 3600 Level.

A total of \$2.1 million has been budgeted for planned exploration work in 2024 at the Complex, which includes 8,500 m of diamond drilling focused on delineation of the Integration Zone toward the north and deeper levels.

7.2 Drilling

7.2.1 El Porvenir

As of December 31, 2023, a total of 5,683 drill holes totalling 944,070 m have been completed at El Porvenir (Table 7-1). All drilling was diamond drilling (DDH), with most of the holes (5,544) completed from underground workings and 139 holes completed from surface. Drilling has been completed by various contractors. The indicated year refers to the start date of drilling. Figure 7-1 illustrates the locations of the drill holes at El Porvenir.

SLR was unable to confirm the drilling totals, as excluded drill holes were not included in the provided database, and the HOLE_TYP variable was found to be unreliable (with many supposedly surface drill holes clearly drilled from underground). SLR understands that Nexa is currently in the process of correcting these errors.

The El Porvenir resource database closure date was January 31, 2023. Between then and the effective date of this report, 252 drill holes were completed. This is discussed further in Section 11.4.1 and is not considered to have a material impact on estimated Mineral Resources.

Exploration drilling is generally completed over a 50 m by 50 m grid, whereas infill drilling is designed to cover a 15 m by 15 m grid. The overall distribution of drill holes and channel samples has been concentrated around the Carmen Norte 3, Exito, and Sara zones.

Table 7-1: El Porvenir Drilling

Year	Surface DDH		Underground DDH		Total	
	Number	Metres	Number	Metres	Number	Metres
Historic	19	1,555	757	140,571	776	142,127
2006			22	2,915	22	2,915
2008	14	638	86	17,310	100	17,948
2009			142	22,877	142	22,877
2010			147	24,120	147	24,120
2011			261	47,031	261	47,031
2012			320	55,979	320	55,979
2013			269	43,856	269	43,856
2014			258	37,783	258	37,783
2015			301	48,859	301	48,859
2016			385	64,187	385	64,187
2017			575	71,482	575	71,482
2018			527	87,536	527	87,536
2019	40	15,469	491	72,142	531	87,611
2020	38	15,221	209	24,284	247	39,505
2021	24	11,198	263	43,441	287	54,640
2022			275	51,460	275	51,460

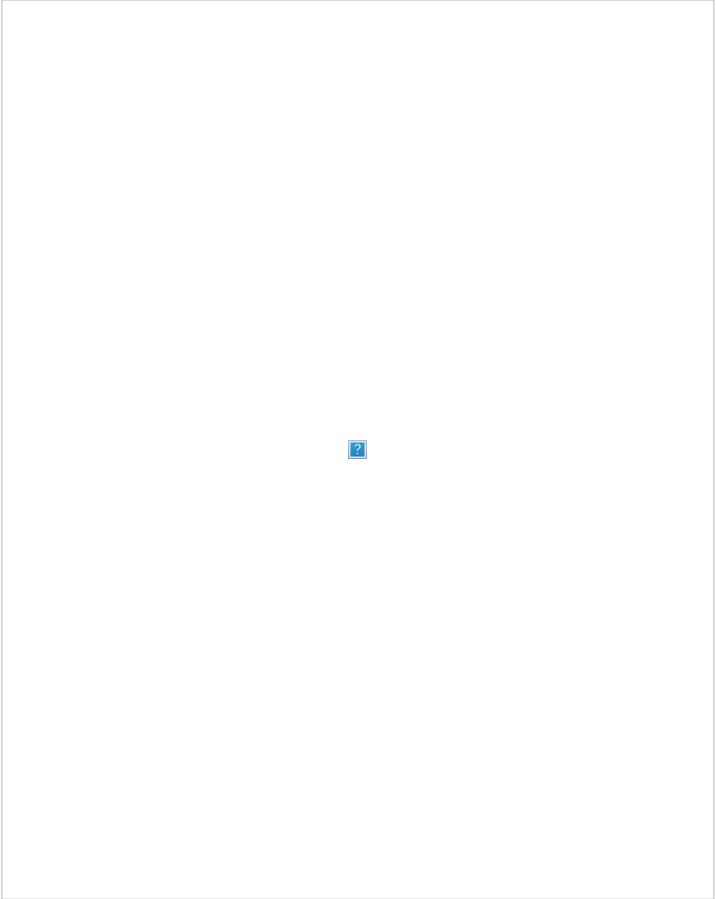


Year	Surface DDH		Underground DDH		Total	
	Number	Metres	Number	Metres	Number	Metres
2023	4	255	256	43,899	260	44,154
Total	139	44,336	5,544	899,733	5,683	944,070





Figure 7-1: El Porvenir Drill Hole Locations





A total of ten historic holes, with no survey records, missing geological data, and causing grade discrepancy with overlapped new holes, were excluded from the Mineral Resource estimate. In addition to this exclusion, a total of 11 holes were transferred to the Atacocha database, as they were drilled within the Atacocha concession. Table 7-2 summarizes the drill hole data excluded from the El Porvenir resource database:

Table 7-2: El Porvenir Excluded Drill Holes

Year	Number	Metres	Type
Historic	13	3,892	DDH
2008	1	245	DDH
2011	2	361	DDH
2012	3	572	DDH
2013	1	171	DDH
2016	1	18	DDH
Totals	21	5,258	

7.2.1.1 Core Recovery

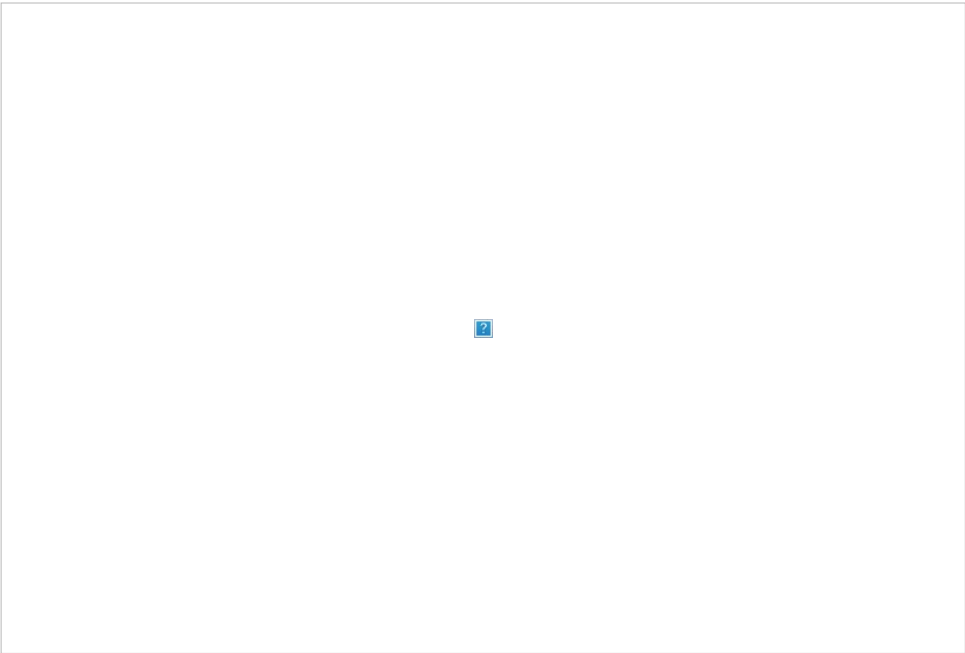
Core runs are 3.0 m for HQ and NQ and 1.5 m for BQ core size.

Since 2018, core recovery is routinely measured for each hole. Core recovery is available for 155,442 m of drill core at the effective date of the TRS, and 111,537 m of the drill core in the resource database (closed on January, 2023), equivalent to 12% of the database. The available core recovery data provides reasonable coverage for the deposit, although there are notable portions without data (Figure 7-2). Core recovery is generally above 97% and does not indicate any issues that may bias assay results.





Figure 7-2: El Porvenir Core Recovery Distribution



7.2.2 Atacocha

As of December 31, 2023, a total of 5,206 drill holes totalling 895,504 m have been completed at Atacocha (Table 7-5). All drilling was DDH, with 4,254 holes completed from underground workings, and 952 holes completed from surface, of which 917 were DDH and 35 were RC. The indicated year refers to the start date of drilling. Drilling has been completed by various contractors. Figure 7-4 illustrates the locations of the drill holes at Atacocha.

The Atacocha resource database closure date was January 31, 2023. Between then and the effective date of this report, 18 DDH were completed. This was limited to the San Gerardo open pit area. This is discussed further in Section 11.5.1 and is not considered by the QP to have a material impact on estimated Mineral Resources.

Exploration drilling is generally completed over a 50 m by 50 m grid, whereas infill drilling is designed to cover a 15 m by 15 m grid. The overall distribution of drill holes and channel samples has been concentrated around the Santa Bárbara, San Gerardo stock, and Integration zones.

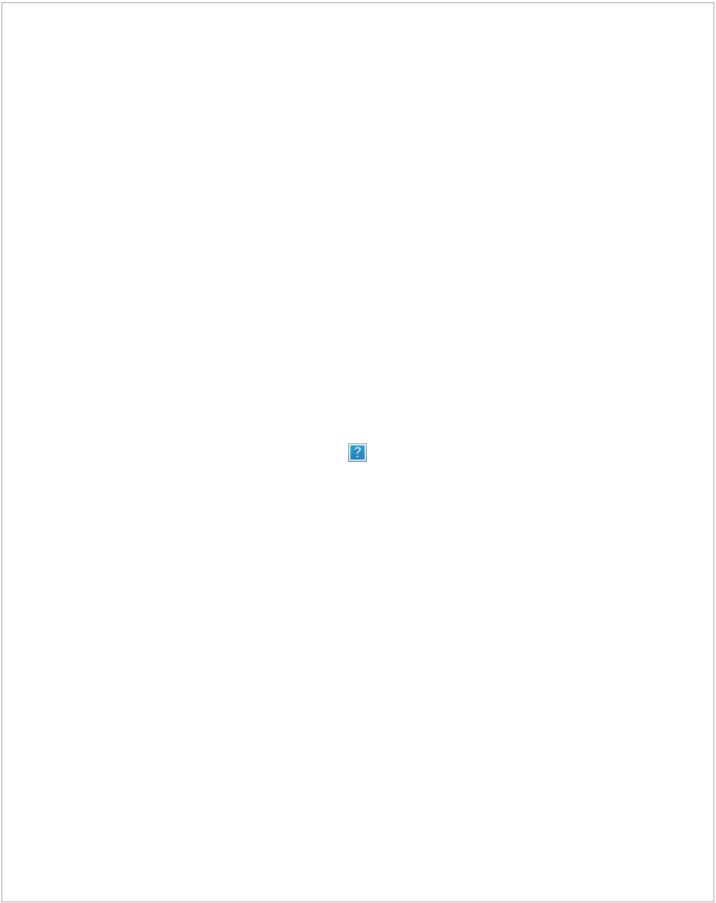
Table 7-3: Atacocha Drilling

Year	Surface DDH		Surface RC		Underground DDH		Total	
	Number	Metres	Number	Metres	Number	Metres	Number	Metres
1968					4	350.00	4	350.00
1969					3	346.20	3	346.20
1971					1	31.08	1	31.08
1986					1	31.09	1	31.09
1991					2	135.02	2	135.02
1992					1	73.16	1	73.16
1997					4	231.67	4	231.67
1998					17	2,247.12	17	2,247.12
1999					41	3,460.20	41	3,460.20
2000	3	397.70			45	4,600.25	48	4,997.95
2001					94	8,756.05	94	8,756.05
2002					89	10,346.50	89	10,346.50
2003					179	20,541.40	179	20,541.40
2004	2	829.45			330	42,374.15	332	43,203.60
2005	6	1,366.75			150	29,886.65	156	31,253.40
2006					129	19,444.60	129	19,444.60
2007					225	29,896.55	225	29,896.55
2008	27	7,263.20			317	44,908.50	344	52,171.70
2009	13	6,236.35			107	20,222.30	120	26,458.65
2010	22	8,882.00			121	26,172.30	143	35,054.30

Year	Surface DDH		Surface RC		Underground DDH		Total	
	Number	Metres	Number	Metres	Number	Metres	Number	Metres
2011	9	1,406.00			179	38,558.80	188	39,964.80
2012					274	62,253.80	274	62,253.80
2013	30	3,978.10			157	44,306.20	187	48,284.30
2014	20	3,034.60			239	47,846.05	259	50,880.65
2015	127	19,710.40			152	25,138.10	279	44,848.50
2016	247	37,247.00			251	34,963.95	498	72,210.95
2017	66	15,707.30			321	52,141.45	387	67,848.75
2017			35	8,687.00			35	8,687.00
2018	93	16,048.10			425	64,968.40	518	81,016.50
2019	61	12,807.40			340	70,424.50	401	83,231.90
2020	69	12,239.70			53	8,344.00	122	20,583.70
2021	64	13,410.00					64	13,410.00
2022	40	9,466.20			3	845.50	43	10,311.70
2023	18	2,941.60					18	2,941.60
Total	917	172,971.85	35	8,687.00	4,254	713,845.54	5,206	895,504.39



Figure 7-3: Atacocha Drill Hole Locations





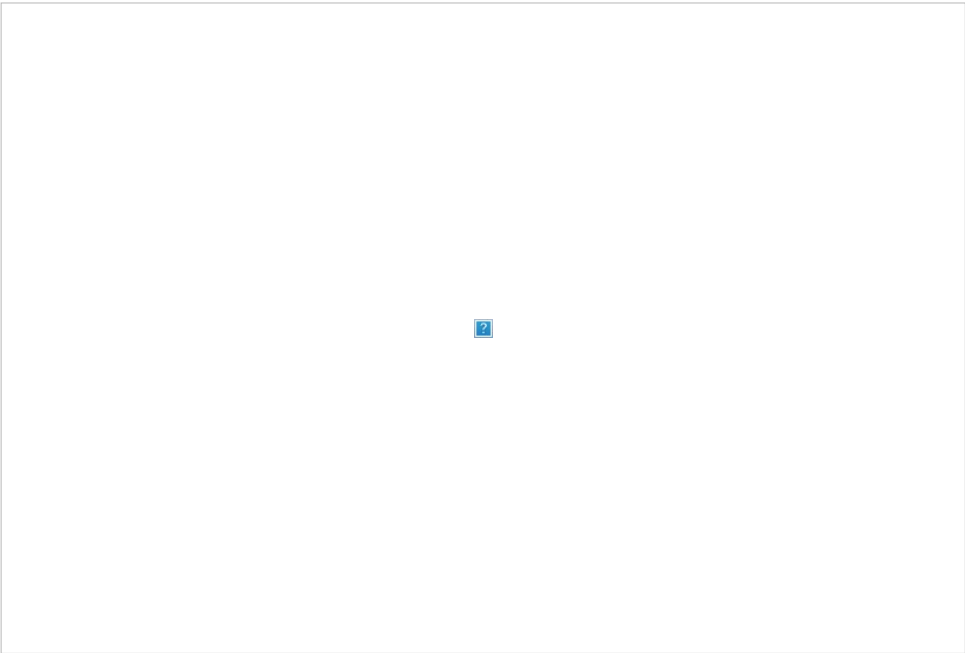
7.2.2.1 Core Recovery

Since 2018, core recovery data is routinely gathered for each hole. This is available for 30,725 m of drill core at the effective date of the report, and 27,784 m of drill core within the resource database (closed on January 31, 2023), equivalent to 3% of the database. The underground portion of the mine has no core recovery data (Figure 7-4). Based on the available core recovery data within the open pit area, recovery is generally above 96% and does not indicate any issues that may bias assay results.





Figure 7-4: Atacocha Core Recovery Distribution



7.2.3 Drilling Practices

Drilling procedures are coordinated and supervised by company geologists and overseen by the Superintendent of Geology and Exploration.

Drill hole (and channel sample) identifiers are generated in a systematic and specific format, including codes to reference: country, mining unit, year, and sequential number. All related drill hole data generated is similarly referenced to the corresponding drill hole collar.

Drill hole collar coordinates determined by Total Station and orientation are certified by the surveyor and validated by the responsible geologist. The coordinates and collar orientation data are entered into a master CSV file and subsequently imported into the database (Fusion) and archived within four days of completing the drill hole.

Downhole orientation survey data is collected by various drilling contractors. The survey is generally carried out after the completion of the drill hole. Various survey equipment (i.e., Gyro, Reflex, Flexit, etc.) may be used depending on the drilling contractor and equipment availability. Gyro survey deviation information is archived in pdf format. Survey data are generally collected between approximately 5 m and 10 m downhole (5.4 m on average at El Porvenir and 7.6 m on average at Atacocha), depending on the drilling objective (infill and brownfield). Original survey data is marked on paper, and provided to the supervising geologist, signed by the driller in charge. Survey data is validated by the responsible geologist and recorded in a master CSV file, subsequently imported into the database.

Daily drilling logs completed and provided by the various contracted drilling companies are archived in PDF format.

Following the completion of a drill hole, the logging and core sampling procedures are carried out by a team of logging geologists. Core is logged for geology, lithology, mineralogy, and alteration, which is entered into logging software (Fusion). A complete series of core photos are taken for each drill hole and stored in JPEG or PDF format. Logging is completed within 48 hours after a drill hole is completed. Core sampling for geochemical analysis is carried out under the supervision of the Sampling Geologist Supervisor immediately after completion of the logging and core photography.

Current exploration core sampling follows a written Standard Operation Procedure (SOP) PO-EXP-GTO-009-PT (Nexa, 2024), which specifies sampling intervals between 0.5 m and 1.5 m in length and a recommended length of 1.0 m. Sampling length is variable however, to respect key structural, lithological, and mineralization boundaries.

At El Porvenir and Atacocha, exploration core has HQ (63.5 mm) or NQ (47.6 mm) diameter.

Once the sample length and cut-line have been defined by the supervising geologist, the core is cut longitudinally into two equal parts using an electric diamond drill core saw. If the core is very fractured, the sampler separates and removes 50% of the fragmented material for the sample. The fragments are deposited in a pre-coded polyethylene bag and transported to the laboratory. The remaining half-core is archived.

At El Porvenir, infill and resource definition drilling is typically BQ (36.4 mm) sized core and is sampled in its entirety on 1.5 m intervals, with TT-46 (35.3 mm) diameter core also occasionally used. At Atacocha, infill and resource definition drilling is typically NQ-sized.

As a result of the exploration, infill, and resource definition processes, diamond core sampling at both El Porvenir and Atacocha has mostly been completed on 1.0 m, 1.5 m, and 2.0 m intervals, resulting in a mean of 1.3 m at El Porvenir and 1.2 m at Atacocha.



At Atacocha, 35 RC drill holes were completed and largely sampled on 1.0 m intervals although further details regarding the sampling procedures are unavailable.

The company personnel responsible for managing the database incorporates the core logging and core sampling information, as well as the subsequent assay results once the analytical work is completed. Sample and assay data are initially combined in a master CSV file, subsequently imported into the database, and geological/mine/modelling software program.

Drilling information is stored in a structured directory and backed up on a central server located in Brazil.

7.3 Channel Sampling

7.3.1 El Porvenir

No channel sampling is documented before 2001 and the practice was discontinued in 2017, before being resumed in November 2019.

As of December 31, 2023, a total of 19,074 channel samples totalling 129,075 m have been completed at El Porvenir (Table 7-3).

The El Porvenir resource database closure date was January 31, 2023. Between then and the effective date of this report, 1,596 channels were completed. This is discussed further in Section 11.4.1 and the QP does not consider this to have a material impact on estimated Mineral Resources.

Figure 7-5 shows the distribution of channel sampling at El Porvenir:

Table 7-4: El Porvenir Channel Sampling

Year	Channels	Metres
Historic	2,906	19,442
2006	2,606	17,788
2007	998	8,915
2008	799	7,295
2009	1,097	6,982
2011	1,180	8,781
2012	1,153	7,740
2013	637	3,618
2014	607	3,702
2015	968	7,212
2016	437	4,026
2017	28	490
2019	135	753
2020	452	2,723
2021	1,637	9,319



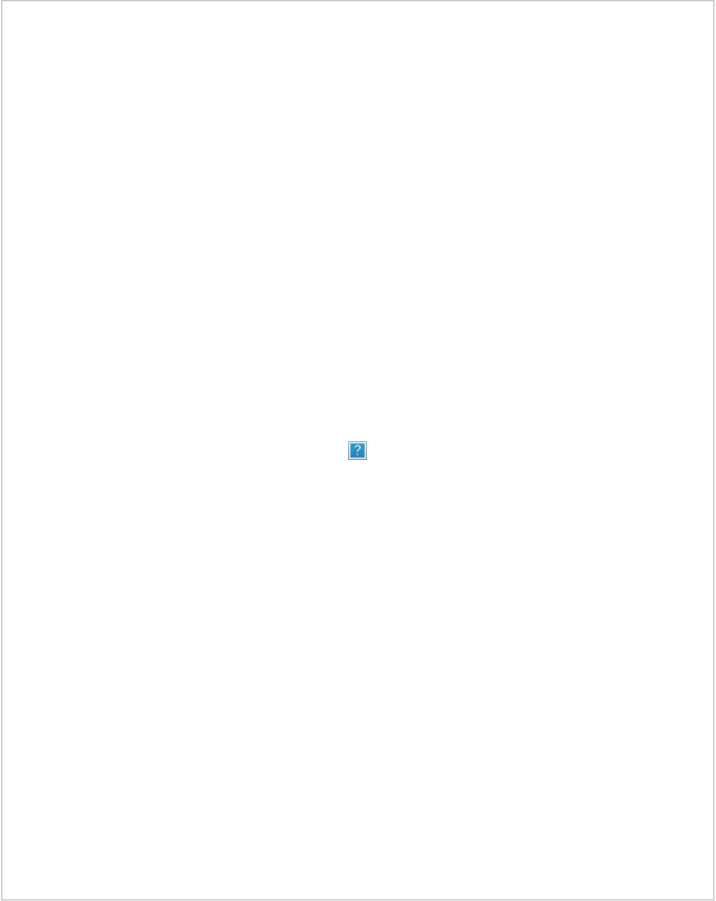


Year	Channels	Metres
2022	1,674	9,926
2023	1,760	10,364
Total	19,074	129,075





Figure 7-5: El Porvenir Channel Sampling Locations





7.3.2 Atacocha

As of December 31, 2023, a total of 69,154 channel samples totalling 262,171 m have been completed at Atacocha (Table 7-6). Channel sampling was discontinued in 2016 but resumed in 2022.

The Atacocha resource database closure date was January 31, 2023. Between then and the effective date of the report, 32 channels were completed, which were limited to the San Gerardo open pit area. This is discussed further in Section 11.5.1 and the QP does not consider this to have a material impact on estimated Mineral Resources.

Figure 7-6 shows the distribution of channel sampling locations at the Atacocha Mine.

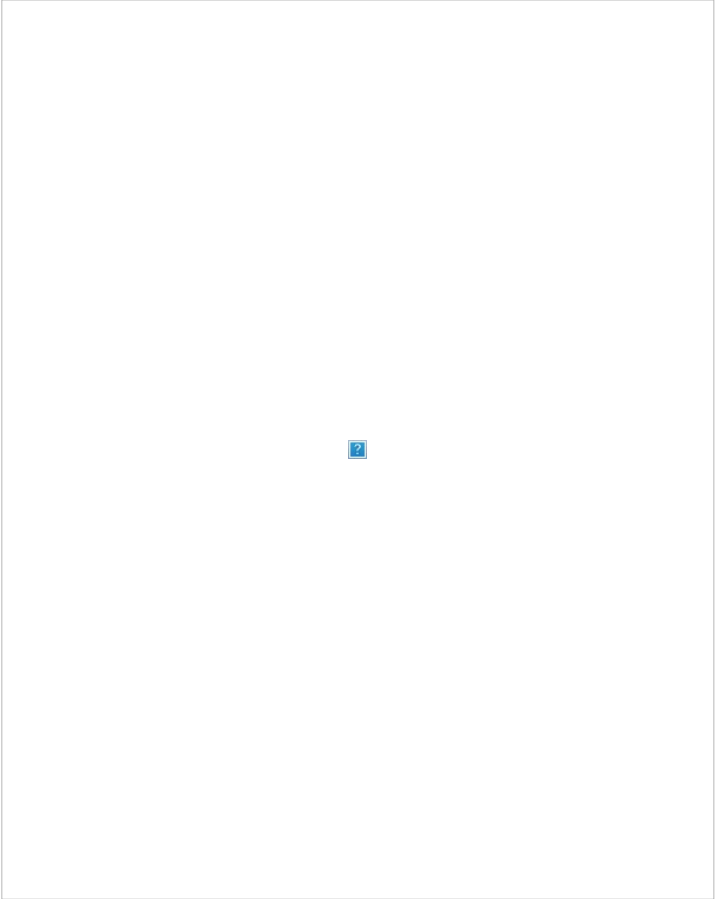
Table 7-5: Atacocha Channel Sampling

Year	Quantity	Metres
2001	2,406	5,737.24
2002	8,523	23,044.88
2003	8,358	23,094.19
2004	6,316	23,035.27
2005	7,105	28,203.90
2006	9,505	36,975.60
2007	7,360	27,625.23
2008	6,141	22,777.25
2009	3,446	16,523.95
2010	2,357	12,879.30
2011	1,824	9,549.45
2012	1,949	10,376.30
2013	1,463	8,531.15
2014	1,290	7,652.65
2015	951	5,339.45
2016	112	648.60
2022	16	70.35
2023	32	106.40
Total	69,154	262,171.16





Figure 7-6: Atacocha Channel Sampling Locations





7.3.3 Channel Sampling Practices

Channel samples are treated as drill holes in the database, with a location, survey (direction: azimuth and inclination), and associated sampling/assay data.

Channel chip samples are generally collected from the face of newly exposed underground workings. The entire process is carried out under the inspection of the sampling supervisor geologist.

Channel samples are collected between the hanging wall and footwall contacts of mineralized zones. A channel sample area is marked, oriented perpendicular to the strike of the mineralized structure.

The sample area is first washed down to provide a clear view of the vein. The width of each channel sample is approximately 0.2 m to 0.3 m wide, and 2.0 cm deep. The channel is sampled by taking a succession of chips in sequence from the hanging wall to the footwall.

Sample collection is normally performed by two samplers, one using the hammer and chisel, and the other holding the receptacle cradle to collect the rock fragments. The cradle consists of a sack, with the mouth kept open by a wire ring. The collected sample material is then placed on a mat measuring 1.0 m by 1.2 m; the larger sample fragments are then broken down to smaller fragments, less than approximately 2.0 cm, using a four- or six-pound hammer. Subsequently, the sample material is mixed, and approximately one quarter of the mixed material is separated to obtain a representative sample (cone-and-quarter method), with a target weight of between 2.5 kg and 3.0 kg.

At El Porvenir, the spacing between each channel sample is generally 1.0 m. If the width of the vein, or length of the channel sample, is longer than 1.0 m, sample lengths shorter than 1.0 m are collected. If the width of the vein is smaller than 0.2 m, the width of the sample is increased to 0.5 m to obtain a sufficient sample size.

At Atacocha, the spacing between each channel sample is generally 2.0 m. If the width of the vein, or length of the channel sample, is longer than 1.5 m, sample lengths shorter than 1.5 m are collected. If the width of the vein is smaller than 0.2 m, the width of the sample is increased to 0.4 m to obtain a sufficient sample size.

The final sample is placed in a bag with a coded ticket and shipped to the Inspectorate laboratory at the mine site.

7.4 Hydrogeology Data

7.4.1 El Porvenir

The El Porvenir Mine does not produce significant quantities of water. Details related to mine water drainage are covered in Section 13.1.6.2.

7.4.2 Atacocha

The Atacocha Mine does not produce significant quantities of water. Details related to hydrogeology are covered in Section 13.1.6.2.





7.5 Geotechnical Data

7.5.1 El Porvenir

Geotechnical studies have been conducted at El Porvenir to characterize the quality of the rock mass to predict the stope and mine workings stability. Underground geotechnical mapping, geotechnical core logging, and laboratory tests are part of Nexa geotechnical procedures. Nexa has performed laboratory testing in combination with geotechnical mapping and geotechnical logging to monitor the ground stability and to define parameters for ground support design of the underground workings as it is described in Section 13.1.4. The geotechnical logging, mapping, testing, and data analysis protocols include industry-standard practices.

7.5.1.1 Geotechnical Logging

Geotechnical logging information is available for 155,442 m of drill core (Table 7-6).

Table 7-6: El Porvenir Geotechnical Logging Summary Statistics

Analyte	Count	Length	Mean	StdDev	CV	Variance	Min	Q25	Median	Q75	Max
Core Recovery (%)	17,121	155,442	97.84	7.65	0.08	58.47	0	97.65	99.17	100	100
RQD (%)	17,146	155,884	61.73	25.57	0.41	653.94	0	25.14	57.65	79.74	100
RMR	17,146	155,884	39.93	13.23	0.33	174.91	8	25	35	46	82
Length (m)	17,146	155,884	9.09	14.45	1.59	208.68	0.04	1.55	3.8	10.2	210.2

7.5.2 Atacocha

Geotechnical studies have been conducted at the Atacocha Mine to characterize the quality of the rock mass to predict the stope and open pit mine workings stability. Underground geotechnical mapping, geotechnical core logging and laboratory tests are part of Nexa geotechnical procedures. Nexa has performed laboratory testing in combination with geotechnical mapping and geotechnical logging to monitor the ground stability and to define parameters for ground support design of the underground workings as it is described in Section 13.2.2. The geotechnical logging, mapping, testing and data analysis protocols include industry-standard practices.

7.5.2.1 Geotechnical Logging

Geotechnical logging is available for 30,725 m of drill core (Table 7-7). The underground portion of the mine has no geotechnical logging data.

Table 7-7: Atacocha Geotechnical Logging Summary Statistics

Analyte	Count	Length	Mean	StdDev	CV	Variance	Min	Q25	Median	Q75	Max
Core Recovery (%)	5,201	30,725	97.56	6.23	0.06	38.86	0	96.55	98.57	100	100
RQD (%)	5,201	30,725	58.13	27.42	0.47	751.83	0	17.27	46.67	71.43	100
RMR (%)	5,201	30,725	39.94	11.82	0.3	139.81	8	25	34	43	73
Length (m)	5,201	30,725	5.91	8.07	1.37	65.07	0.05	1.45	3.4	7.1	115.6

Note: CV – coefficient of variation





7.6 Geophysics

In 2020, Nexa commissioned a MagDrone magnetometry program covering 488 km of lines over a 7,200 ha area in the Cerro Pasco Complex district extending from the Machcan area to the south of El Porvenir (Figure 7-7). The geophysical survey indicated the possible presence of subcropping intrusives as new exploration targets. The magnetic surveys in the figures are coloured by MVI.

As shown in Figure 7-8, the magnetic surveys correlate with the intrusives, which is an important tool for determining prospective areas for the generation of new targets.

As part of Nexa's initiative to increase defined mineralization potential – termed the “Full Potential” program - exploration data acquisition and interpretation activities for 2023 focused on identifying mineralogical alteration patterns and included a surface magnetometric geophysical program, aiming to identify and define brownfield exploration targets (Section 7.8.2).





Figure 7-7: Geophysical Anomalies at Pasco Complex

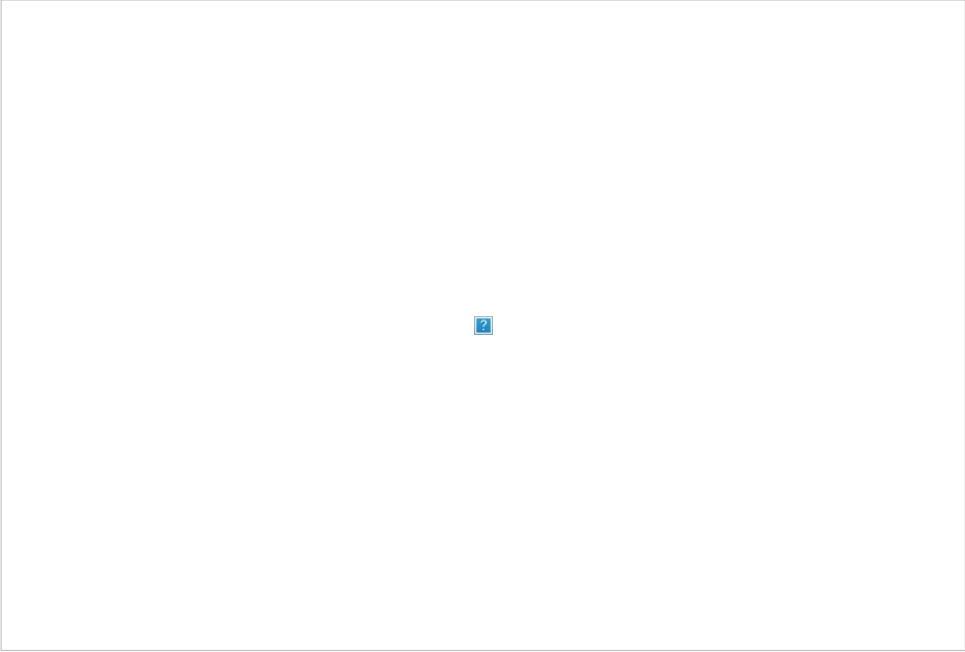
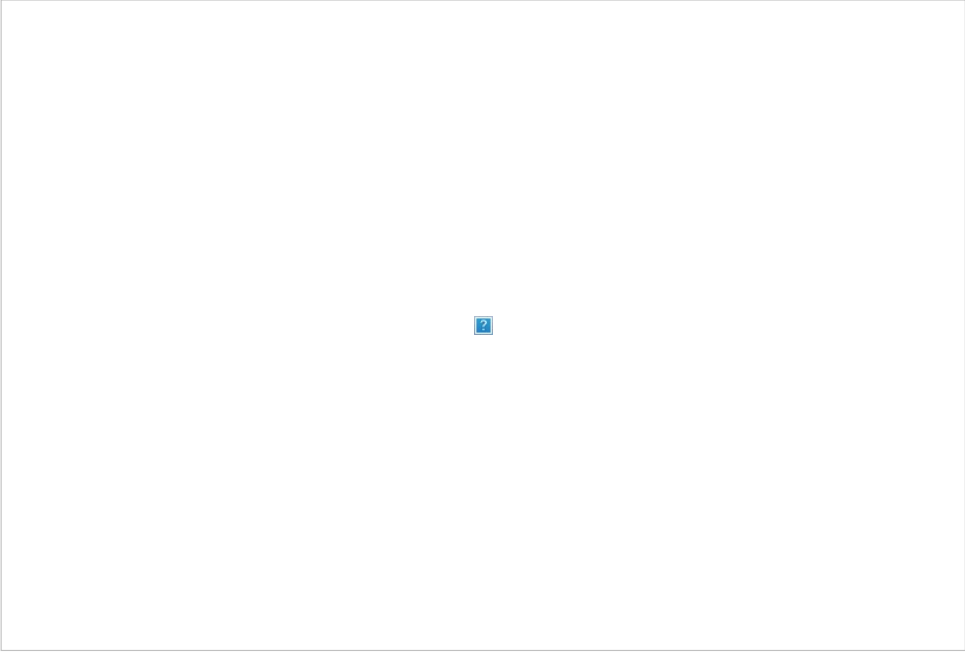




Figure 7-8: Comparison Between Geological and Geophysical Section





7.7 Exploration Target

Nexa has identified areas of potential mineralization, for which there has been insufficient exploration to estimate a Mineral Resource or an Exploration Target, however, Nexa intends to test these with further exploration (Section 7.8).

7.8 Exploration Potential

7.8.1 Short Term Exploration Potential

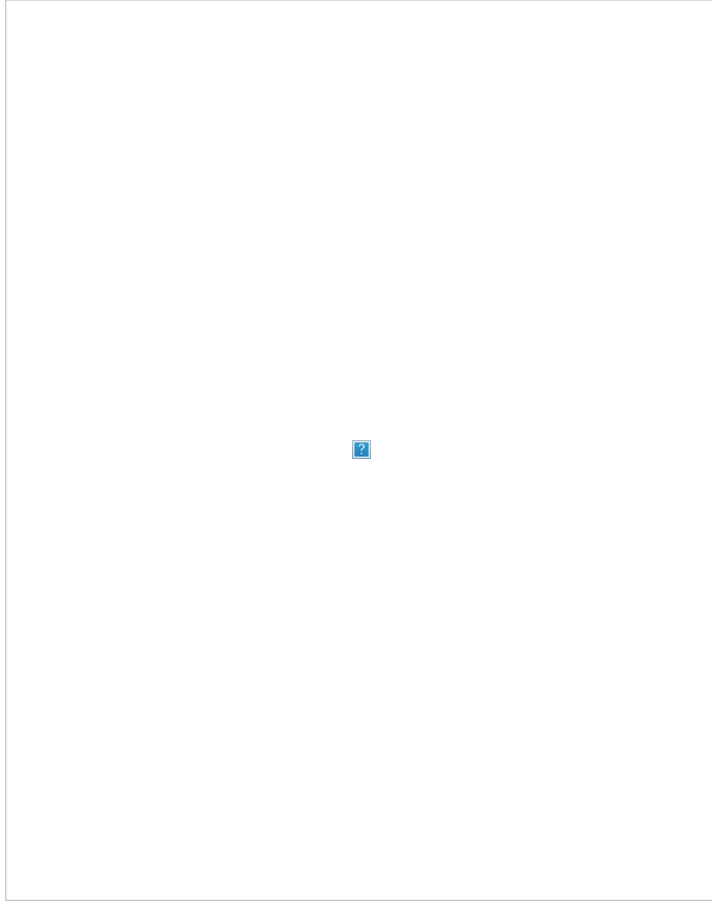
Short-term opportunities for discovering new and significant mineralization rely on developing exploration platforms and drilling exploration holes at the following locations (Figure 7-9):

- The upper levels (above 3,300 MASL) of the Integration Zone between El Porvenir and Atacocha.
- The eastern side of the Santa Bárbara stock, 3,300 MASL and below.
- The upper levels (above 3,300 MASL) of San Gerardo.





Figure 7-9: Short Term Exploration Potential





7.8.1.1 Integration of El Porvenir and Atacocha

To date, Nexa has developed two underground connections between the El Porvenir and Atacocha mines at the 3300 and 4070 levels. Several other connections were planned and allow ample opportunities to conduct underground exploration drilling to test the volume which lies between the two mines. Figure 7-10 presents the El Porvenir and Atacocha mines with underground workings in relation to the modelled mineralization wireframes, defined by drilling and underground channels and mapping, and to the potential mineralization wireframes, defined by the geological continuity and limited drilling. In 2018, mineralization within the Integration Zone was discovered at the 3300 Level, which consists of one mineralization zone hosted in hydrothermal breccias and another in skarn. Nexa plans to continue exploration towards levels above and below the 3300 Level. Since 2021, exploration has continued, with further drilling completed in 2022 and 2023.

The 2023 exploration program tested extensions of the Integration Zone in the 3300-3790-4050 Levels and confirmed the continuity of mineralization in the 3300 Level.

7.8.2 Long Term Brownfield Exploration Potential

In addition to brownfield targets in the deeper parts of both the Santa Bárbara skarns and the Integration Zone between Atacocha and El Porvenir, the following brownfield targets (Figure 7-11) have been recognized through surface mapping and subsequent work, including remote sensing process and geophysics:

- **Machcan:** Vein outcrops and mineralized mantle with Ag, Pb, and Zn mineralization, reflected in magnetic anomalies.
- **Curiajasha:** Northwest faulting, concordant with the dikes and magnetic anomalies.
- **Longreras:** Silicic breccia extending for more than two kilometres; the presence of Pb and Ag anomalies on surface and a magnetic anomaly to the south.
- **Manuel 05 and Pique Estrella:** Following the northwest structural trend; supported by historic holes intersecting vein mineralization.
- **La Quinoa Chicrin Corridor:** Remote sensing anomalies, the presence of alunite, illite, and kaolinite, and sandstone host rock, supported by a geophysical anomaly at depth.

The Machán target is of particular exploration interest. This target is in the early concept phase but was tested by 3,879 m of core drilling during 2001 through 2013. The early results intersected a narrow polymetallic vein system with potential for a completely new skarn system, separate from Atacocha and El Porvenir. Nexa has modelled the vein system based on the drilling intercepts, but the mineralization remains open both laterally and at depth.





Figure 7-10: El Porvenir and Atacocha Mines with Exploration Areas

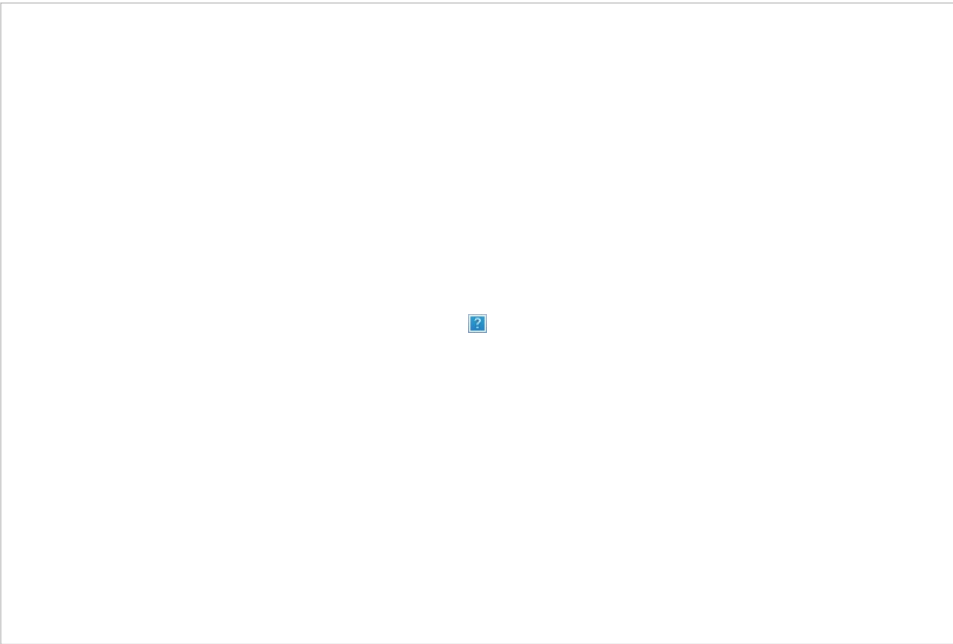
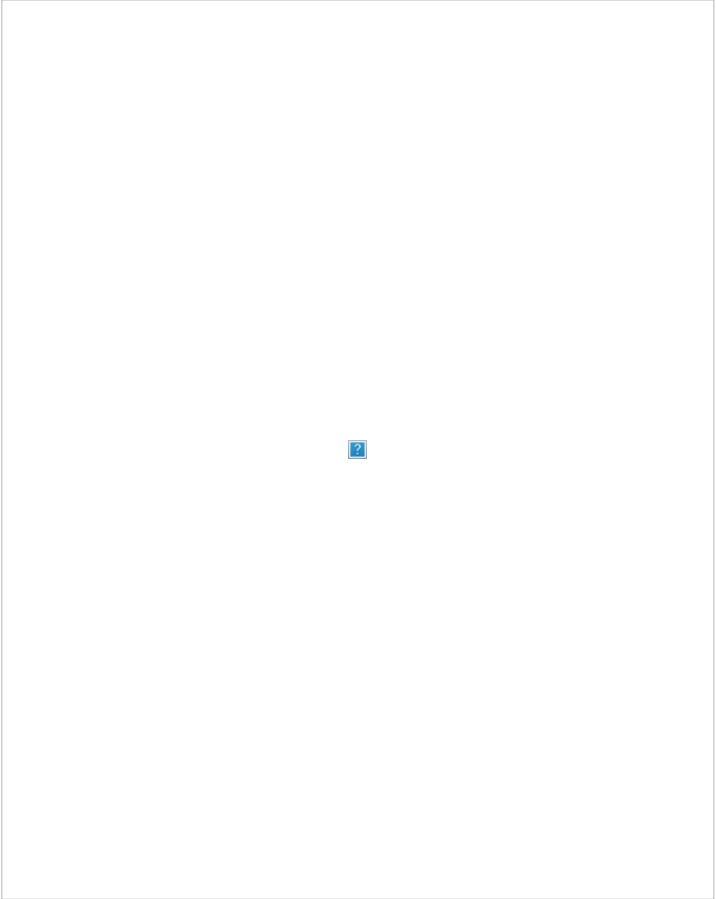




Figure 7-11: Brownfield Exploration Targets



7.8.3 Planned 2024 Exploration

A total of \$2.1 million has been budgeted for planned exploration work in 2024 at the Complex, which includes approximately 8,500 m of diamond drilling focused on delineation of the Integration Zone toward the north and deeper levels. The program is intended to define new Inferred Mineral Resources where currently only potential mineralization has been identified, and test the extension of VAM, Don Lucho, and Porv 9 to the 3790 Level (Figure 7-11).

The exploration criteria for 2024 drilling are based on:

- **Structural Analysis:** Planned exploration drilling is focused on identifying extensions of known deposits based on structural geology and interpretation.
- **Geological Control:** Drilling will target skarn mineralization associated with intrusives; aiming to extend mineralized zones.

7.9 Summary

Exploration methods used by Nexa at the Complex are consistent with industry practices and the available data indicates further areas of potential mineralization.

Although additional drilling and channel sampling has taken place following the January 31, 2023 closure of the resource database used to estimate Mineral Resources, the QP considers that this information largely supports the existing interpretation and that it does not have a material impact.



8.0 Sample Preparation, Analyses, and Security

8.1 Laboratories

Cerro Pasco has used different independent laboratories including Inspectorate (referred to as Inspectorate AT and Inspectorate EP, at Atacocha and El Porvenir, respectively), ALS Peru S.A. (ALS) in Lima, Certimin S.A. (Certimin) in Lima, and, historically, SGS del Peru S.A.C. (SGS).

Inspectorate is an independent, commercial laboratory and is part of Bureau Veritas S.A., which is a global leader in testing, inspection, and certification ISO 17025:2017 standards for specific analytical procedures.

Certimin Lima holds ISO 9001 and NTP-ISO/IEC 17025 and 17021 certifications and is accredited by the Organismo Peruano de Acreditación (INACAL). ALS laboratories are accredited to ISO/IEC 17025:2005 for specific analytical procedures. Both Certimin and ALS laboratories are independent of Nexa.

SGS was used for sample preparation and analysis during the 2006 to 2009 drilling campaigns running the on-site laboratories at the mine sites. Since 2010, Nexa has generally used Inspectorate EP and AT for exploration sample preparation and analysis, with ALS and Certimin used if Inspectorate is running out of capacity.

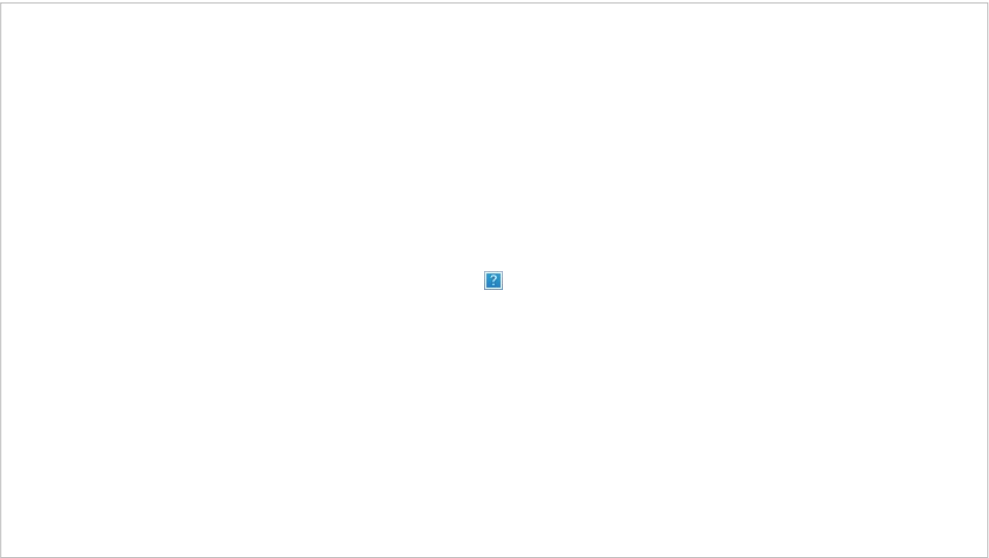
8.2 Sample Preparation and Analysis

Figure 8-1 shows a schematic flow chart of sample control, data transfer, and personnel units responsible for each respective area.





Figure 8-1: Nexa Schematic Flow Chart for Sample and Data Controls



Source: Nexa, 2023





El Porvenir and Atacocha both have a contract with Inspectorate, which began its operations in 2011, and with ALS starting in 2018. SGS ran an on-site laboratory from 2006 to 2009. Exploration samples were sent to Certimin in 2017 and 2018.

Sampling was completed by Nexa geologists following standard operating procedures.

Sample preparation and analysis at the on-site Inspectorate EP and Inspectorate AT laboratories consisted of:

- Samples were dried at 105°C, with primary crushing at 85% on a ¼" American Standard Test Sieve Series (ASTM) mesh and secondary crushing at 85% on a 10 mesh ASTM, split using a Jones riffle splitter (250 g to 280 g) and pulverized to 95% passing a 140 mesh screen (-105 µm).
- Samples were analyzed using aqua regia digestion with an atomic absorption spectroscopy (AAS) finish for the elements Zn, Pb, Cu, Ag, and Fe, and samples with over limits were re-assayed by Volumetric/Gravimetric Method.

Sample preparation and analysis at Certimin consisted of:

- Samples were dried at 105°C and coarse crushed to 90% passing a 10 mesh screen (2.0 mm), riffle split (200 g to 250 g), and pulverized to 85% passing a 200 mesh screen (-75 µm).
- Samples were analyzed using the multielement inductively coupled plasma optical emission spectroscopy (ICP-OES) method with aqua regia digestion. Subsequently, upper limit samples were analyzed using AAS, particularly for the elements Zn, Pb, Cu, Ag, Fe, and Mn.
- Determination of Au using a standard fire assay (FA) fusion and AAS finish.

Sample preparation and analysis at ALS consisted of:

- Samples were dried at 105°C and coarse crushed to 70% passing a 10 mesh screen (-2.0 mm), riffle split (200 g to 250 g), and pulverized to 85% passing a 200 mesh screen (-75 µm).
- Samples were analyzed by 35 multielement ICP-OES method and aqua regia digestion. For samples with upper limits, assays were conducted using AAS and, where appropriate, the Volumetric/Gravimetric Method, particularly for the elements Zn, Pb, Cu, Ag, Au, Bi, and Mn, as outlined in Table 8-2.
- Assays were also complemented using a standard FA with a 30 g aliquot and AAS finish.

Detection limits (DL) for Inspectorate EP and AT, ALS, and Certimin are summarized in Table 8-1.





Table 8-1: El Porvenir and Atacocha Laboratory Detection Limits

Laboratory	Element	Unit	Method	Detection Lower Limit	Detection Upper Limit	1 st Upper Limit Default Method	2 nd Upper Limit Default Method
Inspectorate EP	Ag	ppm	F-AA	4	-	GRA	-
	Cu	%	F-AA	0.01	30	VOL	-
	Fe	%	F-AA	0.01	-	VOL	-
	Mn	%	F-AA	0.01	-	VOL	-
	Pb	%	F-AA	0.01	30	VOL	-
	Zn	%	F-AA	0.01	30	VOL	-
Inspectorate AT	Ag	ppm	F-AA	2	-	GRA	-
	Au	ppm	FA	0.03	-	GRA	-
	Cu	%	F-AA	0.001	30	VOL	-
	Mn	%	F-AA	0.001	-	VOL	-
	Pb	%	F-AA	0.001	30	VOL	-
	Zn	%	F-AA	0.001	30	VOL	-
	Bi	%	F-AA	0.005	-	-	-





Laboratory	Element	Unit	Method	Detection Lower Limit	Detection Upper Limit	1 st Upper Limit Default Method	2 nd Upper Limit Default Method
ALS	Au	ppm	Au-AA23	0.005	10	Au-GRA21	-
	Ag	ppm	ME-ICP41	0.2	100	Ag-OG46	Ag-GRA21
	Al	%	ME-ICP41	0.01	25	-	-
	As	ppm	ME-ICP41	2	10,000	-	-
	B	ppm	ME-ICP41	10	10,000	-	-
	Ba	ppm	ME-ICP41	10	10,000	-	-
	Be	ppm	ME-ICP41	0.5	1,000	-	-
	Bi	%	ME-ICP41	0.0002	1	-	-
	Ca	%	ME-ICP41	0.01	25	-	-
	Cd	ppm	ME-ICP41	0.5	1,000	-	-
	Co	ppm	ME-ICP41	1	10,000	-	-
	Cr	ppm	ME-ICP41	1	10,000	-	-
	Cu	%	ME-ICP41	0.0001	1	Cu-OG46	-
	Fe	%	ME-ICP41	0.01	50	Fe-OG46	-
	Ga	ppm	ME-ICP41	10	10,000	-	-
	Hg	ppm	ME-ICP41	1	10,000	-	-
	K	%	ME-ICP41	0.01	10	-	-
	La	ppm	ME-ICP41	10	10,000	-	-
	Mg	%	ME-ICP41	0.01	25	-	-
	Mn	%	ME-ICP41	0.0005	5	Mn-OG46	-
	Mo	ppm	ME-ICP41	1	10,000	-	-
	Na	%	ME-ICP41	0.01	10	-	-
	Ni	ppm	ME-ICP41	1	10,000	-	-
	P	ppm	ME-ICP41	10	10,000	-	-
	Pb	%	ME-ICP41	0.0002	1	Pb-OG46	Pb-VOL70
	S	%	ME-ICP41	0.01	10	-	-
	Sb	ppm	ME-ICP41	2	10,000	-	-
	Sc	ppm	ME-ICP41	1	10,000	-	-
	Sr	ppm	ME-ICP41	1	10,000	-	-
	Th	ppm	ME-ICP41	20	10,000	-	-
	Ti	%	ME-ICP41	0.01	10	-	-
	Tl	ppm	ME-ICP41	10	10,000	-	-
	U	ppm	ME-ICP41	10	10,000	-	-
	V	ppm	ME-ICP41	1	10,000	-	-
	W	ppm	ME-ICP41	10	10,000	-	-
	Zn	%	ME-ICP41	0.0002	1	Zn-OG46	Zn-VOL70





Laboratory	Element	Unit	Method	Detection Lower Limit	Detection Upper Limit	1 st Upper Limit Default Method	2 nd Upper Limit Default Method
Certimin	Au	ppm	G0108	0.005	10	G0014	-
	Ag	ppm	G0148	0.2	100	G0001	G0008
	Al	%	G0148	0.01	15	-	-
	As	ppm	G0148	3	10,000	-	-
	Ba	ppm	G0148	1	10,000	-	-
	Be	ppm	G0148	0.5	10,000	-	-
	Bi	%	G0148	0.0005	1	-	-
	Ca	%	G0148	0.01	15	-	-
	Cd	ppm	G0148	1	10,000	-	-
	Co	ppm	G0148	1	10,000	-	-
	Cr	ppm	G0148	1	10,000	-	-
	Cu	%	G0148	0.00005	1	G0038	-
	Fe	%	G0148	0.01	15	G0051	-
	Ga	ppm	G0148	10	10,000	-	-
	Hg	ppm	G0148	1	10,000	-	-
	K	%	G0148	0.01	15	-	-
	La	ppm	G0148	0.5	10,000	-	-
	Mg	%	G0148	0.01	15	-	-
	Mn	%	G0148	0.0002	1	G0060	-
	Mo	ppm	G0148	1	10,000	-	-
	Na	%	G0148	0.01	15	-	-
	Ni	ppm	G0148	1	10,000	-	-
	P	%	G0148	0.01	15	-	-
	Pb	%	G0148	0.0002	1	G0076	G0339
	S	%	G0148	0.01	10	-	-
	Sb	ppm	G0148	5	10,000	-	-
	Sc	ppm	G0148	0.5	10,000	-	-
	Sr	ppm	G0148	0.5	5,000	-	-
	Th	ppm	G0148	50	10,000	-	-
	Ti	%	G0148	0.01	15	-	-
	Tl	ppm	G0148	2	10,000	-	-
	U	ppm	G0148	50	10,000	-	-
	V	ppm	G0148	2	10,000	-	-
	W	ppm	G0148	10	10,000	-	-
	Zn	%	G0148	0.00005	1	G0387	G0338

8.3 Sample Security

Core boxes were transported daily to the core shed by personnel from the drilling company. Samples were transported by a contractor supervised by company personnel. Core boxes and samples were stored in safe, controlled areas.

Chain-of-custody procedures were followed whenever samples were moved between locations and to and from the laboratory, by the completion of sample submittal forms.

8.4 Density Determinations

Density samples were collected from 2009 to 2023 for El Porvenir and from 2013 to 2023 for Atacocha and tested by various laboratories. Historically, Nexa used Certimin and ALS as independent laboratories for density determinations. A water immersion method is used, consisting of coating the sample in paraffin wax, weighing the sample in air, then suspending the sample in water, and weighing the sample again. By the end of 2020, dedicated density laboratories were established at El Porvenir and Atacocha to conduct density measurements using the water immersion method, but with a lacquer spray applied to porous samples rather than paraffin wax. To monitor accuracy and precision, quality control (QC) samples are integrated into the process, including certified reference, duplicate readings, and inter-method checks.

Density sample intervals are generally consistent with assay sampling intervals and are approximately one metre in length, although sometimes representative 10 cm to 20 cm lengths of the entire core are used, taken from a variety of lithological and mineralogical types. Photographs and brief descriptions were taken before sending the samples to the laboratory for density determinations. Density data is recorded in the main database.

The ALS and Certimin laboratories used the water immersion method to determine the density of the provided samples.





8.4.1 El Porvenir

A total of 14,634 density samples were taken from 2009 to 2023 at the El Porvenir deposit and tested by various laboratories. A summary of the density measurements taken is presented in Table 8-2.

From 2014 to 2016, on-site trained technicians performed density measurements using the water immersion method. Between 2017 and 2020, a team from third-party company Explomin Del Peru S.A.C. carried out density measurements within the El Porvenir core facility, in addition to Certimin and ALS. However, starting from December 2020, density measurements have been exclusively performed at the El Porvenir laboratory.

Table 8-2: El Porvenir Density Measurements

Phase	Sample Type	Total No. Samples	No. Samples within Mineralization Zones
LOM2009	Drill Holes	9	-
LOM2010	Drill Holes	37	-
LOM2011	Rock	686	508
LOM2011	Drill Holes	44	-
LOM2012	Rock	18	14
LOM2012	Drill Holes	92	-
LOM2014	Rock	62	22
LOM2014	Drill Holes	290	89
LOM2015	Rock	229	158
LOM2015	Drill Holes	828	187
LOM2016	Rock	236	169
LOM2016	Drill Holes	375	148
LOM2017	Drill Holes	386	134
LOM2018	Rock	86	36
LOM2018	Drill Holes	316	41
LOM2019	Drill Holes	834	118
LOM2020	Drill Holes	836	124
LOM2021	Drill Holes	966	86
LOM2022	Drill Holes	3,350	-
LOM2023	Drill Holes	4,954	-
Total		14,634	1,834





8.4.2 Atacocha

A total of 7,612 density samples were taken from LOM2013 to LOM2023 at the Atacocha deposit and tested by various laboratories. A summary of the density measurements taken is presented in Table 8-3.

Since December 2020, density measurements have been exclusively performed at the Atacocha laboratory.

Table 8-3: Atacocha Density Measurements

Phase	Sample Type	Total No. Samples	No. Samples within Mineralization Zones
LOM2013	Rock	859	817
LOM2013	Drill Hole	75	1
LOM2014	Drill Hole	89	-
LOM2015	Drill Hole	38	12
LOM2016	Rock	720	359
LOM2016	Drill Hole	240	-
LOM2017	Rock	152	-
LOM2017	Drill Hole	227	45
LOM2018	Rock	97	-
LOM2018	Drill Hole	889	130
LOM2019	Rock	20	10
LOM2019	Drill Hole	1060	102
LOM2020	Drill Hole	1004	202
LOM2021	Drill Hole	577	27
LOM2022	Drill Hole	659	-
LOM2023	Drill Hole	906	-
TOTAL		7,612	1,705

8.5 Quality Assurance and Quality Control

Both El Porvenir and Atacocha implement quality assurance (QA) and quality control (QC) practices to maintain and monitor sample data quality. The implemented QA practices include standardized operating procedures and maintaining robust data management and transfer systems, while the implemented QC includes sampling to monitor performance of the sampling, sample preparation, and analytical processes. Analysis of QC data is performed to assess the reliability of all sample assay data and the confidence in the data used for resource estimation.

For the current Mineral Resource estimate, SLR was retained to independently review the QA/QC data from El Porvenir (since January 16, 2020) and Atacocha (since September 1,





2018) until January 31, 2023, the cut-off date for the resource database. The QA/QC program implemented by Nexa complies with current industry best practices which involve appropriate procedures and routine insertion of certified reference materials (CRM), blanks, and duplicates to monitor the sampling, sample preparation, and analytical processes.

QC samples have been inserted into the drill core sample stream since 2014 and the channel sample batches since 2012. The mines routinely send CRMs generated from in-house material, blanks, field duplicates, coarse reject (preparation) duplicates, and pulp (laboratory) duplicates to the laboratory.

During 2018, Nexa incorporated systematic external checks into the QC program. Check assay programs were also carried out prior to 2018, in which pulps were sent to external laboratories for analysis. Currently, Inspectorate and ALS analyze samples from infill drilling and brownfield exploration drilling, respectively.

During the 2006 to 2009 drilling campaign, samples were sent to SGS for analysis. Since 2010, underground infill drilling samples have been sent to Inspectorate EP and Inspectorate AT. If the Inspectorate laboratories are running out of capacity, samples are delivered to Certimin and/or ALS laboratories.

For infill and exploration drilling, one batch of samples is prepared for each drill hole. Field duplicates are inserted directly following the original sample, while coarse blank samples are inserted following a mineralized zone, and CRM samples are inserted randomly.

The insertion of the QC samples into the sample stream follows the sample ID sequence.

Pulp check samples are inserted at a rate of approximately 2% of the total samples submitted, consisting of an additional split of material taken after the pulverizing stage and submitted to a secondary laboratory.

Each batch of check samples submitted to the secondary laboratory includes CRM and blank samples.

A QC report is prepared monthly by the on-site Database Administrator, and subsequently reviewed by the Resource Geologist and Nexa corporate QC coordinator. Batches of samples identified by a QC review as an anomalous result are repeated by the laboratory at the request of the Nexa Geology team. QA/QC databases are maintained within Fusion.

Table 8-4 shows the control sample insertion rate and acceptance criteria followed during Nexa’s QA/QC programs for El Porvenir and Atacocha.

Table 8-4: El Porvenir and Atacocha Control Sample Insertion Rate and Failure Criteria

Control Sample	Type	Insertion Rate	Failure Criteria	Expected/Allowed % Failures
Blanks		1 in 50 (2%)	5 x DL	<5%
CRMs		1 in 20 (5%)	Outside 3 SD	<10%
Duplicates	Field	1 in 100 (1%)	<±30% relative error	<10%
	Coarse	1 in 100 (1%)	<±20% relative error	<10%
	Pulp	1 in 20 (5%)	<±10% relative error	<10%
External checks	Pulp	1 in 50 (2%)	<5% bias	<10%





8.5.1 El Porvenir

El Porvenir QC samples represent approximately 13% to 17% of the total samples (Table 8-5).

Table 8-5: El Porvenir QC Submittals: 2020 to 2023

Sample Type	Laboratory	Period	Primary Samples	Fine Blanks	Coarse Blanks	Pulp Duplicates	Coarse Duplicates	Field Duplicates	CRM	Check Assay	Insertion Rates (%)
Channel	INSP EP	2020-2023	17,316		401	1,039	195	182	1,058		14
	INSP AT	2020-2023			2	3	1		3		
	ALS	2020-2023		3					12		
Drill Hole Sample	ALS	2020 - 2023	48,699	6	1,418	3,546	812	593	2,903	639	17
	Certimin	2020-2023	546	9	14	30	14		46	62	24
	INSP EP	2020 - 2023	35,074		794	2,074	828	2	1,996	634	15
	INSP AT	2020 - 2023			38	18	10		86		
Total Samples			101,635	18	2,667	6,710	1,860	777	6,104	1,335	16

8.5.1.1 Certified Reference Material

Results of the regular submission of CRMs are used to identify potential issues with specific sample batches and long-term biases associated with the primary assay laboratory. Nexa regularly uses CRMs prepared from in-house material and certified by eleven reputable laboratories. These CRMs are inserted into the sample streams by technicians trained in QC procedures.

Specific pass/fail criteria were used based on setting the CRM acceptance limits at the mean ± 3 standard deviations (SD) as a failure limit threshold. QC failures are re-assayed as well as three shoulder samples from each side at the request of Nexa.

Milpo, 2014 to 2017

This section has mostly been summarized from SRK (2017).

The database recorded 31,314 drill core samples with 1,764 standards (a submission rate of 1 in 18 samples) submitted in 2014 and 2017 and 11,129 channel samples with 753 standards (a submission rate of 1 in 15 samples) submitted between 2014 and 2016. Prior to 2014, El Porvenir did not have a QA/QC program implemented.

Pass rates reported for standards submitted with drill core samples were 99% for Ag, 84% for Pb, 97% for Zn, and 99% for Cu. The accuracy levels were considered acceptable for Ag, Zn, and Cu but below acceptable levels for Pb. Pass rates reported for standards submitted with channel samples were 99% for Ag, 77% for Pb, 96% for Zn, and 99% for Cu. The accuracy levels for Ag, Zn, and Cu can be considered acceptable, however Pb performance should be improved. Both channel and drill core show values below 80% for CRMs MAT-05 (moderate-





grade), STD2_ACTLABS2015 (moderate-grade), and STD3_ACTLABS2015 (high-grade). SRK identified minor biases in some of the standards.

In SLR's opinion, the latest results indicate that performance has improved and that the minor biases do not materially impact the results.

Nexa, 2017 to 2020

From November 2017 to 2020, El Porvenir sent to Certimin, Inspectorate EP, and ALS a total of 139,319 drill core samples and 7,799 CRMs resulting in an insertion rate of 5.3%.

SLR reviewed the results returned from the CRMs and notes that Nexa had implemented procedures reducing the CRM failure rates significantly. Results for the CRMs are generally within acceptable limits with a small percentage of failures. The CRMs covered a reasonable range of grades with respect to the overall Mineral Resource grades and no significant bias was observed.

Nexa, 2021 to 2023

A total of five different CRMs were employed for accuracy monitoring purposes. These included high grade (PEPSSTD006), moderate (PEPSSTD005), and low grade (PEPSSTD004) standards. In 2022, standards PEPSTSD008 and PEPSTSD009 were introduced and certified specifically for base metals analysis. Additionally, a separate standard, PLSUL43, was introduced to ensure the accuracy of gold measurements.

Overall, the control charts demonstrate favourable levels of dispersion and accuracy across all participant laboratories, including Inspectorate EP, Certimin, and ALS. The results of all the CRMs utilized between 2021 and 2023 are presented in Table 8-6.

SLR observed that biases exceeding 5% are associated with CRM Cu values close to its detection limit and do not necessarily indicate poor performance.

Table 8-6: El Porvenir Certified Reference Material Performances

Laboratory	CRM	Element	Unit	Period Range	Num Samples	Std Dev	Mean	Expected Value	Num Outliers	Bias (%)	Outliers (%)
ALS	PEPSSTD004	Ag	ppm	2020-2022	731	0.91	24.62	23.3	38	5.66	5.20
		Au	ppm	2020-2022	730	0.02	0.33	0.316	41	4.02	5.62
		Cu	pct	2020-2022	731	0.00	0.06	0.054	40	5.57	5.47
		Pb	pct	2020-2022	731	0.02	0.47	0.46	27	1.18	3.69
		Zn	pct	2020-2022	731	0.02	0.54	0.57	32	-5.51	4.38
	PEPSSTD005	Ag	ppm	2020-2022	1543	1.33	42.04	40.8	76	3.05	4.93
		Au	ppm	2020-2022	1538	0.02	0.53	0.525	78	1.18	5.07
		Cu	pct	2020-2022	1543	0.00	0.06	0.055	73	3.70	4.73
		Pb	pct	2020-2022	1543	0.03	1.12	1.15	70	-2.21	4.54
		Zn	pct	2020-2022	1543	0.06	1.53	1.52	18	0.47	1.17
	PEPSSTD006	Ag	ppm	2020-2023	1196	4.04	185.97	185	41	0.52	3.43
		Au	ppm	2020-2023	1194	0.01	0.45	0.438	60	1.71	5.03
		Cu	pct	2020-2023	1196	0.01	0.19	0.186	56	2.52	4.68
		Pb	pct	2020-2023	1196	0.09	4.13	4.17	52	-1.03	4.35
		Zn	pct	2020-2023	1196	0.22	6.85	6.63	4	3.30	0.33
	PEPSSTD008	Ag	ppm	2023-2023	96	1.29	41.66	40.1	3	3.89	3.13
		Cu	pct	2023-2023	96	0.00	0.03	0.03	6	-12.21	6.25
		Pb	pct	2023-2023	96	0.03	1.35	1.37	1	-1.81	1.04
		Zn	pct	2023-2023	96	0.28	2.84	2.88	2	-1.55	2.08





Laboratory	CRM	Element	Unit	Period Range	Num Samples	Std Dev	Mean	Expected Value	Num Outliers	Bias (%)	Outliers (%)
	PLSUL43	Au	ppm	2023-2023	4	0.01	0.76	0.71	0	6.58	0.00
Certimin	PEPSSTD004	Ag	ppm	2020-2021	6	0.22	23.98	23.3	0	2.93	0.00
		Au	ppm	2020-2021	6	0.01	0.33	0.316	0	4.85	0.00
		Cu	pct	2020-2021	6	0.00	0.06	0.054	0	3.56	0.00
		Pb	pct	2020-2021	6	0.01	0.46	0.46	0	-0.15	0.00
		Zn	pct	2020-2021	6	0.01	0.54	0.57	0	-4.45	0.00
	PEPSSTD005	Ag	ppm	2020-2021	26	0.76	41.17	40.8	2	0.91	7.69
		Au	ppm	2020-2021	26	0.01	0.51	0.525	1	-2.97	3.85
		Cu	pct	2020-2021	26	0.00	0.06	0.055	1	0.19	3.85
		Pb	pct	2020-2021	26	0.02	1.14	1.15	2	-0.84	7.69
		Zn	pct	2020-2021	26	0.03	1.49	1.52	0	-1.85	0.00
	PEPSSTD006	Ag	ppm	2021-2022	22	3.70	185.95	185	0	0.52	0.00
		Au	ppm	2021-2022	22	0.02	0.45	0.438	0	2.00	0.00
		Cu	pct	2021-2022	22	0.00	0.19	0.186	1	1.53	4.55
		Pb	pct	2021-2022	22	0.05	4.29	4.17	3	2.76	13.64
		Zn	pct	2021-2022	22	0.07	6.79	6.63	2	2.37	9.09
INSP_AT	PEPSSTD004	Ag	ppm	2020-2021	5	0.32	23.01	23.3	0	-1.25	0.00
		Au	ppm	2020-2021	5	0.00	0.30	0.316	0	-4.62	0.00
		Cu	pct	2020-2021	5	0.00	0.06	0.054	0	9.26	0.00
		Pb	pct	2020-2021	5	0.00	0.48	0.46	0	4.13	0.00
		Zn	pct	2020-2021	5	0.00	0.58	0.57	0	0.98	0.00
	PEPSSTD005	Ag	ppm	2020-2022	20	0.50	39.54	40.8	1	-3.09	5.00
		Au	ppm	2020-2022	20	0.01	0.49	0.525	0	-6.79	0.00
		Cu	pct	2020-2022	20	0.00	0.06	0.055	1	8.45	5.00
		Pb	pct	2020-2022	20	0.02	1.14	1.15	0	-0.69	0.00
		Zn	pct	2020-2022	20	0.03	1.52	1.52	0	-0.16	0.00
	PEPSSTD006	Ag	ppm	2020-2022	54	2.59	180.71	185	1	-2.32	1.85
		Au	ppm	2020-2022	54	0.01	0.44	0.438	2	-0.52	3.70
		Cu	pct	2020-2022	54	0.00	0.18	0.186	1	-0.91	1.85
		Pb	pct	2020-2022	54	0.07	4.17	4.17	1	0.07	1.85
		Zn	pct	2020-2022	54	0.12	6.66	6.63	3	0.50	5.56





Laboratory	CRM	Element	Unit	Period Range	Num Samples	Std Dev	Mean	Expected Value	Num Outliers	Bias (%)	Outliers (%)
	PLSUL43	Au	ppm	2022-2022	10	0.01	0.69	0.71	1	-2.15	10.00
INSP_EP	PEPSSTD004	Ag	ppm	2020-2022	225	0.49	24.15	23.3	8	3.63	3.56
		Cu	pct	2020-2022	225	0.00	0.06	0.054	12	4.78	5.33
		Pb	pct	2020-2022	225	0.01	0.46	0.46	14	-0.65	6.22
		Zn	pct	2020-2022	225	0.01	0.57	0.57	4	0.11	1.78
	PEPSSTD005	Ag	ppm	2020-2023	1251	0.77	41.11	40.8	49	0.77	3.92
		Cu	pct	2020-2023	1251	0.00	0.06	0.055	78	3.92	6.24
		Pb	pct	2020-2023	1251	0.03	1.20	1.15	6	4.60	0.48
		Zn	pct	2020-2023	1251	0.03	1.56	1.52	24	2.96	1.92
	PEPSSTD006	Ag	ppm	2020-2023	1477	2.46	185.29	185	23	0.16	1.56
		Cu	pct	2020-2023	1477	0.00	0.19	0.186	13	0.94	0.88
		Pb	pct	2020-2023	1477	0.09	4.26	4.17	27	2.22	1.83
		Zn	pct	2020-2023	1477	0.16	6.68	6.63	9	0.81	0.61
	PEPSSTD008	Ag	ppm	2022-2023	64	1.15	40.41	40.1	2	0.77	3.13
		Cu	pct	2022-2023	64	0.00	0.03	0.03	0	-9.64	0.00
		Pb	pct	2022-2023	64	0.03	1.44	1.37	2	5.10	3.13
		Zn	pct	2022-2023	64	0.06	3.02	2.88	2	4.91	3.13
	PEPSSTD009	Ag	ppm	2022-2023	37	0.30	25.82	26	2	-0.67	5.41
		Cu	pct	2022-2023	37	0.00	0.02	0.015	2	13.33	5.41
		Pb	pct	2022-2023	37	0.01	0.86	0.84	0	1.99	0.00
		Zn	pct	2022-2023	37	0.02	1.33	1.38	2	-3.84	5.41

SLR selected three distinct CRMs for an in-depth review, representing the low, average, and high grade ranges. These materials were chosen based on factors such as sample size, the laboratory of origin, and their recent performance.

Figure 8-2 to Figure 8-5 illustrate the CRM performance from Inspectorate EP, indicating generally good accuracy with biases ranging from 0.2% to 2.2% for all the evaluated elements. SLR noted some failures exceeding the $\pm 3SD$, particularly detected for Ag and Cu. In 2022, a change in the trend of the standards data is particularly observed for Zn and Ag. This shift is attributed to the scheduled semi-annual maintenance performed on the Inspectorate EP equipment. These slight biases are observed in the high grade range CRM PEPSTD006 and

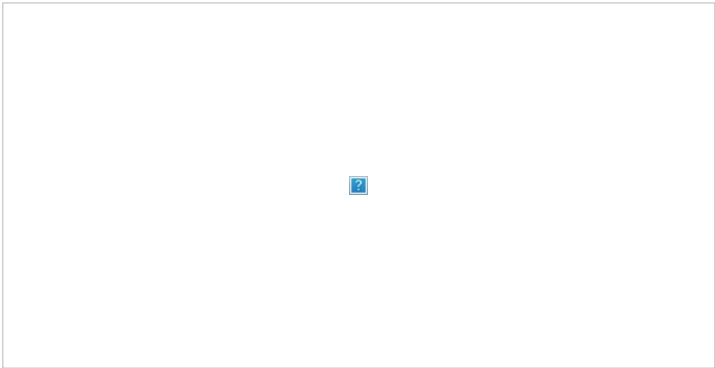




the medium-grade range CRM PEPSTSD005; however, it is still within acceptable limits and is not considered to indicate significantly adverse results obtained from Inspectorate EP.

Figure 8-6 to Figure 8-8 present the CRM performance at ALS, indicating overall good accuracy with biases ranging from -1.6% to 3.3%. In 2023, SLR observed two instances of analyses exceeding the upper limit (>1%) for Zn as demonstrated in Figure 8-8. SLR recommends conducting over-limit re-assays to accurately evaluate standard performance.

Figure 8-2: El Porvenir Zn Control Chart for CRM PEPSTSD006 at Inspectorate EP: 2020 to 2023











8.5.1.2 Blank Material

The regular submission of blank material is used to assess contamination during sample preparation and to identify sample numbering errors. Field blank samples are composed of barren material that have grades below the detection limit.

Milpo, 2014 to 2017

Between 2014 and 2017, a total of 1,800 blanks were included with 30,370 drill hole samples (a submission rate of approximately 1 in 17 samples) and 785 blanks were included with 10,213 channel samples (a submission rate of 1 in 13 samples) submitted to Inspectorate EP for analysis.

All the laboratories – Certimin, Inspectorate EP, and ALS - showed a pass rate greater than 99% indicating negligible contamination.

Nexa, November 2017 to 2020

Between November 2017 and 2020, a total of 3,821 coarse blanks (2.3%) and 2,600 fine blanks (1.6%) were inserted with core samples. These indicated that no significant contamination occurred during the preparation and analysis of the samples.

Nexa, 2021 to 2023

A total of 2,685 blanks, including both fine and coarse materials, were utilized. Fine blank PEPSBLK001 has been discontinued, and currently only the coarse material, PEPSBLK002, is used for controlling contamination. This 3/4-inch coarse blank material was acquired from Target Rocks Peru and analyzed by ICP-OES or ICP-mass spectrometry (MS) in six laboratories, all of which confirmed the low content of Zn, Pb, Cu, Ag, and Au.

A review of the blanks revealed that no significant contamination has been detected in either type of blank material as exemplified in Figure 8-9. Only one sample exceeded the Zn limit, as shown in Figure 8-10.





Figure 8-9: El Porvenir Pb Coarse Blank PEPSBLK002 at ALS: 2020 - 2023

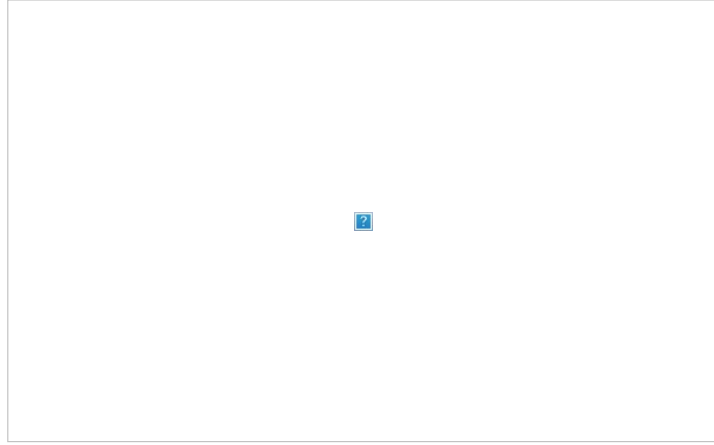
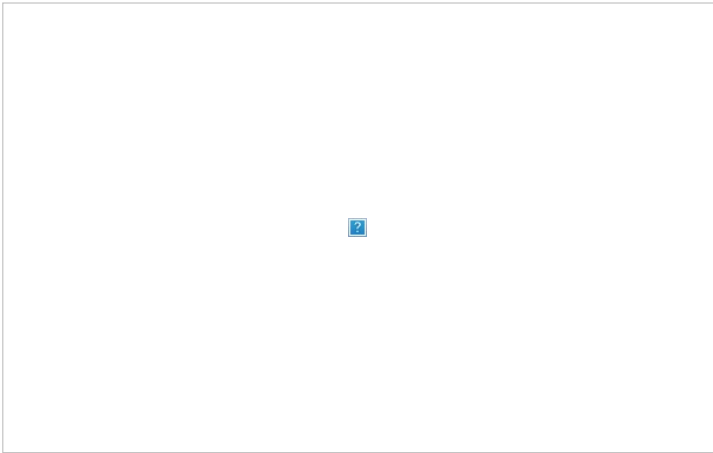




Figure 8-10: El Porvenir Zn Coarse Blank PEPSBLK002 at Inspectorate EP: 2020 to 2023



8.5.1.3 Duplicates

Duplicates help assess the natural local-scale grade variance or nugget effect and are also useful for detecting sample numbering mix-ups. The field (core) duplicates help monitor the grade variability as a function of both sample homogeneity and laboratory error.

The precision of sampling and analytical results can be quantified by re-analyzing the same sample using the same methodology. The variance between the measured results will indicate their precision. Precision is affected by mineralogical factors such as grain size, distribution, and inconsistencies in the sample preparation and analysis processes. There are several different duplicate sample types, which can be used to determine the precision of the entire sampling, sample preparation, and analytical process. Blind duplicate samples are submitted to the laboratory. A description of the different types of duplicates used by El Porvenir is provided in Table 8-7.

Table 8-7: El Porvenir Duplicate Types and Descriptions

Duplicate	Description
Field	The sample generated by another sampling operation at the same collection point includes a duplicate sample taken from a quarter of the drill core sample. Since mid-2016, a duplicate sample has been taken from the second half of the drill core sample.
Reject	The second sample obtained from splitting the coarse crushed rock during sample preparation and submitted blind to the same laboratory that assayed the original sample.



Duplicate	Description
Pulp	The second sample obtained from splitting the pulverized material during sample preparation and later submitted blind to the same laboratory that assayed the original pulp.

Milpo, 2014 to 2017

This section has mostly been taken from SRK (2017).

SRK calculated Half Absolute Relative Difference (HARD) analysis for the elements Ag, Pb, Zn, and Cu, which had the following detection limits: 4.04 g/t Ag, 0.01% Pb, 0.01% Zn, and 0.01% Cu. SRK filtered all the samples with grades below two times the detection limit. El Porvenir inserted field duplicates with drill core samples and channel samples as part of its QC program.

Field duplicates for drill core sample indicate precision levels outside of the acceptable limits. Additionally, failure results were poor for both Pb and Zn and the duplicate assay results for Pb were outside of acceptable limits. The poor precision levels for the field duplicates have been attributed to the sampling procedures, specifically that Milpo did not mark the cut line on the core before the cutting phase or sending a quarter of the core for analysis as a field duplicate. Precision levels for field duplicates in the channel samples were also outside the acceptable limit and failure results were poor for both Ag and Pb. Duplicate assay results for Cu were slightly out of acceptable limits. To improve field duplicate performance, Nexa began marking the cut line before the cutting process and uses the remaining half core for field duplicates, thereby reducing variability.

Nexa, November 2017 to 2020

Duplicate control charts were prepared for Zn, Au, Ag, Cu, and Pb in both laboratories. A total of 4,685 pulp duplicates (2.8%), 3,640 coarse duplicates (2.2%), and 3,244 field duplicates (2%) were inserted. Overall, the duplicate results indicate relatively good assay precision, except for Zn field duplicates, which showed lower precision due to the variability that is inherent in the samples.

SLR recommended continuing to select duplicates that were representative of the mineralization Zn, Pb, Cu, and Ag grade ranges, and completing ongoing studies to investigate the component of variability that is inherent in the sample, versus the component due to assay precision.

Nexa, 2020 to 2023

A total of 9,347 sample pairs were available for review between February 2020 and January 2023. SLR re-evaluated the duplicate database using the hyperbolic method to calculate the relative error between pairs. A failure rate of 10% was considered the threshold for taking corrective action for a group of samples. Individual failure criteria were set for pulp, coarse reject, and field duplicates, whether from Inspectorate EP, ALS, or Certimin.

Good precision was indicated for pulp, coarse, and field duplicates in general, as illustrated in Figure 8-11 to Figure 8-13. SLR observes that channel field duplicates analyzed at Inspectorate-EP showed higher failure rates (Figure 8-14), reaching up to 42%. However, these rates are likely due to the use of the channel duplicate method, where the duplicate sample is taken from the same location but at a deeper depth. This variation in sampling depth could contribute to increased variability in the results.



Figure 8-11: El Porvenir Zn Pulp Duplicates at ALS: 2020 to 2023

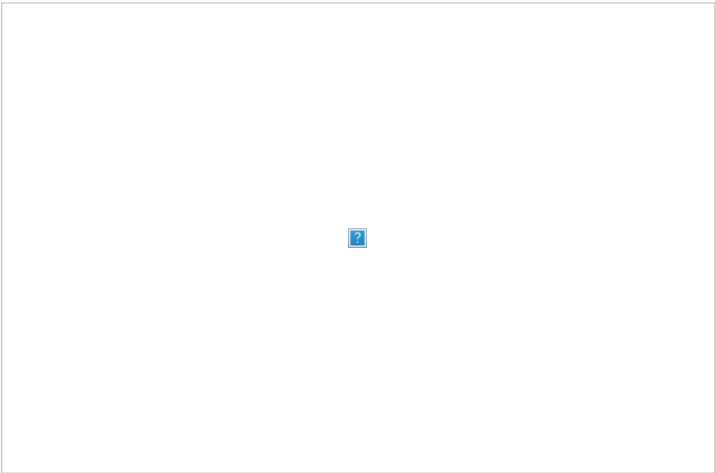




Figure 8-12: El Porvenir Pb Coarse Duplicates at Inspectorate EP: 2020 to 2023

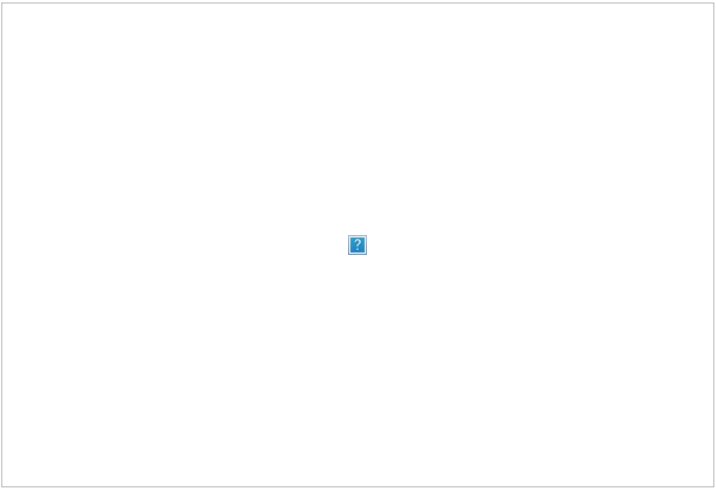




Figure 8-13: El Porvenir Pb Drilling Field Duplicates at ALS: 2020 to 2023

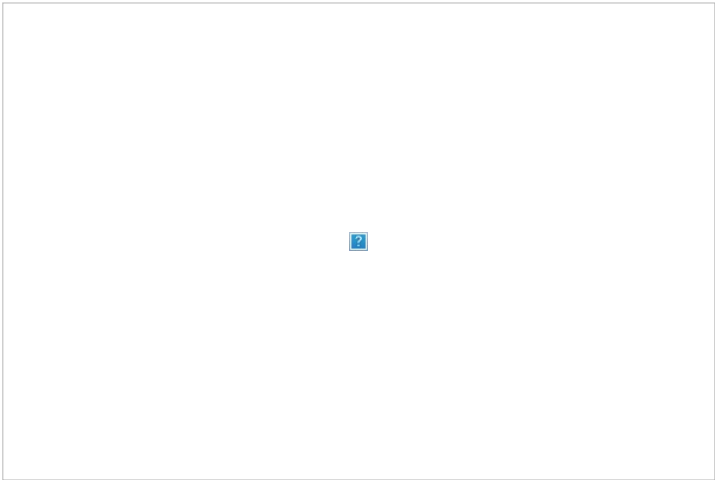




Figure 8-14: El Porvenir Zn Channel Field Duplicates at Inspectorate EP: 2020 to 2023

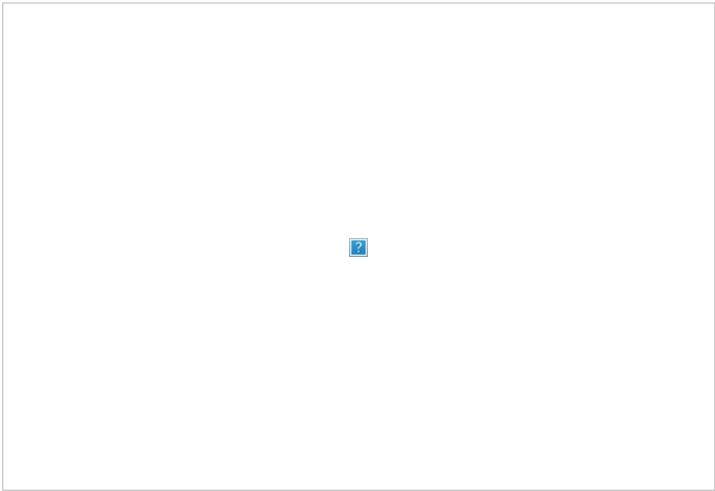


Table 8-8 summarizes the statistics of El Porvenir duplicate results from 2017 to 2023.

Table 8-8: EL Porvenir Duplicate Performance: 2017 to 2023

Period	Laboratory	Duplicate Type	No. Samples	Relative Error Limit %	Failure Rate (%)					
					Au ppm	Ag oz/t	Ag ppm	Cu %	Pb %	Zn %
Nov. 2017 – Aug. 2018	Certimin	Field	616	<30%	4.90%	9.60%	-	5.50%	10.60%	14.00%
		Coarse	612	<20%	0.80%	0.80%	-	0.70%	10.60%	0.30%
		Pulp	612	<10%	1.30%	1.50%	-	0.00%	0.20%	0.00%
	Inspectorate EP	Field	340	<30%	-	3.80%	-	2.90%	7.60%	11.50%
		Coarse	340	<20%	-	0.30%	-	0.00%	7.60%	0.90%
		Pulp	339	<10%	-	0.60%	-	0.90%	1.20%	1.50%
Aug. 2018 – May. 2019	Certimin	Field	322	<30%	0.31%	1.49%	0.75%	2.17%	1.55%	3.11%
		Coarse	330	<20%	0.30%	0.00%	0.00%	0.00%	0.00%	0.00%
		Pulp	335	<10%	0.60%	0.00%	0.00%	0.00%	0.00%	0.00%
	Inspectorate EP	Field	193	<30%	-	5.47%	4.55%	3.11%	11.92%	11.40%
		Coarse	357	<20%	-	0.00%	0.00%	0.00%	0.00%	0.00%
		Pulp	340	<10%		0.00%	0.40%	0.52%	0.52%	1.04%
	ALS	Field	943	<30%	0.95%	2.86%	1.87%	2.33%	3.29%	6.79%
		Coarse	965	<20%	0.10%	0.00%	0.32%	0.10%	0.00%	0.21%
		Pulp	1,012	<10%	0.99%	0.00%	0.31%	0.30%	0.10%	0.20%





Period	Laboratory	Duplicate Type	No. Samples	Relative Error Limit %	Failure Rate (%)					
					Au ppm	Ag oz/t	Ag ppm	Cu %	Pb %	Zn %
Jun. 2019 - Feb. 2020	Inspectorate EP	Field	23	<30%	-	-	0.00%	4.35%	21.74%	30.43%
		Coarse	182	<20%	-	-	0.00%	0.00%	0.00%	1.10%
		Pulp	282	<10%	-	-	0.71%	0%	0.35%	0.71%
	ALS	Field	807	<30%	1.24%	-	2.97%	2.60%	4.83%	5.33%
		Coarse	854	<20%	0.12%	-	0.00%	0.12%	0.12%	0.00%
		Pulp	1,765	<10%	0.62%	-	0.57%	0.28%	0.34%	0.45%
Feb 2020 - Jan.2023	ALS	Field	593	<30%	0.67%	-	1.52%	1.18%	1.85%	2.19%
		Coarse	812	<20%	0.37%	-	0.37%	0.12%	0.37%	0.12%
		Pulp	3,546	<10%	0.87%	-	0.42%	0.06%	0.11%	0.11%
	Certimin	Field	-	<30%	-	-	-	-	-	-
		Coarse	14	<20%	0.00%	-	0.00%	0.00%	0.00%	0.00%
		Pulp	30	<10%	0.00%	-	3.33%	0.00%	0.00%	0.00%
	Inspectorate EP	Field	184	<30%	-	-	30.98%	26.63%	33.70%	41.85%
		Coarse	1023	<20%	0.00%	-	0.20%	0.39%	0.29%	0.20%
		Pulp	3,113	<10%	0.00%	-	0.74%	0.19%	0.26%	0.19%
	Inspectorate AT	Field	-	<30%	-	-	-	-	-	-
		Coarse	11	<20%	0.00%	-	0.00%	0.00%	0.00%	0.00%
		Pulp	21	<10%	0.00%	-	0.00%	0.00%	0.00%	0.00%

8.5.1.4 Umpire Check Assays

As part of the Nexa QC program, pulp samples are routinely submitted to a third-party laboratory to verify the accuracy and precision of primary assay results, using the same analytical procedures.

Statistics for the check assay results for El Porvenir are presented in Table 8-9.

SLR is of the opinion that the results of the check assays support the use of the primary assays in the Mineral Resource estimation.





Nexa, November 2017 to 2020

Nexa sent 1,776 pulp samples analyzed at Inspectorate EP to ALS and analyzed at ALS to Certimin for referee check assays. An approximate insertion rate of 2.0% was used for external check samples.

The check assay results compared well, showing very high overall correlation coefficients. For Ag, a potential positive bias of approximately 5% at Inspectorate EP in comparison to ALS was observed and should be investigated.

Nexa, 2021 to 2023

Between 2021 and 2023, 1,335 samples were collected from drill holes and submitted either to Certimin or ALS as third-party laboratory. These samples were shipped along with blanks and standards to validate the secondary results. The Zn analysis presented in Figure 8-15 revealed strong correlation of 0.999 with a percent mean difference of 0.1% between ALS and Certimin.

Similarly, the Pb analysis displayed in Figure 8-16 achieved a high correlation of 0.994 between Inspectorate EP and ALS, with a difference of 0.3% between means. Furthermore, a variation is observed for grades over 15% Pb, where ALS appears to slightly over-estimate the grades compared to the primary laboratory, Inspectorate EP. However, both datasets are statistically similar, validating the grades reported by the primary laboratory.

Figure 8-15: El Porvenir Check Assay Scatter Plot - Zn

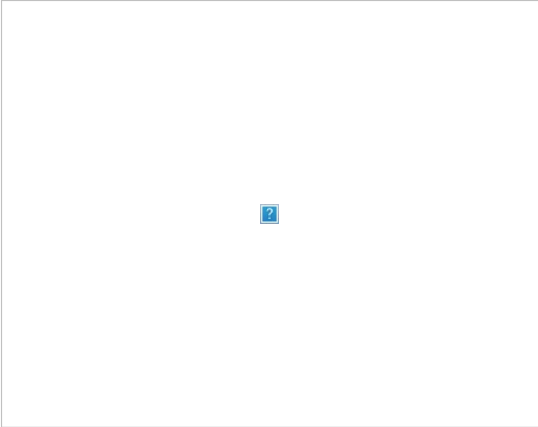




Figure 8-16: El Porvenir Check Assay Scatter Plot - Pb

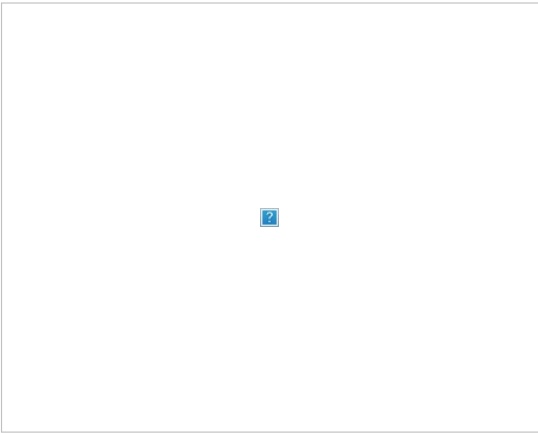


Table 8-9: El Porvenir External Check Assay Performance: 2017 to 2023

Period	Secondary Laboratory	Primary Laboratory	Element	No. Samples	Bias (%)
Nov. 2017 - Aug. 2018	Certimin	ALS	Au ppm	432	-2.15
			Ag ppm	435	0.56
			Cu per	435	-1.66
			Pb per	435	-1.1
			Zn per	435	-0.55
	ALS	Certimin	Au ppm	202	-6.68
			Ag ppm	202	0.09
			Cu per	202	1.59
			Pb per	202	-0.35
			Zn per	202	2.37
		Inspectorate EP	Ag ppm	110	4.63
			Cu per	110	2.25
			Pb per	110	0.63
			Zn per	110	3.3





Period	Secondary Laboratory	Primary Laboratory	Element	No. Samples	Bias (%)
Aug. 2018 - May. 2019	Certimin	ALS	Au ppm	280	0.32
			Ag ppm	282	-1.42
			Cu per	282	-1.86
			Pb per	282	-1.03
			Zn per	282	-4.02
	ALS	Certimin	Au ppm	162	-0.26
			Ag ppm	162	-0.71
			Cu per	162	-1.75
			Pb per	162	-1.28
			Zn per	162	1.54
		Inspectorate EP	Ag ppm	197	4.04
			Cu per	197	2.63
			Pb per	197	1.53
			Zn per	197	2.45
Jun. 2019 - Feb. 2020	Certimin	ALS	Au ppm	294	0.26
			Ag ppm	294	2.9
			Cu per	294	-1.8
			Pb per	294	1.76
			Zn per	294	-1.47
	ALS	Inspectorate EP	Ag ppm	94	2.23
			Cu per	94	3.44
			Pb per	94	1.52
			Zn per	94	4.06
Mar. 2020 - Jan. 2023	Certimin	ALS	Ag ppm	639	-0.1
			Cu per	639	-2.1
			Pb per	639	2.5
			Zn per	639	0.1
	ALS	Inspectorate EP	Ag ppm	634	0.4
			Cu per	634	2.9
			Pb per	634	-0.30
			Zn per	634	3.9



8.5.1.5 QA/QC Recommendations

The QP's QA/QC recommendations for El Porvenir are as follows:

- Improve the field duplicate rates of channels by revising the sampling protocol of duplicates in channels.
- Increase the frequency of monitoring Inspectorate EP laboratory results to rectify potential bias trends or address instances of failure that may require re-analysis
- Ensure all the samples analyzed by ALS are re-assayed using the relevant analytical method when exceeding the detection limit (i.e., samples >10,000 ppm Zn), to prevent incomplete results in the assay database.

8.5.2 Atacocha

Atacocha QC samples represent approximately 16% of the total samples. The QC sample insertion rate and the acceptance criteria followed during Nexa's QC program for Atacocha are presented in Table 8-10, with an overview of QC submissions from September 1, 2018 to January 31, 2023.

Table 8-10: Atacocha QC Submittals: 2018 to 2023

Sample Type	Laboratory	Year	Primary Samples	Fine Blanks	Coarse Blanks	Pulp Duplicates	Coarse Duplicates	Field Duplicates	CRM	Check Assay	Insertion Rate (%)
Drill Hole Sample	ALS	2018-2023	47,928	821	1,282	1,296	828	702	2,821	1,004	15
	Certimin	2018-2023	2,303	22	49	114	35	18	143	104	17
	INSP AT	2018-2023	42,951	499	1,065	2,103	1,127	229	2,359	844	16
Total Samples			93,182	1,342	2,396	3,513	1,986	949	5,323	1,952	16

8.5.2.1 Certified Reference Material

Milpo, 2012 to 2017

Between 2012 and 2017, Nexa sent 2,587 CRMs to Inspectorate AT, with 31,617 drill core samples (a submission rate of 1 in 12 samples) in 2014 to 2017 and 27,307 channel samples with 1,613 CRMs (a submission rate of 1 in 17 samples) from 2012 to 2015.

Nexa sent a total of 1,157 CRMs to the Inspectorate Lima laboratory, with 14,190 drill hole samples (a submission rate of 1 in 12 samples) submitted from November 2015 to August 2016, and a total of 1,289 CRMs to ALS, with 21,648 drill hole samples (a submission rate of 1 in 17 samples) submitted from August 2016 to April 2017.

Overall, most of the CRM results for Zn, Pb, Cu, Ag, and Au were within acceptable limits. SLR (then RPA) noticed some CRM numbering mix-ups during 2016 that were addressed later in the database by Nexa.

Nexa January to August 2018

During 2018, Atacocha dispatched 66,083 drill core samples and 3,291 CRMs, achieving an insertion rate of 5.0%. As per RPA's evaluation, the CRMs encompassed a satisfactory range of grades in relation to the overall resource grades. RPA recommended that Nexa introduce new high-grade Zn and Pb CRMs, alongside the implementation of procedures aimed at reducing CRM failure rates.

Nexa, September 2018 to January 2023

A total of six different CRMs were employed to monitor accuracy. These included high grade (PEPSSTD006 and MAT 12), moderate grade (PEPSSTD005 and MAT 11), and low grade (PEPSSTD004 and MAT 10) standards. The MAT series CRMs were only used until 2019.

Overall, the control charts demonstrate favourable levels of dispersion and accuracy across all participant laboratories, including Inspectorate AT, Certimin, and ALS. The results of all the CRMs utilized between 2018 and 2023 are presented in Table 8-11. The biases exceeding the 5% threshold are associated with Cu lower grade standards and do not necessarily reflect poor laboratory performance.

Table 8-11: Atacocha CRM Performance: 2018 to 2023

Lab	CRM	Element	Unit	Period	No. Samples	Std Dev	Mean	Expected Value	No. Outliers	Bias (%)	Percentage Outliers (%)
ALS	MAT10	Ag	ppm	(2019, 2019)	111	0.38	9.08	8.70	6	4.38	5.41
		Au	ppm	(2019, 2019)	110	0.02	0.25	0.25	4	1.35	3.64
		Cu	pct	(2019, 2019)	111	0.01	0.27	0.25	7	6.70	6.31
		Pb	pct	(2019, 2019)	111	0.01	0.11	0.11	1	4.01	0.90
		Zn	pct	(2019, 2019)	111	0.01	0.29	0.30	3	-4.80	2.70
	MAT11	Ag	ppm	(2018, 2019)	490	1.80	56.61	54.60	24	3.68	4.90
		Au	ppm	(2018, 2019)	488	0.03	0.94	0.93	10	0.64	2.05
		Cu	pct	(2018, 2019)	490	0.01	0.18	0.17	42	4.15	8.57
		Pb	pct	(2018, 2019)	490	0.03	1.34	1.37	21	-1.96	4.29
		Zn	pct	(2018, 2019)	490	0.05	2.10	2.19	19	-3.95	3.88
	MAT12	Ag	ppm	(2018, 2019)	160	6.60	273.47	268.00	8	2.04	5.00
		Au	ppm	(2018, 2019)	160	0.20	9.00	8.98	8	0.27	5.00
		Cu	pct	(2018, 2019)	160	0.01	0.18	0.18	8	1.32	5.00
		Pb	pct	(2018, 2019)	160	0.17	6.72	6.83	6	-1.66	3.75
		Zn	pct	(2018, 2019)	160	0.15	6.98	6.95	6	0.39	3.75
	PEPSSTD004	Ag	ppm	(2019, 2021)	733	0.80	24.69	23.30	27	5.95	3.68
		Au	ppm	(2019, 2021)	730	0.03	0.33	0.32	40	2.12	5.48
		Cu	pct	(2019, 2021)	733	0.00	0.06	0.05	99	17.24	13.51
		Pb	pct	(2019, 2021)	733	0.02	0.47	0.46	18	1.94	2.46
		Zn	pct	(2019, 2021)	733	0.02	0.54	0.57	37	-4.52	5.05
	PEPSSTD005	Ag	ppm	(2019, 2022)	1028	1.28	41.96	40.80	51	2.83	4.96
		Au	ppm	(2019, 2022)	1026	0.02	0.53	0.53	29	-0.24	2.83
		Cu	pct	(2019, 2022)	1028	0.00	0.06	0.06	155	-2.51	15.08
		Pb	pct	(2019, 2022)	1028	0.02	1.13	1.15	38	-1.51	3.70
		Zn	pct	(2019, 2022)	1028	0.03	1.54	1.52	41	1.16	3.99
	PEPSSTD006	Ag	ppm	(2019, 2022)	299	4.02	186.33	185.00	14	0.72	4.68
		Au	ppm	(2019, 2022)	299	0.01	0.44	0.44	13	0.13	4.35
		Cu	pct	(2019, 2022)	299	0.01	0.19	0.19	4	0.42	1.34
		Pb	pct	(2019, 2022)	299	0.09	4.13	4.17	12	-1.00	4.01
		Zn	pct	(2019, 2022)	299	0.14	6.88	6.63	16	3.82	5.35

Lab	CRM	Element	Unit	Period	No. Samples	Std Dev	Mean	Expected Value	No. Outliers	Bias (%)	Percentage Outliers (%)
Certimin	MAT11	Ag	ppm	(2018, 2018)	11	0.51	53.43	54.60	0	-2.15	0.00
		Au	ppm	(2018, 2018)	7	0.01	0.95	0.93	0	1.69	0.00
		Cu	pct	(2018, 2018)	11	0.01	0.18	0.17	0	3.21	0.00
		Pb	pct	(2018, 2018)	11	0.01	1.37	1.37	0	-0.33	0.00
		Zn	pct	(2018, 2018)	11	0.03	2.19	2.19	1	-0.17	9.09
	MAT12	Ag	ppm	(2018, 2018)	5	1.95	268.60	268.00	0	0.22	0.00
		Au	ppm	(2018, 2018)	5	0.02	9.22	8.98	0	2.65	0.00
		Cu	pct	(2018, 2018)	5	0.00	0.18	0.18	0	0.00	0.00
		Pb	pct	(2018, 2018)	5	0.03	6.77	6.83	0	-0.82	0.00
		Zn	pct	(2018, 2018)	5	0.05	6.85	6.95	0	-1.44	0.00
	PEPSSTD004	Ag	ppm	(2019, 2021)	15	0.74	24.03	23.30	1	3.15	6.67
		Au	ppm	(2019, 2021)	12	0.01	0.32	0.32	0	0.26	0.00
		Cu	pct	(2019, 2021)	15	0.00	0.05	0.05	0	6.67	0.00
		Pb	pct	(2019, 2021)	15	0.01	0.46	0.46	0	0.72	0.00
		Zn	pct	(2019, 2021)	15	0.02	0.54	0.57	0	-5.15	0.00
	PEPSSTD005	Ag	ppm	(2019, 2021)	73	0.73	41.43	40.80	3	1.54	4.11
		Au	ppm	(2020, 2021)	70	0.01	0.52	0.53	5	-1.11	7.14
		Cu	pct	(2019, 2021)	73	0.00	0.06	0.06	0	-4.79	0.00
		Pb	pct	(2019, 2021)	73	0.01	1.17	1.15	2	1.44	2.74
		Zn	pct	(2019, 2021)	73	0.01	1.53	1.52	3	0.82	4.11
	PEPSSTD006	Ag	ppm	(2019, 2022)	39	2.82	188.85	185.00	2	2.08	5.13
		Au	ppm	(2020, 2022)	35	0.02	0.45	0.44	2	2.21	5.71
		Cu	pct	(2019, 2022)	39	0.00	0.19	0.19	0	0.00	0.00
		Pb	pct	(2019, 2022)	39	0.06	4.24	4.17	3	1.70	7.69
		Zn	pct	(2019, 2022)	39	0.10	6.76	6.63	3	1.92	7.69



Lab	CRM	Element	Unit	Period	No. Samples	Std Dev	Mean	Expected Value	No. Outliers	Bias (%)	Percentage Outliers (%)
INSP_AT	MAT10	Ag	ppm	(2019, 2019)	69	0.22	9.19	8.70	8	5.59	11.59
		Au	ppm	(2019, 2019)	69	0.00	0.24	0.25	1	-4.70	1.45
		Cu	pct	(2019, 2019)	69	0.01	0.27	0.25	1	7.07	1.45
		Pb	pct	(2019, 2019)	69	0.01	0.12	0.11	1	5.53	1.45
		Zn	pct	(2019, 2019)	69	0.01	0.30	0.30	3	-1.01	4.35
	MAT11	Ag	ppm	(2018, 2019)	114	1.24	56.75	54.60	7	3.94	6.14
		Au	ppm	(2018, 2019)	237	0.02	0.95	0.93	16	1.88	6.75
		Cu	pct	(2018, 2019)	237	0.00	0.18	0.17	32	5.39	13.50
		Pb	pct	(2018, 2019)	237	0.03	1.39	1.37	4	1.32	1.69
		Zn	pct	(2018, 2019)	237	0.04	2.25	2.19	8	2.60	3.38
	MAT12	Ag	ppm	(2018, 2019)	50	1.88	276.64	268.00	1	3.23	2.00
		Au	ppm	(2018, 2019)	116	0.12	8.92	8.98	3	-0.67	2.59
		Cu	pct	(2018, 2019)	116	0.00	0.18	0.18	12	-0.38	10.34
		Pb	pct	(2018, 2019)	116	0.10	6.78	6.83	5	-0.66	4.31
		Zn	pct	(2018, 2019)	116	0.10	6.96	6.95	4	0.16	3.45
	PEPSSTD004	Ag	ppm	(2019, 2021)	657	0.51	22.73	23.30	24	-2.46	3.65
		Au	ppm	(2019, 2021)	657	0.01	0.30	0.32	0	-4.73	0.00
		Cu	pct	(2019, 2021)	657	0.00	0.06	0.05	17	19.54	2.59
		Pb	pct	(2019, 2021)	657	0.01	0.47	0.46	45	2.39	6.85
		Zn	pct	(2019, 2021)	657	0.01	0.56	0.57	8	-1.16	1.22
	PEPSSTD005	Ag	ppm	(2019, 2022)	839	0.84	39.78	40.80	21	-2.50	2.50
		Au	ppm	(2019, 2022)	839	0.01	0.49	0.53	13	-6.76	1.55
		Cu	pct	(2019, 2022)	839	0.00	0.06	0.06	3	-0.02	0.36
		Pb	pct	(2019, 2022)	839	0.03	1.15	1.15	21	0.28	2.50
		Zn	pct	(2019, 2022)	839	0.04	1.52	1.52	22	0.08	2.62
	PEPSSTD006	Ag	ppm	(2019, 2022)	441	3.13	182.08	185.00	19	-1.58	4.31
		Au	ppm	(2019, 2022)	441	0.01	0.45	0.44	8	1.42	1.81
		Cu	pct	(2019, 2022)	441	0.01	0.19	0.19	1	-1.86	0.23
		Pb	pct	(2019, 2022)	441	0.09	4.19	4.17	19	0.56	4.31
		Zn	pct	(2019, 2022)	441	0.16	6.75	6.63	7	1.78	1.59

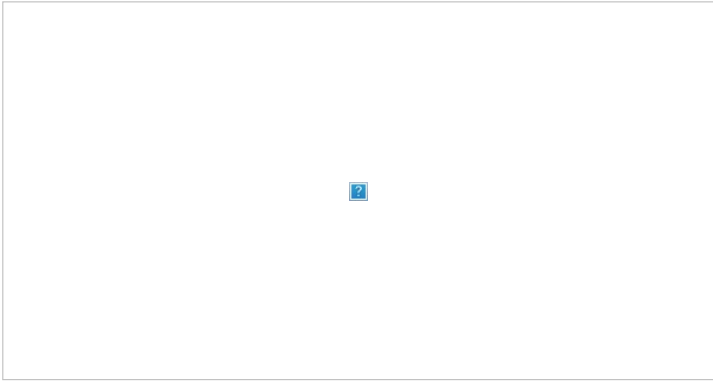
SLR selected five distinct CRMs for an in-depth review, representing the low, average, and high-grade ranges. These materials were chosen based on factors such as sample size, the laboratory of origin, and their recent performance in implementation.





Figure 8-17 and Figure 8-18 show acceptable biases ranging from 0.4% to 1.8% in high grade CRMs. Generally, the results for the moderate CRMs fall within acceptable boundaries, with only a minor proportion of failures displayed in Figure 8-19. The low grade MAT10 and PEPSSTD004 have shown good results, as illustrated in Figure 8-20 and Figure 8-21, respectively.

Figure 8-17: Atacocha Zn Control Chart for CRM MAT12 at ALS: 2018 to 2019









8.5.2.2 Blank Material

Coarse blanks are submitted with core samples to assess contamination during sample preparation and to identify sample numbering errors. The blank utilized consists of barren material with grades below detection limits.

Milpo, 2012 to 2017

Between January 2014 and February 2017, a total of 1,752 blanks were included with 25,925 drill hole samples and 290 blanks were included with 18,993 channel samples (a submission rate of 1 in 15 samples) submitted to Inspectorate AT.

In addition, a total of 1,824 blanks with 30,370 drill hole samples (a submission rate of 1 in 17 samples) were sent to Lima Inspectorate over the same time period.

A total of 1,315 blanks with 22,089 drill hole samples (a submission rate of 1 in 17 samples) were also sent to ALS from August 2016 to April 2017.

The results in all the laboratories show a pass rate greater than 98% indicating negligible contamination.

Nexa, January 2017 to August 2018

A total of 1,304 coarse blanks (2.1%) and 1,374 fine blanks (2.0%) were inserted with core samples and showed no significant contamination during the preparation and analysis. The results of the blanks were within acceptable limits at all three laboratories.

Nexa, 2018 to 2023

A total of 3,738 blanks, encompassing both fine and coarse materials, were utilized. Fine blanks (PEPSBLK001 - BF) were no longer used after September 2019 and are now exclusively inserted during external checks. Currently, only coarse blanks (PEPSBLK002 - BG) are utilized for contamination control. Sourced from Target Rocks Peru, this 3/4-inch coarse blank material underwent analysis by ICP-OES or ICP-MS in six laboratories, all of which validated its low Zn, Pb, Cu, Ag, and Au content.

A review of the blanks revealed that no contamination has been detected in either type of blank material. Only one sample slightly exceeded the Zn limit set as displayed in Figure 8-22. For fine blanks, all samples fall within the limit, as depicted in **Figure 8-23**.







8.5.2.3 Duplicates

Field duplicates are inserted into the sample streams to monitor the representativeness of sampling and grade variability. Additionally, coarse duplicates and pulp duplicates are included to evaluate precision during both preparation and analysis processes.

Milpo, 2012 to 2017

Atacocha sent duplicate samples to Inspectorate AT, Inspectorate Lima, and ALS. SLR (then RPA) reviewed the duplicate results for Zn, Pb, Cu, Ag, and Au and found that they generally compared well. Some of the pulp duplicates at the Inspectorate AT for Zn, Pb, and Cu fall outside the 10% HARD threshold.

Nexa, 2017 to 2018

Duplicate control charts were prepared for Zn, Au, Ag, Cu, and Pb for the laboratories Certimin, ALS, and Inspectorate AT. Overall, the duplicate results showed relatively good assay precision, except for Zn and Pb field duplicates, the poor performance of which is attributed by Nexa to inherent sample variability within breccia, irregularly distributed veins.

RPA observed that representative duplicates spanning mineralization grade ranges are selected, and a study to investigate the component of variability that is inherent in the sample, versus the component due to assay precision is still ongoing.

Nexa, 2018 to 2023

A total of 6,457 sample pairs were available for review between September 2018 and January 2023. SLR re-evaluated the duplicate database using the hyperbolic method to calculate the relative error between pairs. A failure rate of 10% was considered the threshold for taking corrective action for a group of samples. Individual failure criteria were set for pulp, coarse reject, and field duplicates, whether from Inspectorate AT, ALS, or Certimin.

Good precision rates were obtained from pulp, coarse, and field duplicates in general, as illustrated in Figure 8-24 to Figure 8-26. Overall, the precision of the duplicate assays remained consistent.





Figure 8-24: Atacocha Pb Pulp Duplicates at ALS: 2018 to 2022

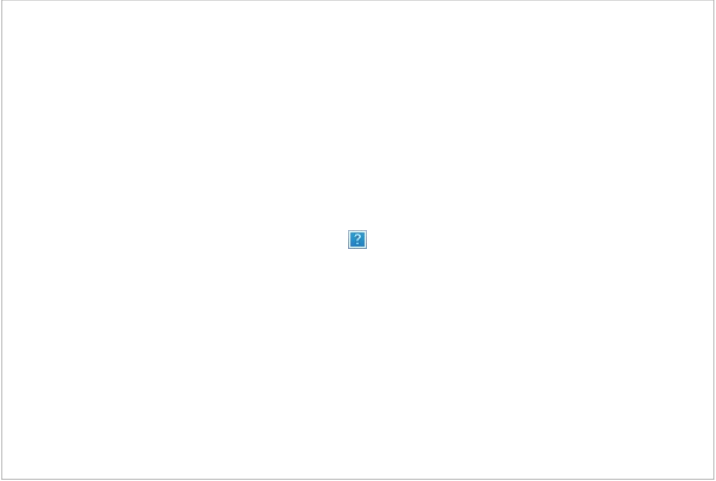
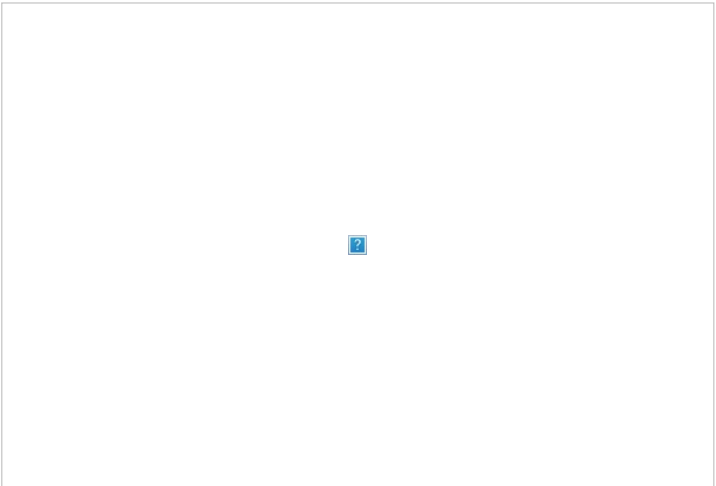




Figure 8-25: Atacocha Zn Coarse Duplicates at Inspectorate AT: 2018 to 2022



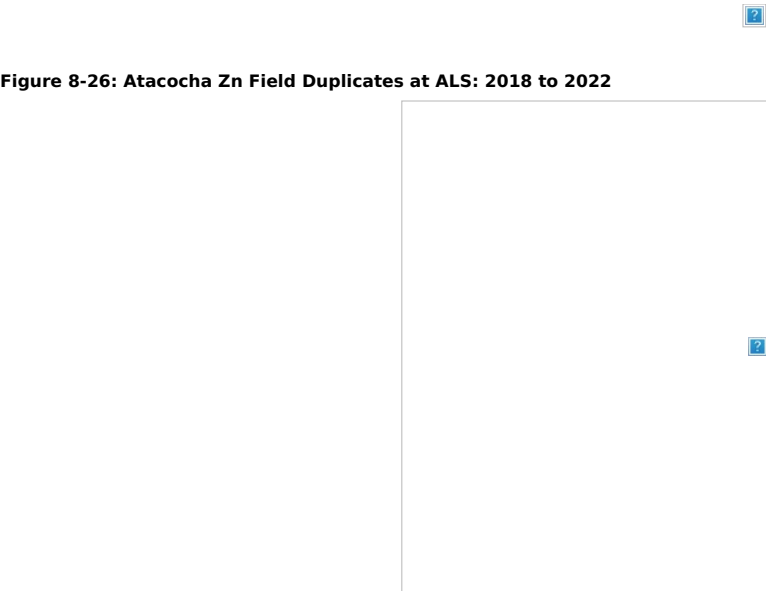


Table 8-12 summarizes the statistics of Atacocha duplicate results from 2018 to 2023.

Table 8-12: Atacocha Duplicate Types and Failure Rates

Period	Laboratory	Element	Field Duplicates			Coarse Duplicates			Pulp Duplicates		
			Sample	Failure	Failure Rate%	Sample	Failure	Failure Rate %	Sample	Failure	Failure Rate %
Jan 2018, Aug 2018	CERTIMIN	Au(g/t)	42	3	7%	51	0	0%	76	1	1%
		Ag(oz/t)	42	2	5%	51	0	0%	76	5	7%
		Cu (%)	42	2	5%	51	0	0%	76	0	0%
		Pb (%)	42	5	12%	51	6	12%	76	0	0%
		Zn (%)	42	8	19%	51	0	0%	76	0	0%
	ALS	Au(g/t)	1,092	33	3%	1,092	3	0%	1,519	34	2%
		Ag(oz/t)	1,092	38	4%	1,092	6	1%	1,519	4	0%
		Cu (%)	1,092	39	4%	1,092	4	0%	1,519	3	0%
		Pb (%)	1,092	123	11%	1,092	123	11%	1,519	2	0%
		Zn (%)	1,092	150	14%	1,092	18	2%	1,519	1	0%
	INSPECTORATE AT	Au(g/t)	471	6	1%	478	0	0%	682	5	1%
		Ag(oz/t)	471	11	2%	478	0	0%	682	0	0%
		Cu (%)	471	20	4%	478	1	0%	682	3	0%
		Pb (%)	471	30	6%	478	30	6%	682	3	0%
		Zn (%)	471	65	14%	478	1	0%	682	1	0%

Period	Laboratory	Element	Field Duplicates			Coarse Duplicates			Pulp Duplicates		
			Sample	Failure	Failure Rate%	Sample	Failure	Failure Rate %	Sample	Failure	Failure Rate %
Set 2018 - Jan 2023	CERTIMIN	Au(g/t)	18	2	11%	35	0	0%	114	3	3%
		Ag(oz/t)	18	1	6%	35	0	0%	114	0	0%
		Cu (%)	18	0	0%	35	0	0%	114	0	0%
		Pb (%)	18	1	6%	35	0	0%	114	0	0%
		Zn (%)	18	3	17%	35	0	0%	114	0	0%
	ALS	Au(g/t)	702	44	6%	828	21	3%	1,296	74	6%
		Ag(oz/t)	702	19	3%	828	3	0%	1,296	4	0%
		Cu (%)	702	23	3%	828	2	0%	1,296	0	0%
		Pb (%)	702	30	4%	828	1	0%	1,296	0	0%
		Zn (%)	702	51	7%	828	0	0%	1,296	1	0%
	INSPECTORATE AT	Au(g/t)	230	53	23%	1,128	6	1%	2,106	13	1%
		Ag(oz/t)	215	33	15%	1,024	2	0%	1,953	1	0%
		Cu (%)	230	27	12%	1,128	2	0%	2,106	5	0%
		Pb (%)	230	38	17%	1,128	1	0%	2,106	1	0%
		Zn (%)	230	48	21%	1,128	2	0%	2,106	3	0%

8.5.2.4 Umpire Check Assays

As part of the Nexa QA/QC program, pulp samples are routinely submitted to a third-party laboratory to verify the accuracy and precision of primary assay results, using the same analytical procedures. Statistics for the check assay results for Atacocha are presented in Table 8-13.

SLR is of the opinion that the results of the check assays support the use of the primary assays in the Mineral Resource estimation.

Nexa, January to August 2018

Nexa sent 261 pulp samples analyzed at Inspectorate to ALS and 495 sample pulps analyzed at ALS to Certimin for umpire check assays. External check samples were inserted at a rate of approximately 2%.

The results for Zn showed a correlation coefficient of 0.99, which is very good. There were some samples removed as they were at detection limit value. The check assay results compared well, showing very high overall correlation coefficients, except for the ALS Ag value, which was less at 0.96%. For Ag, a potential negative bias of approximately 10% at Inspectorate in comparison to ALS should be investigated.



Nexa, September 2018 to 2023

Between 2018 and 2023, 1,952 samples were collected from drill holes and submitted either to Certimin or ALS as a third-party laboratory. These samples were shipped along with blanks and standards to validate the secondary results. The Zn analysis illustrated in Figure 8-27 demonstrated a high correlation of 0.999 and a mean percentage difference of 1.6% between ALS and Certimin. Likewise, the Pb analysis shown in Figure 8-28 indicated a strong correlation of 0.996 between Inspectorate AT and ALS, with a 0.7% difference between the mean values. The statistical similarity of both datasets confirms the accuracy of the grades reported by the primary laboratory.

Figure 8-27: Atacocha Check Assay Scatter Plot - Zn

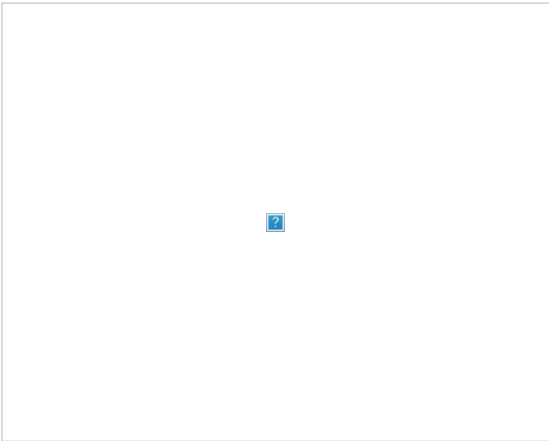




Figure 8-28: Atacocha Check Assays Scatter Plot - Pb

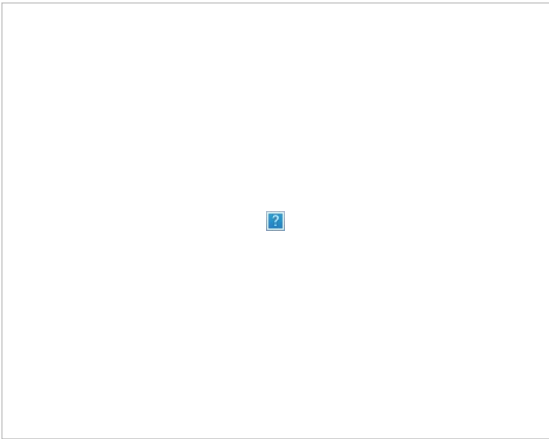


Table 8-13: Atacocha External Check Assay Performance: 2018 to 2023

Period	Secondary Laboratory	Primary Laboratory	Element	No. Samples	Bias (%)
Jan 2018 - Sept 2018	ALS	Inspectorate AT	Au ppm	226	3.50%
			Ag ppm	226	-10.80%
			Cu per	276	-3.90%
			Pb per	286	-4.00%
			Zn per	330	-2.00%
	Certimin	ALS	Au ppm	431	-0.70%
			Ag ppm	434	0.60%
			Cu per	333	1.40%
			Pb per	332	0.70%
			Zn per	404	0.60%



Period	Secondary Laboratory	Primary Laboratory	Element	No. Samples	Bias (%)
Sept 2018 - Jan 2023	Inspectorate AT	ALS	Au ppm	844	5.30%
			Ag ppm	844	0.60%
			Cu per	844	3.10%
			Pb per	844	0.70%
			Zn per	844	2.40%
	ALS	Certimin	Au ppm	1,004	1.40%
			Ag ppm	1,004	-7.50%
			Cu per	1,004	-1.80%
			Pb per	1,004	0.60%
			Zn per	1,004	-1.60%
	Certimin	ALS	Au ppm	104	-0.50%
			Ag ppm	104	-0.50%
			Cu per	104	1.20%
			Pb per	104	-2.20%
			Zn per	104	-0.10%

8.5.2.5 QA/QC Recommendations

Prior to preparation of the Mineral Resource estimates for El Porvenir, Atacocha underground, and Atacocha open pit, the QP reviewed the adequacy of Nexa's sample preparation, analysis, security protocols and procedures and QA/QC program at these operations.

The QP also reviewed the independent audit of the QA/QC program completed by SLR.

The QP's QA/QC recommendations for Atacocha are as follows:

- Keep monitoring CRMs and controls to prevent and/or mitigate trends, biases, or other issues which may require sample re-analysis. Continue to periodically conduct external checks across laboratories to ensure the primary laboratory's performance remains satisfactory.

8.6 QP Opinion

In the QP's opinion, the sample preparation, analysis, and security procedures at El Porvenir and Atacocha are appropriate for use in the estimation of Mineral Resources.

In the QP's opinion, the QA/QC program as designed and implemented by Nexa is adequate and the assay results within the databases for El Porvenir and Atacocha are suitable for use in a Mineral Resource estimate.

9.0 Data Verification

9.1 Databases and Internal Verification

During the last quarter of 2017, Nexa transferred the El Porvenir and Atacocha databases from their in-house developed Mining Information System (SIOM) , and Excel files to Fusion software and prepared an exhaustive number of checks to confirm the accuracy of the data migration. Nexa has implemented a series of routine verifications to ensure the collection of reliable data. Logging and sampling data are digitally entered into the database by downloading the information from the logging tablets.

Core logging, surveying, and sampling were monitored by exploration and mine geologists and verified routinely for consistency. The El Porvenir and Atacocha resource databases are regularly maintained and validated by the database administrator using Fusion software validation routines and by regularly checking the drill hole data on-screen visually. Personnel from the Geology department conduct daily quality control checks on the data entry. A first check consists of identifying duplicate sample numbers or lack of information for certain intervals. Every month, all the assay data entered in the server are compared with a compilation of individual CSV files issued by the laboratory. Paper records are stored at a safe location at the mines.

Assay data are captured from the Global Laboratory Information Management System (LIMS) server using custom routines, and this information is then entered into the Fusion database. The laboratory also issues CSV and pdf-format certificates, however, only the information that is stored digitally on the local mine servers is considered to be the true record.

Nexa prepared “The Informe de Validación de Base de Datos Atacocha” report containing additional detail regarding the data validation for El Porvenir. During this validation, Nexa found 76 channel samples and one drill hole creating inconsistencies with surrounding data. As a result, these channel samples and hole were removed from the Mineral Resource database.

9.2 El Porvenir

9.2.1 Previous Verification

In 2017, Amec Foster Wheeler (Amec) audited the Atacocha database (which also included El Porvenir). Amec reviewed and validated the information from 2011 to 2017 compiled by El Porvenir. Amec used signed assay certificates to verify the assays in the database; some inconsistencies were observed in Zn and Cu assays. Other checks included collar locations, downhole survey measurements, and lithology codes, and some inconsistencies were observed. In addition, a comparison between drill hole assay and channel assay was performed. The test compared results of nearby holes by searching for channel samples within a four-metre distance of drill holes. Amec constructed QQ plots and found that both grade distributions were very similar, with no bias observed (Amec, 2017)

As part of SRK’s 2017 NI 43-101 Technical Report, SRK performed assay data verification by comparing assay certificates with values in the database. SRK found that a significant number of historical samples did not have assay certificates and downgraded some areas to Inferred Resources as a result. Nexa has found more assay certificates since 2017 and completed a statistical and visual study that concluded that there were no significant issues with the historical data. SLR reviewed Nexa’s comparison work and concurred with the inclusion of historical data in the resource estimate with no classification downgrade.

9.2.2 2020 SLR Verification

SLR visited El Porvenir from September 5 to 7, 2018. During the site visit, SLR reviewed plans and sections, visited the core shack, examined some drill cores and mineralization exposures at the underground mine, and held discussions with Nexa personnel.

As part of the data verification process, SLR inspected the drill holes in section and plan view to review geological interpretations related to drill hole and channel databases and found good correlation. SLR queried the database for unique headers, unique samples, duplicate holes, overlapping intervals, blank and zero grade assays, and long interval samples, and reviewed QA/QC data collected by Nexa. SLR did not identify any significant discrepancies.

9.2.2.1 Assay Certificate Verification

SLR performed checks on the El Porvenir Mineral Resource database by compiling approximately 166,000 assay certificate results from August 2011 to March 2020 and comparing them to the assay database. Approximately 53,000 sample IDs were matched to the assay database for Zn, Cu, Pb, Ag, and Fe. No significant errors were found. There were 629 samples for Ag where the values in the database ranged from 25 g/t Ag to 285 g/t Ag and were lower than the certificate assays. This is likely a result of choosing the lower value of multiple re-assays, which shows a conservative approach since all mismatched values were lower in the Mineral Resource database. SLR did not include the results of re-assay programs in its certificate conversion and compilation exercise.

SLR did not review the pre-2011 certificate data as it is mostly located in mined-out areas. The bulk of the Mineral Resources and Mineral Reserves are supported with data from 2011 to 2020. Note the Mineral Resource and Mineral Reserve solids are well-covered by the 2011-2020 sampling. Assay certificates pre-2011 were not available, with the exception of 2009 certificates, however, Nexa and SLR reviewed this data in sections and plan views. Overall, the data compared well with recent drilling. SLR found no indication of any significant issues with this data. Additionally, Nexa was actively conducting drilling in these areas to validate assay values.

9.2.2.2 Density Certificate Verification

SLR analyzed 3,553 density measurement certificates from November 2015 to February 2020. Four files from 2011, 2012, and 2014 appear to contain grab samples, and only two of these had sample ID fields which concatenated the index and year in the table. Spot checks of the available sample IDs against the density table in the Mineral Resource database resulted in zero matches.

There were 565 certificate ID matches out of 1,131 in the El Porvenir Mineral Resource database, resulting in a comparison rate of 50%. SLR noted that there was only one density discrepancy greater than 0.2 g/cm³ between the matching certificate and the Mineral Resource sample IDs. SLR considered this to be a very good result.

9.2.3 SLR Verification 2021 - 2023

SLR found that the database is well maintained and that database verification procedures for El Porvenir comply with industry standards and are adequate for the purposes of Mineral Resource estimation.

9.2.3.1 Assay Certificate Verification

SLR carried out cross-checks between the El Porvenir assay database and the Inspectorate, Certimin, and ALS assay certificates. SLR compiled 41,816 samples from 282 certificates from 2019 to 2023 and compared values for Au, Ag, Pb, Cu, and Zn against the PS-EP-ASSAY_31-01-2023 assay database. This allowed for approximately 44% of the assay database to be verified. No significant errors were identified.

SLR is the opinion that the database is well supported by the available assay certificates.

9.2.3.2 Density Certificate Verification

SLR compiled ALS density measurement from original certificates and compared them to the density database.

In 2020, the ALS laboratory conducted tests on 469 samples, across eight certificates, using the wax-coated immersion method. Subsequently, density assessments commenced at the El Porvenir density dedicated laboratory. SLR noted that 46 of the samples were missing from the density database. Nexa attributes this missing information to damage during transport of the samples, which, as a result, were removed from the density database. Additionally, 92 samples measured by ALS were re-analyzed and replaced in the database with the on-site laboratory.

Starting in 2020, density measurements have been exclusively conducted in the El Porvenir density dedicated laboratory, with the results directly recorded into the Fusion database. Consequently, these measurements are not supported by certificates. However, recalculation of initial weights also recorded in the database confirm final density values.

9.3 Atacocha

9.3.1 2018 RPA Verification

RPA visited the Atacocha Mine from September 5 to 7, 2018. During the site visit, RPA reviewed plans and sections, visited the core shack, examined some drill cores and mineralization exposures at the underground mine, and held discussions with Nexa personnel.

RPA performed checks on the Atacocha Mineral Resource database by comparing 2017 assay certificates to the assay values in the database. The database values correspond well with the assay certificate data.

As part of the data verification process, RPA inspected the drill holes in section and plan view to review geological interpretations related to drill hole and channel databases and found good correlation. RPA queried the database for unique headers, unique samples, duplicate holes, overlapping intervals, blank and zero grade assays, and long interval sample, and reviewed QA/QC data collected by Nexa. RPA did not identify any significant discrepancies.

9.3.2 SLR Verification 2021 - 2023

SLR found that the database is well maintained, and generally exceeds industry standards. SLR is of the opinion that database and database verification procedures for Atacocha comply with industry standards and are adequate for the purposes of Mineral Resource estimation.

9.3.2.1 Assay Certificate Verification

SLR carried out cross-checks between the Atacocha assay database and the Inspectorate, Certimin, and ALS assay certificates. SLR compiled 67,316 samples from 791 certificates from 2019 to 2022 and compared values for Au, Ag, Pb, Cu, and Zn against the PS-AT-ASSAY_31-01-2023 assay database. This allowed for approximately 88% of the assay database to be verified. There is a total of 110 errors found in certificate LI19305593, which is related to the holeID PEATD01284.

SLR completed database validity checks for out-of-range values, gaps, and mismatched sample intervals.

Overall, SLR found no significant issues with the Atacocha drill hole databases.

9.3.2.2 Density Certificate Verification

SLR conducted an analysis of 6,025 density measurement certificates dated from 2013 to 2021 from ALS, all of which were determined using the wax-coated immersion method. Out of these, 1,975 samples were not found in the database. Nexa attributes this missing information to damage during transport of the samples, leading to its removal from the density database. A total of 3,159 samples matched the results between the certificate measurements and the database records. SLR noted that 30 samples measured by ALS were re-analyzed and replaced in the database with the on-site laboratory measurements.

Since January 2021, density measurements have been conducted exclusively in the El Porvenir density dedicated laboratory, with the results directly recorded into the Fusion database. Consequently, these measurements are not supported by certificates. However, recalculation of initial weights also recorded in the database confirm final density values.

9.4 Data Verification by the QP

Prior to preparation of the Mineral Resource estimates for El Porvenir, Atacocha underground, and San Gerardo, the QP reviewed the adequacy of Nexa's data management processes and completed database validity checks on the resource databases used in the estimates.

The QP also reviewed the validation and verification checks completed by SLR.

No limitations were imposed when conducting the QP's checks.

9.5 QP's Opinion and Recommendations

In the QP's opinion, the data verification for El Porvenir and Atacocha revealed no major discrepancies. Therefore, the assay and density results within the database are considered suitable for use in a Mineral Resource estimate.

The QP's data verification recommendations are as follows:

- Confirm whether the 1,975 density samples removed from the Atacocha database were justifiably excluded or, if necessary, consider re-including them in the database. Ensure



that this exclusion of density samples is documented within the database's record of changes to track any modifications made to the database.

- Investigate and correct the noted sample discrepancies, mostly in Au values.
- Maintain standardization of the format and database structure.



10.0 Mineral Processing and Metallurgical Testing

10.1 El Porvenir

10.1.1 Geometallurgical Test Work

Nexa began developing a geometallurgical model for El Porvenir in 2017. The objectives of the work were to develop a geometallurgical model able to predict the recovery of lead, zinc, copper, arsenic, and manganese, concentrate grades, as well as abrasiveness (abrasion index (Ai)) and hardness (Bond ball mill work index (BWi)), and therefore throughput based on ore source within the deposit. The aim of the development work included:

- Maximization of operational value of the El Porvenir mining unit.
- Reduction of risks to production related to:
 - o Plant throughput.
 - o Grinding media consumption.
 - o Recovery of valuable minerals.
 - o Concentrate quality.
 - o Identification of flaws in the quality and interpretation of the available information.
 - o Identification of opportunities for improvement and to reduce risk.
 - o Definition and validation of geometallurgical domains from metallurgical test results.
 - o Evaluation of contaminants in the deposit.

The geometallurgical sample selection and test work were performed with the assistance of Transmin Metallurgical Consultants (Transmin). Preliminary results and interpretation were reported by Transmin in the following reports:

- Estudio Geometalurgico Preliminar para Unidad Minera El Porvenir, June 15, 2018 (Transmin, 2018).
- Estudio Geometalúrgico Fase 2 para Unidad Minera El Porvenir, April 29, 2019 (Transmin, 2019)
- Estudio Geometalúrgico Fase 3 para Unidad Minera El Porvenir, May 18, 2020 (Transmin, 2020)
- Estudio Geometalúrgico Fase 4 para Unidad Minera El Porvenir, June 17, 2021 (Transmin, 2021)
- Estudio Geometalúrgico Fase 5 para Unidad Minera El Porvenir, May 5, 2022 (Transmin, 2022)
- Estudio Geometalúrgico Fase 6 para Unidad Minera El Porvenir, April 20, 2023 (Transmin, 2023).

10.1.1.1 Phase 1 Results

In 2017, fifteen samples from El Porvenir were submitted for metallurgical testing. The samples were intended to be representative of 2018 concentrator feed. Test work included mineralogy, comminution testing (BWi and Ai), and flotation (variability tests, locked cycle tests (LCTs), and grind size evaluation).

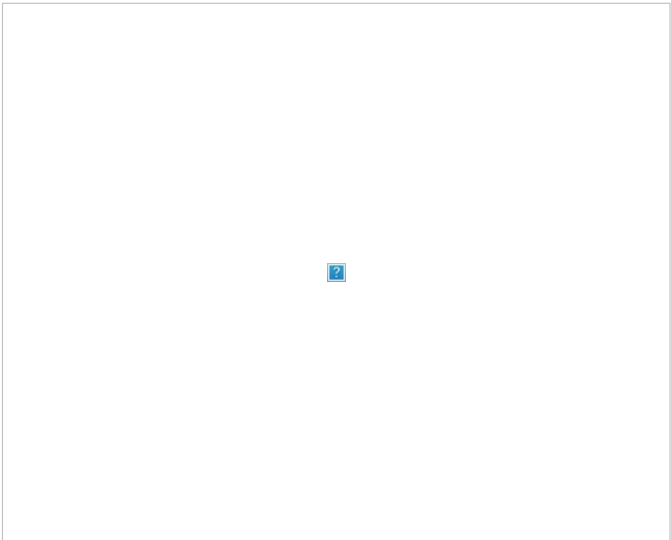


comminution testing (BWi and Ai), and flotation (variability tests, locked cycle tests (LCTs), and grind size evaluation).

Sampling and Mineralogy

Priority was given to samples from holes drilled in 2016 and 2017 to use the freshest possible material for metallurgical test work. Samples were selected to represent areas in the block model with NSR values greater than or equal to \$40.94/t, as well as to include the majority of lithologies to be processed in 2018 (predominantly skarn and limestone). Grades of zinc, lead, copper, and silver were also considered in the selection of samples. Mineralogical characterization of the samples is represented in Figure 10-1 and Figure 10-2. The mineralogy is notable for the wide range of sulphide and sulphate content, the presence of sphalerite with manganese inclusions, as well as high levels of manganese sulphide in two samples, PAS-09 and PAS-23.

Figure 10-1: Bulk Mineralogical Analysis

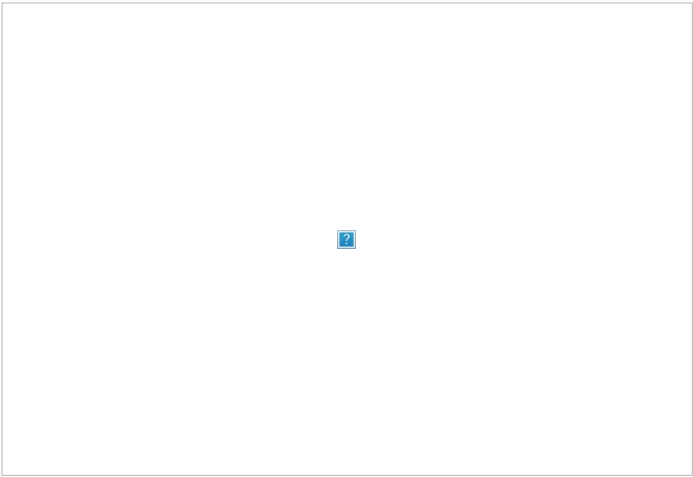


Source: Transmin, 2018





Figure 10-2: Sulphide Mineral Breakdown



Source: Transmin, 2018

Comminution

Comminution test results ranged from 0.04 g to 0.33 g for Ai and 7.3 kWh/t to 20.6 kWh/t for BWi.

Flotation - Grind Size Optimization

Three composite samples were produced for use in grind size optimization flotation tests and for LCTs. Two composites of plant feed representing October 2017 and November 2017 were collected for repeatability testing and cleaner regrind testing. Bulk rougher flotation was completed at three grind sizes, 80% passing (P_{80}) 100 μm , 150 μm , and 200 μm . The tests indicated that there was a tendency towards higher recoveries of copper and zinc to the bulk rougher concentrate at the finer grind sizes. This would result, however, in the need for more effort to reject the additional zinc from the bulk concentrate. Recovery of lead to the bulk concentrate was less affected but improved at finer grind sizes. Therefore, it was noted that optimization of primary grind size could help to maximize recoveries of valuable minerals and metals, but primary grind size should be considered in conjunction with throughput and energy consumption.

An evaluation of regrind size was conducted by completing cleaner tests on bulk and zinc rougher concentrates at P_{80} 20 μm and 40 μm , as well as without regrinding. The tests indicated that recoveries were lower at finer grind sizes, but also that grades at the finer grind sizes were higher. It was noted that optimization of regrind size could help to reduce energy consumption for regrinding, while still achieving target concentrate grades.



Locked Cycle Flotation Testing

An LCT was completed which produced a bulk concentrate of 53.8% Pb and zinc concentrate of 52.7% Zn. The limit for bismuth in the bulk concentrate (1,000 ppm Bi) was exceeded at 5,597 ppm Bi, and the limit for cadmium in the zinc concentrate (3,000 ppm Cd) was exceeded at 3,275 ppm Cd. Final recoveries for lead and zinc were 88.2% and 91.5%, respectively.

Variability tests were completed on the 15 variability samples. The tests consisted of bulk and zinc rougher flotation conditions that were adjusted according to the lead and zinc content of the samples, resulting in five different sets of flotation conditions.

Lead recovery to the bulk concentrate averaged 92% (excluding the low lead content samples), while zinc recovery to the zinc rougher concentrate averaged 79%.

Recovery Versus Head Grade

Test work results from the samples were used to derive recovery versus head grade relationships for lead, zinc, copper, manganese, and arsenic. Transmin noted that the number of samples tested was less than the number required to represent the variability of the deposit, and that additional test work would be required to validate and update the geometallurgical model. In addition, it was recommended that arsenopyrite and manganese sulphides be included in the logging of drill core samples, and that the behaviours of bismuth and antimony should be evaluated in future test work.

10.1.1.2Phase 2 Test Work

In Phase 2 of the geometallurgical model development, 96 samples were selected for metallurgical test work, including samples from both El Porvenir and Atacocha. Samples were selected to represent the distribution of ore (from different zones within the mines) planned to be mined in 2019 (except for Atacocha where sample material for certain zones to be mined in 2019 was not available), and from blocks in the block model with NSR values greater than or equal to \$40.94/t.

Comminution

Samples that underwent comminution testing included 36 samples from El Porvenir and 10 samples from Atacocha. Ai values of the samples ranged from 0.0056 g to 0.47 g, with the majority of samples in the low abrasiveness range of < 0.3 g. BWi for the samples ranged from 5.6 kWh/t to 20.7 kWh/t with the majority of samples in the medium to hard range of 9 kWh/t to 20 kWh/t. Abrasiveness and hardness were found to be related to the SiO₂ content of the samples.

Flotation

Flotation test work was completed on 45 variability samples (rougher tests) and a composite produced from 40 individual samples from El Porvenir and 10 individual samples from a blend of 75% El Porvenir and 25% Atacocha material. Three composites (two El Porvenir and one Atacocha) were submitted for mineralogical analysis. The main gangue minerals in the composites were silicates and carbonates and the main sulphide minerals were pyrite, sphalerite, and galena. The flotation test work indicated that lead recovery was related to the

lead head grade, and silver recovery was related to lead recovery; zinc, manganese, and arsenic recoveries were noted to be related to the source zone of the samples. LCTs conducted on the composites did not achieve stability and were therefore not included in the analysis of results.

10.1.1.3Phase 3 Test Work

In Phase 3 of the geometallurgical model development, 46 additional samples representing different zones and lithologies at El Porvenir underwent comminution testing. Ai results ranged from 0.0030 g to 0.68 g and BWi results ranged from 5.67 kWh/t to 23.1 kWh/t. Abrasiveness was found to be related to ore zone, lithology, SiO₂ content, and loss on ignition (LOI). BWi was found to be related to ore zone, lithology, and SiO₂ content.

Mineralogy

A further 29 samples were used to produce two composites representing ore to be mined from 2020 to 2022, as well as three samples used to produce a composite representing the Don Ernesto zone for flotation test work. Mineralogical analysis of the composites indicated that the main sulphide minerals were pyrite, sphalerite, pyrrhotite, and galena. Compared to the 2020 to 2022 composites (PDFC-01 and PDFC-02), the Don Ernesto composite (PDFC-03) was higher in sulphides and also contained 2.5% bournonite (PbCuSbS₃), while PDFC-02 contained 2.1% alabandite (MnS). Gangue minerals were mainly silicates and carbonates.

Flotation

LCTs were completed on PDFC-01 and PDFC-02 to produce bulk copper-lead concentrates and zinc concentrates. These tests produced the following results:

PDFC-01

- The bulk concentrate achieved a grade of 6.1% Cu, 41.7% Pb, and 2,623 g/t Ag at recoveries of 50.3% Cu, 91.7% Pb, and 73.6% Ag.
- The zinc concentrate achieved a grade of 49.7% Zn at a recovery of 91%.
- The bulk concentrate consisted mainly of galena (47%), chalcopyrite (16%), and sphalerite (15%, mostly associated with galena).
- The zinc concentrate consisted mainly of sphalerite (85%).

PDFC-02

- The bulk concentrate reached a grade of 1.0% Cu, 42.4% Pb, and 2,808 g/t Ag at recoveries of 34% Cu, 87% Pb, and 70% Ag. It also contained 8% Mn and 11% Zn.
- The Zn concentrate reached a grade of 41.8% Zn at a recovery of 73%.
- The bulk concentrate consisted of galena (44%), alabandite (13%), and sphalerite (21%). Sphalerite was associated equally with galena and pyrite.
- The zinc concentrate consisted mainly of sphalerite (70%) and 5% alabandite.

Transmin recommended that manganese sulphides, lead oxides, and whole rock analysis, particularly for SiO₂, be included in drill core analysis, that manganese be included in the geological model, and that consideration be given to mapping high SiO₂ zones.

Based on the results of the test work, Transmin produced relationships for comminution parameters (Ai and BWi) and flotation predictions for recoveries and grades for copper, lead,

and zinc concentrates using ore zones and grades that could be used in geometallurgical modelling. These relationships were updated through the various phases of test work.

10.1.1.4Phase 6 Test Work

The phase 6 metallurgical testing program carried out in 2023 continued the work in the previous phases to characterize the geometallurgical behaviour of the ore from the El Porvenir deposit.

The objective of this geometallurgical program was to maximize the operational value of the Mining Unit by reducing the risk on the production of the 2023-2026 input material including:

- Plant tonnage
- Consumption of grinding media
- Recoveries of valuable minerals
- Quality of the final concentrate
- Identification of fatal failures
- Look for flaws in the interpretation of available information
- Validation and definition of geometallurgical domains
- Find opportunities for improvement and reduce existing risks

Prior to the phase 6 study, five phases of geometallurgical studies were carried out, increasing the available geometallurgical data progressively to reduce the risk in metallurgical predictions. Identified risks include the presence of high-hardness material in intrusive materials and limestone, as well as high abrasiveness in sandstone and clastic materials.

A total of 24 samples were selected for the flotation program, 12 samples for the comminution program, and 25 samples for Wall Rock Analysis (WRA), considering the relevant geological and geochemical parameters according to the available information.

From the individual samples, two El Porvenir geometallurgical (PGC) flotation composites were formed. Composite PGC-01, corresponding to main bodies to be mined in 2023-2026. Composite PGC-02, corresponding to breccia zone material, (High Cu). Comminution tests were developed on PGS samples.

Comminution

The tests carried out were abrasion, Ai, and Bond work index, BWi. The results of the comminution tests showed that the material from the period 2023-2026 has abrasiveness between 0.01 and 0.18.

The abrasiveness depends on the lithology: the sandstone material at the top is more abrasive, because it is mainly made up of quartz, and this material is more abrasive at fine-grained sizes (lower SiO₂ content). The rest of the deposit depends on the content of SiO₂ (silicates) and the content of LOI – material with high carbonate content.

Mineralogy

From the mineralogical characterization tests of the composites prepared at 210 µm, the following was observed:

- Primary sulphides are sphalerite, galena, and chalcopryrite.



- Pb is only found as galena in all composites.
- PGC-01 has 56% carbonates and 28% sulfides and sulfates.
- PGC-02 is 39% silicates and 40% sulfides and sulfates.
- Associations with higher percentages:
 - o Release of "Free" galena more than 75% (PGC-02) and 45% (PGC-01).
 - o Release of "Free" type sphalerite more than 60% (PGC-02) and 53% (PGC-01).
- Modal mineralogy presents 2% fluorite in PGC-01.

Risks Identified

From the geometallurgical analysis, the following risks were identified:

- Tonnage to plant and steel consumption.
- Areas of high hardness ore, associated with high silicate content, mainly on VCN3 and V5 bodies.
- The Sara body with sandstone lithology has the highest abrasiveness of the deposit.
- Recovery of valuable minerals including lower Zn recovery in RL<36000
- Concentrate quality
 - o Presence of Bi in the bulk concentrate of composite PGC-01
 - o Presence of Sn in the Zn concentrate of composite PGC-01

Recommended Geometallurgical Model for Pb and Zn Recovery

Recommended geometallurgical flotation models for mine planning and production prediction were developed. Table 10-1 presents the values or algorithms for the final Pb recovery to the Pb concentrate and the final Pb concentrate grade for the domains presented.

Table 10-1: Algorithms for Pb Recovery in Pb Concentrate and Pb Concentrate Grade

Domain	Current	Algorithm	Final Pb Recovery In Pb Concentrate
ID	ID	Head	CC Pb_ Rec Pb %
CC Pb_Rec Pb	Feed	All	Min(77+9.6*Ln(HA_Pb%); 88.8)
CC Pb_Grade Pb	Feed	All	Min(50+9.13*Ln(HA_Pb%); 88.8)

Table 10-2 presents the values or algorithms for the final Zn recovery to the Zn concentrate and the final Zn concentrate grade for the domains presented.

Table 10-2: Algorithms for Zn Recovery in Zn Concentrate and Zn Concentrate Grade

Domain	Current	Algorithm	Final Zn Recovery In Zn Concentrate
ID	ID	Head	%





CC Zn_Rec Zn %_01	Feed	Orebody = Exito & RL>36,000	72
CC Zn_Rec Zn %_02	Feed	Orebody = Exito & RL<36,000	87
CC Zn_Rec Zn %_03	Feed	Remainder	$91.2+3.78*\ln(\text{HA\_Zn}/\text{HA\_Fe})$
CC Zn_Grade Zn %_01	Feed	All	$47.99+2.7*\ln(\text{HA\_Zn}/\text{HA\_Fe})$

Transmin recommended that the geological data be validated by the Nexa geologists, this could create opportunities to refine and obtain more robust geometallurgical models.

Conclusions

The objective of the phase 6 work was to evaluate the behaviour of the input material for the years 2023 to 2026, as well as to validate the geometallurgical models of comminution and flotation of Unidad Minera El Porvenir (UMEP) material, expanding the dataset with samples of bodies and rock types not evaluated in the previous phases.

From comminution tests, the following was observed:

- Abrasion index tests reported values between 0.003 g and 0.14 g.
- The sandstone domain has a relationship between abrasiveness and SiO₂ content. The higher the SiO₂ content, the greater the abrasiveness.
- The BWi tests reported values between 5.7 kWh/t to 23.1 kWh/t; the results of this phase are consistent and validate the geometallurgical model, the higher values correspond to higher SiO₂ content.

From the results obtained from the composites it was concluded that:

- The recovery of Pb varies according to the content of Pb in the feed.
- Ag recovery is related to the Cu/Pb ratio. The higher the Pb content, the higher the Ag content in the feed.
- The recovery of Zn varies according to the ratio of Zn/Fe in the feed for all ore types except Success. Zn recovery in the Success material is proportional to Zn grade.
- Risk zones for Pb and Zn recoveries were identified Veda Éxito.

From the geometallurgical analysis, the following risks were identified:

- Tonnage to plant and steel consumption
- The upper area, with sandstone lithology has the greatest abrasiveness of the deposit.
- Areas of high-hardness ore in the rest of the deposit are associated with a high silicate content.
- Recovery of valuable minerals:
 - o The intermediate and lower zones of Success present a risk of low Pb and Zn recovery.
 - o Low Zn recovery in Success Zones
- Concentrate quality:





- o Presence of Bi in the bulk concentrate of the composite PGC-01
- o Presence of Sn in the Zn concentrate of the composite PGC-01

10.1.2 Operational Performance

Production figures for 2018 through 2023 including head grades and recoveries of metals to concentrates are presented in Table 10-3. The El Porvenir concentrator processed 2,220,011 tonnes of ore in 2023 with Cu, Pb, and Zn grades of 0.16%, 1.37%, and 2.86% respectively. Recoveries to their respective concentrates were 10.1% Cu, 82.1% Pb and 88.0% Zn.

The head grades of Zn, Cu, Au, and Ag have been consistent over the period, while Pb has increased from 0.98% to 1.37%. Pb, Ag, and Au recoveries have increased and the recovery of Ag and Au to the Pb concentrate has increased over the period. Cu grades and recoveries have decreased significantly over the period.

Production in 2020 was significantly lower than in 2019 because of the COVID-19 pandemic and associated production interruptions. During that period, mining activities were limited to critical operations with a minimum workforce to ensure appropriate maintenance, safety, and security. On May 6, 2020, the Peruvian Government announced the conditions for the resumption of operations for different sectors, including mining operations above 5,000 tpd. As a result, El Porvenir operations, which were suspended on March 18, 2020, restarted production on May 11, 2020, following the end of the quarantine period. After the resumption of operations, El Porvenir ramped up production to pre-pandemic levels by June 2020.

Table 10-3: Concentrator Operational Performance 2018 - 2023

	Item	Units	2018	2019	2020	2021	2022	2023
Ore Processed		tonnes	2,149,927	2,120,765	1,502,618	2,077,591	2,111,961	2,220,011
Mill Head Grade	Ag	g/t	59.70	64.60	62.30	65.31	76.5	72.8
	Au	g/t	0.01	0.01	0.01	0.01	0.01	0.01
	Cu	%	0.15	0.15	0.17	0.19	0.16	0.16
	Pb	%	0.98	1.01	0.93	1.08	1.34	1.37
	Zn	%	3.04	2.93	2.65	2.83	2.80	2.86
Cu Concentrate		tonnes	2,701	2,185	1,711	2,599	1,580	1,989
	Cu Grade	%	21.00	21.30	19.50	19.43	16.81	17.83
	Cu Recovery	%	18.00	14.70	12.70	12.92	7.85	10.06
	Ag Grade	oz/t	55.40	81.30	89.90	81.02	91.08	69.22
	Ag Recovery (to Cu)	%	3.70	4.10	5.10	4.82	2.77	2.65
	Au Grade	oz/t	0.68	0.87		0.64	0.49	0.29
	Au Recovery (to Cu)	%	5.80	5.00		7.08	3.10	2.43





	Item	Units	2018	2019	2020	2021	2022	2023
Pb Concentrate		tonnes	31,662	33,018	21,213	34,691	45,907	48,599
	Pb Grade	%	52.60	51.20	51.20	51.02	50.53	51.31
	Pb recovery	%	79.10	79.00	77.80	78.72	81.75	82.10
	Ag Grade	oz/t	75.30	78.40	80.70	75.37	74.55	70.89
	Ag Recovery (to Pb)	%	57.80	58.80	56.90	59.91	65.80	66.20
	Au Grade	oz/t	0.25	0.24		0.20	0.18	0.17
	Au Recovery (to Pb)	%	24.70	25.50		30.01	34.02	34.28
Zn Concentrate		tonnes	115,256	109,976	69,891	103,994	104,507	111,566
	Zn Grade	%	50.20	49.70	49.90	49.40	49.34	50.04
	Zn Recovery	%	88.70	88.20	87.70	87.27	87.27	88.01

Table 10-4, Figure 10-3, and Figure 10-4 present the grade and recovery statistics for Au, Ag, Cu, Pb, and Zn using daily results for 2022 and 2023. The box and whisker plots show the grade and recovery ranges including the minimum (bottom horizontal line), 25th percentile (bottom of box), 50th percentile or mean (line in middle of box), 75th percentile (top of the box) and the maximum (top horizontal line) of each metal along with outliers. The following table provides a summary of the data. The average grades of Zn, Pb, and Cu for the period were 2.83%, 1.36% and 0.16% respectively and the recoveries of Zn, Pb, and Cu for the period were 87.49%, 81.65%, and 8.67% respectively.

Table 10-4: Summary of Daily Grade and Recovery Results for 2022 - 2023

	Head Grade					Metal Recovery				
	Zn (%)	Pb (%)	Cu (%)	Ag (oz/t)	Au (oz/t)	Zn (%)	Pb (%)	Cu (%)	Ag (%)	Au (%)
2022 - 2023										
Average	2.83	1.36	0.16	2.41	0.01	87.49	81.65	8.67	81.10	36.80
Maximum	4.60	2.52	0.25	3.90	0.02	91.17	85.39	31.26	86.28	49.56
Minimum	1.46	0.82	0.09	1.50	0.01	83.72	73.32	0.0	73.15	22.87
Median	2.79	1.35	0.16	2.37	0.01	87.58	81.83	8.70	81.42	37.02
2022										
Average	2.81	1.35	0.16	2.47	0.01	87.21	81.63	7.70	80.56	37.28
Maximum	4.05	1.96	0.25	3.85	0.02	90.43	85.39	23.38	86.28	49.56
Minimum	1.46	0.82	0.09	1.72	0.01	83.72	74.80	0.0	73.15	22.87
Median	2.77	1.35	0.16	2.43	0.01	87.35	81.74	7.64	80.89	37.72
2023										
Average	2.85	1.37	0.16	2.35	0.01	87.77	81.66	9.65	81.61	36.33
Maximum	4.60	2.52	0.25	3.90	0.02	91.17	85.39	31.26	86.28	49.56
Minimum	1.46	0.82	0.09	1.50	0.01	83.72	73.32	0.0	73.15	22.87
Median	2.82	1.36	0.16	2.31	0.01	87.82	81.89	9.72	81.72	36.74







Historical annual recoveries at El Porvenir for 2003 – 2023 are presented in Figure 10-5 through Figure 10-10, which show zinc, lead, and copper head grades and recoveries to concentrate.





10-13





10.1.3 Deleterious Elements

The potential penalty elements that should be monitored in the copper concentrate include arsenic, antimony, bismuth, cadmium, and combined lead plus zinc. The potential penalty elements in the lead concentrate are low lead concentrate grade bismuth and fluorine.





The potential penalty elements in the zinc concentrate are copper and manganese.

10.1.4 QP Opinion

In the SLR QP's opinion, the metallurgical recovery data is adequate for the purposes of Mineral Resource and Mineral Reserve estimation.

10.2 Atacocha

10.2.1 Geometallurgical Test Work

Nexa has developed geometallurgical models for the Atacocha underground and San Gerardo open pit mines. In 2017, fifteen samples from Atacocha (nine from the open pit and six from the underground mine) were submitted for metallurgical testing. The samples were intended to be representative of the planned 2018 concentrator feed.

Test work included mineralogy, hardness testing (Bond ball mill work index and abrasion index), and flotation testing (variability tests, locked cycle tests, and grind size evaluation).

The geometallurgical sample selection and test work were performed with the assistance of Transmin, and results and interpretation are reported by Transmin in the following reports:

- Estudio Geometalúrgico Preliminar para Unidad Minera Atacocha, 13 June 2018
- Estudio Geometalúrgico Fase 2 para Unidad Minera Atacocha, April 29, 2019 (Transmin, 2019)
- Estudio Geometalúrgico Fase 3 para Unidad Minera Atacocha, May 18, 2020 (Transmin, 2020)
- Estudio Geometalúrgico Fase 4 para Unidad Minera Atacocha, June 17, 2021 (Transmin, 2021)

10.2.1.1 Phase 1 Results

Initially, 30 samples of drill core were selected to represent ore to be processed by the concentrator in 2018 (six from the underground and 24 from the open pit), however, ultimately only 15 of these samples were selected for test work (five from the underground ore and 10 from the open pit ore). Priority was given to selecting samples from holes drilled in 2016 and 2017, to use the freshest possible material for metallurgical test work. Samples of the underground orebodies were selected to represent key parameters, including orebody, lithology, and grades of Pb, Cu, Zn, Ag, and Mn. Samples from the open pit were selected based on grades of Pb, Cu, Zn, Ag, and Mn; lithology and domain were not available for use in the sample selection for the open pit. Sample selection was also limited to areas in the block model with values of NSR $\geq$ \$47.79/t (underground) or NSR $\geq$ \$22.00/t (open pit) (Transmin, 2018). A summary of the samples selected for metallurgical test work is presented in Table 10-5.

Table 10-5: Atacocha Samples Selected for Metallurgical Test Work

Sample	Orebody	Lithology	Location	Program
AAS-07	Orebody 10	intrusive	Open Pit	Comminution
AAS-07-01	Orebody 10	intrusive	Open Pit	Flotation / comminution
AAS-09-01	Orebody 10	intrusive	Open Pit	Flotation / comminution





Sample	Orebody	Lithology	Location	Program
AAS-10-01	Orebody 10	intrusive	Open Pit	Flotation / comminution
AAS-24-01	Vein L	intrusive	Open Pit	-
AAS-27	Vein LA27	intrusive	Open Pit	Flotation / comminution
AAS-28	Vein LA27	intrusive	Open Pit	Flotation / comminution
AAS-29	Vein LA27	limestone	Open Pit	Flotation / comminution
AAS-30	Vein LA27	intrusive	Open Pit	Flotation / comminution
AAS-30-01	Orebody 10	intrusive	Open Pit	Flotation / comminution
AAS-05	Anita Orebody	skarn	Underground	Flotation / comminution
AAS-31	Orebody 23	marble	Underground	Flotation
AAS-33	Orebody 23	mineralization	Underground	Flotation
AAS-34	Orebody 18	mineralization	Underground	Flotation
AAS-36	Anita Orebody	mineralization	Underground	Flotation

Source: Transmin, 2018

Sample AAS-24-01 was not submitted for test work as it was found to have very low grades of Pb, Cu, Zn, and Ag. Chemical analysis of the samples is shown in Table 10-6.

Table 10-6: Analysis of Samples Selected for Metallurgical Test Work

Sample	Orebody	Lithology	Zone	Au g/t	Ag g/t	As %	Bi ppm	Cu %	Fe %	Mn %	Pb %	Zn %
AAS-07	Orebody 10	intrusive	OP	0.18	6.00	0.064	<5	0.0056	4.36	0.24	0.19	0.40
AAS-07-01	Orebody 10	intrusive	OP	0.26	8.10	0.071	<5	0.0055	4.73	0.15	0.14	0.11
AAS-09-01	Orebody 10	intrusive	OP	1.99	38.2	0.12	10.0	0.041	4.12	0.23	0.94	1.64
AAS-10-01	Orebody 10	intrusive	OP	0.65	60.2	0.17	28.0	0.061	4.89	0.16	1.54	1.29
AAS-24-01	Vein L	intrusive	OP	<0.005	1.00	0.0005	<5	0.00093	0.44	0.017	0.0013	0.0044
AAS-27	Vein LA27	intrusive	OP	0.14	39.3	0.065	16.0	0.035	4.24	0.48	1.81	1.18
AAS-28	Vein LA27	intrusive	OP	0.64	61.3	0.20	<5	0.029	4.88	0.22	3.11	1.21
AAS-29	Vein LA27	limestone	OP	0.046	30.2	0.039	<5	0.0074	1.75	0.56	1.52	1.90
AAS-30	Vein LA27	intrusive	OP	0.15	41.0	0.058	13.0	0.032	4.36	0.48	1.89	1.21
AAS-30-01	Orebody 10	intrusive	OP	0.44	80.0	0.13	<5	0.047	5.39	0.22	3.96	1.70
AAS-05	Anita Orebody	skarn	UG	0.098	16.6	0.022	<5	0.18	17.2	0.17	0.35	0.94
AAS-31	Orebody 23	marble	UG	0.34	173	0.081	1,126	0.47	6.70	0.31	1.58	8.37
AAS-33	Orebody 23	mineralization	UG	0.60	89.6	0.59	1,492	0.36	19.0	1.31	0.51	6.72
AAS-34	Orebody 18	mineralization	UG	0.17	63.6	0.14	488	0.46	18.1	1.41	0.39	8.26
AAS-36	SB Orebody	mineralization	UG	0.22	6.40	0.0059	7.00	0.47	16.0	0.19	0.0039	10.1

Source: Transmin, 2018





Mineralogy

Mineralogical analysis of the samples is presented in Figure 10-11 and Figure 10-12. In the open pit samples, silicates make up the majority of the samples, ranging from 71% to 88%, whereas the underground samples typically contain lower amounts of silicates – the samples ranged from 20% to 70% silicates. A major component of the underground samples is carbonates, whereas carbonates are a minor component of the open pit samples. Open pit samples are notable for the presence of sphalerite containing Mn, arsenic containing Pb sulphides, and the lack of chalcopyrite. The mineralogical characterization is summarized in Table 10-7.

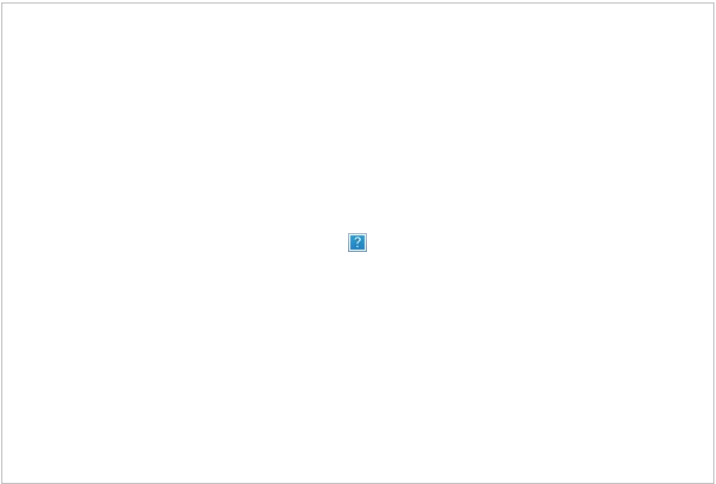
Table 10-7: Mineralogical Characterization Summary

Zone	Sample	Orebody	Tellurides %	Sulphides & Sulphates %	Silicates%	Oxides & Hydroxides %	Carbonate %	Others %
OP	AAS-29	Vein LA27	0.04	9.5	72.3	0.22	16.1	1.75
	AAS-30	Vein LA27	0.020	15.1	74.5	0.35	8.3	1.71
	AAS-30-01	Orebody 10	0.04	24.6	71.1	0.36	2.7	1.08
	AAS-28	Vein LA27	0.04	17.5	78.4	0.40	2.50	0.95
	AAS-07	Orebody 10	0.015	11.1	84.7	0.32	2.30	1.19
	AAS-09-01	Orebody 10	0.03	13.0	83.3	0.36	2.1	1.01
	AAS-07-01	Orebody 10	0.00	10.7	85.6	0.312	1.6	1.05
	AAS-27	Vein LA27	0.03	15.2	81.8	0.36	1.4	1.01
	AAS-10-01	Orebody 10	0.07	17.1	80.1	0.46	1.18	0.96
UG	AAS-24-01	Vein L	0.000	9.5	88.0	0.50	1.0	1.00
	AAS-31	Orebody 23	0.149	29.3	20.5	0.25	48.61	0.85
	AAS-33	Orebody 23	0.109	41.82	31.7	2.15	21.9	2.19
	AAS-34	Orebody 18	0.12	49.7	31.1	0.44	18.0	0.61
	AAS-05	Anita Orebody	0.03	15.6	69.6	0.66	11.66	2.42
	AAS-36	SB Orebody	0.08	30.5	63.7	0.19	4.2	1.31





Figure 10-11: Bulk Mineralogical Analysis

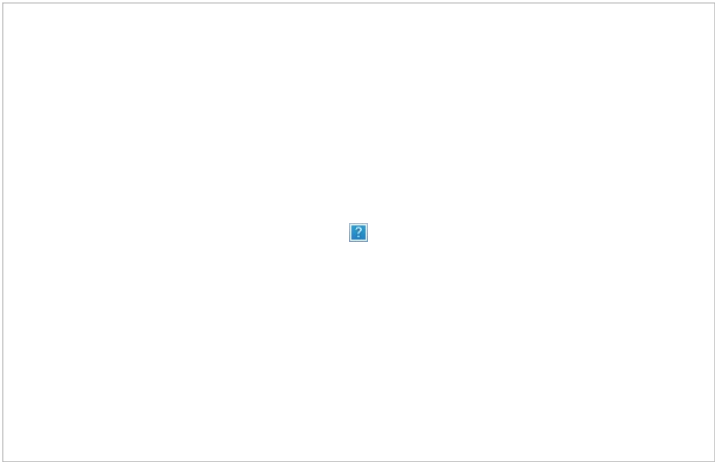


Source: Transmin, 2018





Figure 10-12: Sulphide Mineral Breakdown



Source: Transmin, 2018

Comminution

Comminution test results are shown in Table 10-8. The open pit ore is moderate to hard in terms of grindability, with low abrasiveness. Only one sample of underground ore was tested, and therefore no conclusions can be drawn about the general comminution characteristics of the underground ore.

Table 10-8: Comminution Test Work Results

Sample	Orebody	Lithology	Zone	Ai g	BWi kWh/t
AAS-05	Anita Orebody	Skarn	UG	0.24	8.10
AAS-07	Orebody 10	Intrusive	OP	0.24	18.1
AAS-07-01	Orebody 10	Intrusive	OP	0.12	15.0
AAS-09-01	Orebody 10	Intrusive	OP	0.36	16.1
AAS-10-01	Orebody 10	Intrusive	OP	0.13	13.1
AAS-27	Vein LA27	Intrusive	OP	0.10	12.9
AAS-30	Vein LA27	Intrusive	OP	0.093	12.2
AAS-28	Vein LA27	Intrusive	OP	0.22	14.1
AAS-30-01	Orebody 10	Intrusive	OP	0.098	12.0

Source: Transmin, 2018



Locked Cycle Flotation Test Results

Five composite samples were produced for use in grind optimization and locked cycle flotation tests. Compositions of the composites are provided in Table 10-9.

Table 10-9: Analysis of Composite Samples

Composite	Zone	Au g/t	Ag g/t	Cu %	Fe %	Mn %	Pb %	Zn %
AAC-01	UG	0.54	342	1.05	19.3	0.48	10.1	16.8
AAC-02	UG + OP	0.87	355	0.36	13.8	2.62	9.48	12.4
AAC-03	OP	0.83	228	0.22	4.62	0.98	8.57	12.6
AAC-04	Plant Oct 17	0.49	39	0.13	9.25	0.88	0.95	1.49
AAC-05	OP + UG	0.48	36.4	0.07	6.8	0.31	1.43	1.29

Source: Transmin, 2018

Bulk rougher flotation was completed at three grind sizes on AAC-01, AAC-02, and AAC-03 at P₈₀ of 100 µm, 150 µm, and 200 µm. The tests indicated little sensitivity in terms of recovery to grind size in the range tested.

AAC-05 was used in locked cycle flotation testing, with six cycles completed. The primary grind size used was 48% passing 74 µm. Pb and Zn concentrates were produced with grades of 61.1% Pb and 53.3% Zn respectively. Final Pb and Zn recoveries to the Pb and Zn concentrates were 84.1% and 85.9% respectively. Penalty elements As and Mn exceeded their respective limits: As in the Pb concentrate exceeded 8,000 ppm at 8,114 ppm, and Mn in the Zn concentrate exceeded the limit (0.5%) at 0.68%.

Flotation Variability Tests

Rougher flotation variability tests were completed on 13 of the 15 variability samples, consisting of bulk and Zn rougher flotation. Flotation conditions were varied based on Pb and Zn grades of the samples, resulting in four different flotation schemes being used during the variability tests.

The effect of the four different flotation schemes on the results is unknown, and therefore, while some general conclusions can be drawn, a comparison of individual results should be treated with care.

Lead recovery to the bulk concentrate averaged 91% for open pit ore and 83% for underground ore (excluding the low lead content samples). Zn recovery to the Zn rougher concentrate averaged 59% for open pit ore and 87% for the underground ore.

With the open pit samples, average Zn recovery to the bulk concentrate was significantly higher than for the underground samples (37% versus 5% respectively), even though the Zn head grades of the underground samples were far higher than those of the open pit samples. This would put more pressure on the bulk cleaning circuit to separate Zn from Pb and Cu.



Recovery Versus Head Grade

Test work results from the samples were used to derive recovery-versus-head-grade relationships for Pb, Zn, Cu, Mn, and As. Significantly more samples would be required to derive recovery relationships that could be used for long term planning.

As a result of the changes in recoveries brought about by the introduction of San Gerardo ore, recovery curves for Pb and Zn were derived by Transmin to predict future recoveries from the Atacocha concentrator, while copper recoveries have been assumed to average approximately 5.5%. The recovery curves are shown in Table 10-10 and illustrated in Figure 10-13 to Figure 10-15, plotted against monthly recoveries achieved in 2017 and 2018 over the range of head grades realized at the concentrator. The results of the models are similar but slightly higher than 2023 results.

Table 10-10: Recovery Curves for the Atacocha Concentrator

	Recovery Curve	Recovery Cap
		(%)
Zn Recovery	$\text{Recovery} = - 7.456 (\text{Grade}_{\text{Zn}})^2 + 27.45 (\text{Grade}_{\text{Zn}}) + 54.21$	79.5
Pb Recovery	$\text{Recovery} = - 7.47 (\text{Grade}_{\text{Pb}}) + 77.08$	89.0
Cu Recovery	5.52	5.52





Figure 10-13: Monthly Zinc Recovery in 2017 and 2018, and the 2019 NSR Recovery Curve

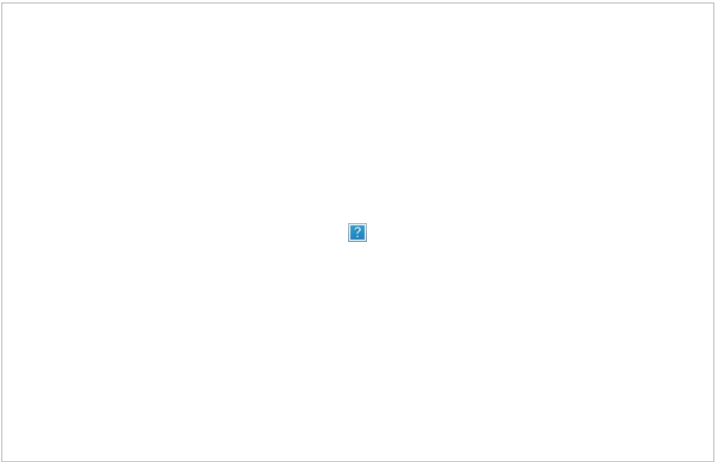




Figure 10-14: Monthly Lead Recovery in 2017 and 2018, and the 2019 NSR Recovery Curve

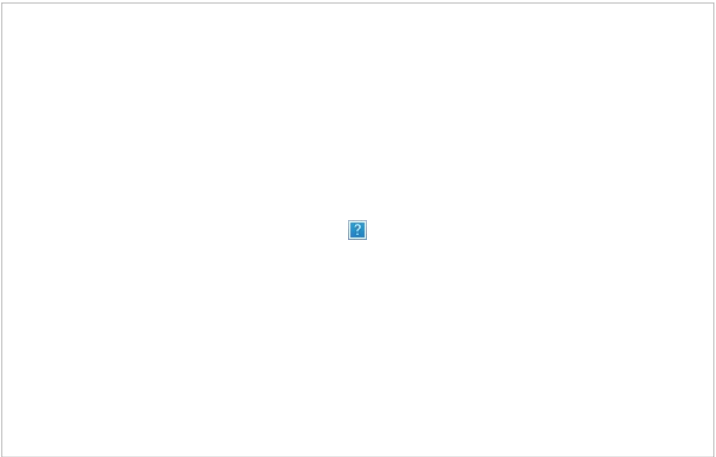
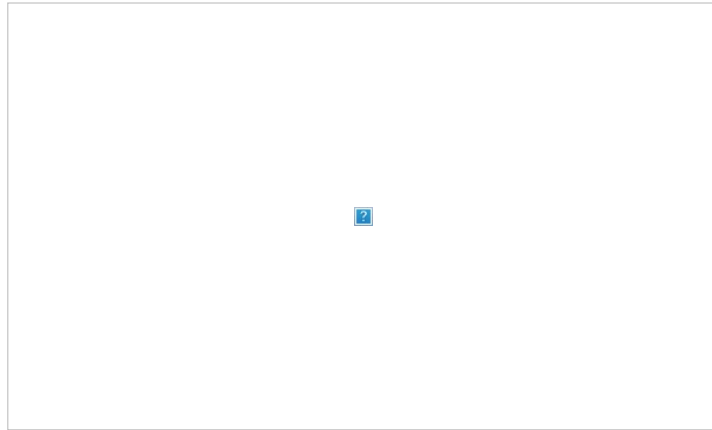




Figure 10-15: Monthly Copper Recovery in 2017 and 2018, and the 2019 NSR Recovery



10.2.1.2Phase 4 Results

The phase 4 metallurgical testing program was carried out in 2021 to characterize the geometallurgical behaviour of the San Gerardo ore according to the 2022-2023 mining plan.

The objective of the geometallurgical program was to:

- Maximize the operational value of the mining unit.
- Reduce risk concerning:
 - o Throughput of the plant.
 - o Consumption of grinding media.
 - o Recoveries of valuable minerals.
 - o Quality of the final concentrate.
- Identification of fatal failures.
- Look for flaws in the interpretation of available information.
- Validation and definition of geometallurgical domains.
- Find opportunities for improvement and reduce existing risks.

Prior to the phase 4 study, three phases of geometallurgical studies were carried out, increasing the available geometallurgical data progressively to reduce the risk in metallurgical predictions.





Previously identified risks included the presence of high hardness and abrasiveness material in intrusive material and hydrothermal breccias, as well as areas of low Au recovery associated with Au disseminations in pyrite in mainly marble-type material.

A total of 24 samples were selected for use in comminution tests and 24 samples for flotation tests in the phase 4 work, considering the relevant geological and geochemical parameters according to the available information.

From the individual samples, four flotation composites were formed, in coordination with the unit's geology area:

- The composite AEC-01, corresponding to intrusive and silicification.
- The AEC-02 composite, corresponding to intrusive and other alterations.
- The composite AEC-03, corresponding to sandstones and silicification.
- The AEC-04 composite, corresponding to calcites and marble.

In addition, comminution tests were developed on Atacocha samples. The tests carried out were Ai and BWi.

The results of the comminution tests for the deposit show:

- Abrasion index tests reported values between 0.02 g and 0.71 g. The abrasiveness of the ore depends on the mineralized body, with the Chen1, CPO1, CPO16, and CPO18 bodies having greater abrasiveness.
- BWi tests reported values between 11kWh/t to 22kWh/t. The hardness of the mineral depends on the type of rock, with the highest hardness being DACT, CALC, BRT, and PFQF lithologies.

From the mineralogical characterization tests of the composites, the following was observed:

- The composite AEC-04 was 45% carbonates, mainly calcite, and 48% silicates.
- In the composites the main sulphides are pyrite, galena, and sphalerite.
- Presence of muscovite and silicon and aluminum clays in all four composites.
- All composites have a liberation of 80% galena and 87% sphalerite at a P_{80} of 180 μm .

Recommended geometallurgical flotation models for mine planning and production prediction were developed. Table 10-11 presents the values or algorithms for the final Pb recovery to the Pb concentrate and the final Pb concentrate grade for the domains presented.

Table 10-11: Algorithms for Pb Recovery in Pb Concentrate and Pb Concentrate Grade

Domain	Current	Algorithm	Final Pb Recovery In Pb Concentrate
Pb_Rec Pb	Feed	Mine - AT OP	$\text{Min}(88+12.14*\text{Ln}(\text{HA\_Pb\%}); 87.8)$
Pb_Grade Pb	Feed	Mine - AT OP	$\text{Min}(53.6+4.94*\text{Ln}(\text{HA\_Pb\%}); 54)$

Table 10-12 presents the values or algorithms for the final Zn recovery to the Zn concentrate and the final Zn concentrate grade for the domains presented.



**Table 10-12: Algorithms for Zn Recovery in Zn Concentrate and Zn Concentrate Grade**

Domain	Current	Algorithm	Final Zn Recovery In Zn Concentrate
Zn_Rec Zn %	Feed	Mine – AT OP	$\text{Min}(77.84 + 11.46 * \text{Ln}(\text{HA\_Zn\%}); 85)$
Zn_Grade Zn %	Feed	Mine – AT OP	$\text{Min}(52.6 + 6.76 * \text{Ln}(\text{HA\_Zn\%}) + 9.07 * \text{Ln}(\text{HA\_Zn/Fe}); 53)$

Transmin recommended that the geological data be validated by Nexa geologists, as it could create opportunities to refine and obtain more robust geometallurgical models. Additionally, Transmin recommended that the implementation of geometallurgical models should be reviewed by the Nexa geometallurgy team to ensure their correct interpretation and consequences for the production plan.

Conclusions

The objective of phase 4 was to validate the geometallurgical models of comminution and flotation, expanding the geometallurgical dataset.

From comminution tests, the following was observed:

- Abrasion index tests reported values between 0.02 g and 0.71 g, the bodies CHEN1, CPO1, CPO16 and CPO18 have higher abrasiveness.
- The BWi tests reported values between 11 kWh/t and 22 kWh/t; the DACT, CALC, BRT and PFQF lithologies presented the highest values.

From the tests on the composites it was concluded that:

- The composite AEC-04 has 45% carbonates, mainly calcite.
- In composites the main sulphides are pyrite, galena and sphalerite.
- Presence of muscovite and silicon and aluminum clays in all four composites.
- All composites have a liberation of more than 80% galena and 87% sphalerite.

From the geometallurgical analysis, the following risks were identified:

- Tonnage to plant and steel consumption
- The abrasiveness of the ore depends on the ore body, presenting greater abrasiveness bodies 10, Chee (Qi), cpo1 and cpo18 for the Open Pit tank.
- The hardness of the ore depends on the mining phase and associated lithologies, being the dacites and hydrothermal breccias.
- Recovery of valuable minerals:
 - o Areas with low Pb floatability were identified, suggesting the presence of oxidized species or complex associations between Pb and gangue.
 - o Risks to Zn recovery are identified in specific areas of the deposit, in marble-type material.
 - o It is recommended to evaluate the behaviour of the low-recovery material close to upcoming mining phases.



- o Recoveries and concentrate qualities were evaluated at a P80 out of 180 µm, it is expected that with a coarser grain size decreases in recoveries and obtainable qualities will be observed.
- Concentrate quality:
 - o Presence of Mn in the Zn concentrate. While these are found in values <1%, does not rule out that there are areas in the deposit where the Mn grades in the head increase and affect the quality of the Zn concentrate.
 - o Presence of Sn, Sb and Cd in Zn concentrate.
 - o Presence of As and Sb in the Pb concentrate.
 - o Sb and As in both concentrates are mainly present as gray coppers and sulfosalts of Pb.

Recommendations

Based on the results of the study phase, Transmin recommended:

- Including in the drill hole database:
 - o Manganese sulphides, tetrahedrite, and tennantite
 - o Grades of arsenic, manganese, and antimony
 - o Chemical analysis: Total rock analysis, mainly SiO₂ and LOI for drilling underground
- Performing a geological assessment of the Au association to galena and Au associated with pyrite based on deposit genesis and geometallurgical results.
- A geological assessment to identify areas associated with oxides in Phase 2 of mining. These areas represent a risk to the recovery of Pb, Zn and Au.
- Evaluating the behaviour of low-recovery material near upcoming mining phases to validate the results obtained.
- Performing recovery studies by size with plant feed material to quantify losses in recoveries of valuable metals by size fraction.
- Updating the steel tonnage and consumption estimation model derived in 2018, based on circuit data and operating variables reported by Nexa to date by incorporating the operational changes made to date in the grinding circuit.

10.2.2 Atacocha Concentrator Production

Production figures for 2021 through 2023 including head grades and recoveries of metals to concentrates are presented in Table 10-13. The Atacocha concentrator processed 1,397,192 tonnes of ore in 2023 with Pb and Zn grades of 0.93% and 0.77% respectively. Recoveries to their respective concentrates were 85.7% Pb and 75.9% Zn.

Head grades of ore being treated in the Atacocha concentrator have changed since the introduction of open pit ore in early 2016. Head grades of Zn have decreased from 1.8% to 0.77%, Cu has decreased from 0.11 % to 0.04% and Pb has decreased from 1.31% to 0.93% from 2016 to 2023.



Table 10-13: Atacocha Concentrator Production for 2021 - 2023

	Item	Units	2021	2022	2023
Ore Processed		tonnes	1,271,107	1,353,681	1,397,192
Mill Head Grade	Ag	g/t	1.01	1.05	1.21
	Au	g/t	0.014	0.015	0.010
	Cu	%	0.03	0.03	0.04
	Pb	%	0.82	0.97	0.93
	Zn	%	0.88	0.89	0.77
Pb Concentrate		tonnes	16,845	20,798	20,996
	Pb Grade	%	51.70	53.87	52.94
	Pb recovery	%	83.27	85.51	85.70
	Ag Grade	oz/t	57.95	53.32	64.49
	Ag Recovery (to Pb)	%	76.00	77.65	79.98
	Au Grade	g/t	0.709	0.654	0.360
	Au Recovery (to Pb)	%	69.58	67.86	56.19
Zn Concentrate		tonnes	16,908	18,809	16,172
	Zn Grade	%	50.40	50.79	50.66
	Zn Recovery	%	76.25	79.07	75.94

Table 10-14, Figure 10-16, and Figure 10-17 present the grade and recovery statistics for Au, Ag, Cu, Pb, and Zn using daily results for 2022 and 2023. The box and whisker plots show the grade and recovery ranges including the minimum (bottom horizontal line), 25th percentile (bottom of box), 50th percentile or mean (line in middle of box), 75th percentile (top of the box), and the maximum (top horizontal line) of each metal along with outliers. The average grades of Zn and Pb for the period were 0.84% and 0.95%, respectively and the recoveries of Zn and Pb for the period were 76.57% and 83.64%, respectively. The recoveries used for the cut-off grade and resource model at these grades were 70.44% for Zn and 84.06% for Pb, which compares well to the operating data, the Zn values being somewhat conservative.

Table 10-14: Summary of Daily Grade and Recovery Results for 2022 - 2023

	Head Grade				Metal Recovery			
	Zn (%)	Pb (%)	Ag (oz/t)	Au (oz/t)	Zn (%)	Pb (%)	Ag (%)	Au (%)
2022-2023								
Average	0.84	0.95	1.13	0.01	76.57	83.64	81.12	64.45
Maximum	1.62	1.96	2.23	0.03	86.75	90.19	89.57	84.38





	Head Grade				Metal Recovery			
	Zn (%)	Pb (%)	Ag (oz/t)	Au (oz/t)	Zn (%)	Pb (%)	Ag (%)	Au (%)
Minimum	0.25	0.43	0.56	0.00	44.97	45.35	60.31	0.00
Median	0.82	0.91	1.10	0.01	77.83	85.33	81.32	67.29
2022								
Average	0.90	0.96	1.05	0.01	78.84	85.22	80.38	67.32
Maximum	1.56	1.96	2.23	0.03	86.75	89.51	87.39	84.38
Minimum	0.45	0.43	0.56	0.01	64.68	79.75	70.42	43.12
Median	0.88	0.93	1.03	0.01	79.37	85.38	80.55	68.25
2023								
Average	0.77	0.93	1.21	0.01	74.16	81.97	81.90	46.54
Maximum	1.62	1.90	2.10	0.02	84.84	90.19	89.57	65.83
Minimum	0.25	0.44	0.59	0.00	44.97	45.35	60.31	0.00
Median	0.75	0.88	1.18	0.01	75.92	85.18	82.78	46.59

Figure 10-16: Atacocha Head Grade Statistics for 2022 - 2023

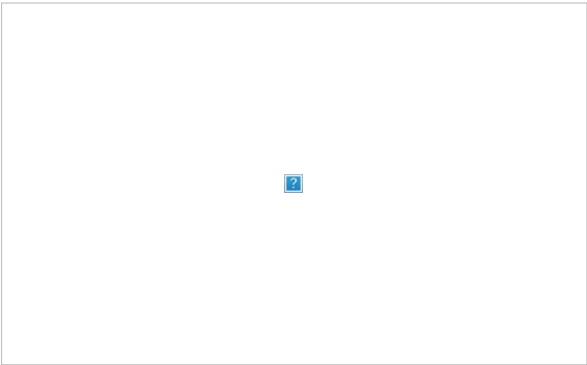
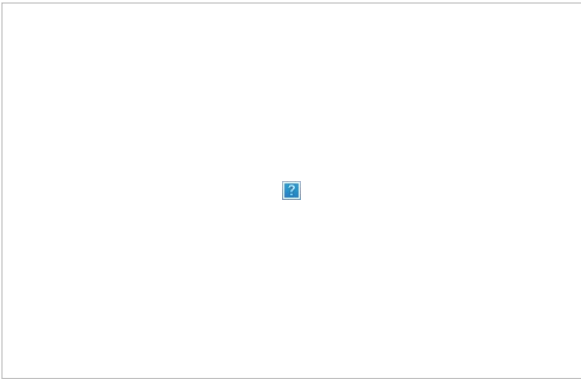


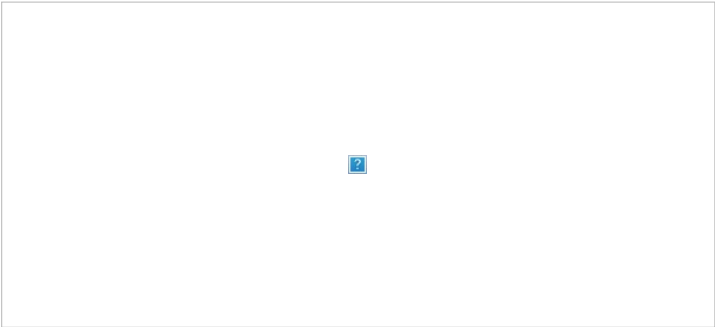


Figure 10-17: Atacocha Recovery Statistics for 2022 - 2023



Historical annual recoveries at Atacocha for 2000 - 2023 are presented in Figure 10-18 through Figure 10-23, which show zinc, lead, and copper head grades, and recoveries to concentrate. Copper head grades decreased to the point that a separate copper concentrate was not produced after 2019.

Figure 10-18: Zinc Head Grade from 2000 to 2023





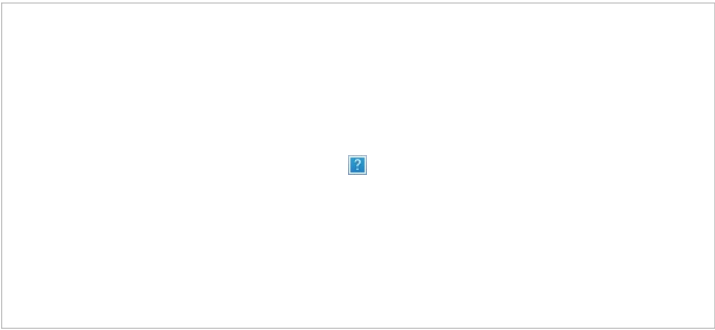
10-31







Figure 10-23: Copper Recovery from 2000 to 2019



10.2.1 Deleterious Elements

The potential penalty elements in the lead concentrate are arsenic and fluorine.
The potential penalty elements in the zinc concentrate are manganese, silica, and cadmium.

10.2.2 QP Opinion

In the SLR QP’s opinion, the metallurgical recovery data is adequate for the purposes of Mineral Resource and Mineral Reserve estimation.



11.0 Mineral Resource Estimates

11.1 Summary

Mineral Resources have been classified in accordance with the definitions for Mineral Resources in S-K 1300, which are consistent with Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves dated May 10, 2014 (CIM (2014) definitions).

The Mineral Resource estimate for the El Porvenir Mine was completed using all data available as of January 31, 2023. The estimate was completed by El Porvenir staff, followed by auditing and approval by the QP. Similarly, Mineral Resource estimates for the Atacocha underground (UG) and Atacocha (San Gerardo) open pit (OP) mines were completed in June 2023, using all data available up to January 31, 2023. These estimates were completed by Atacocha staff and underwent auditing and approval by the QP.

Since the closure date of the resource database on January 31, 2023, a small amount of drilling and channel sampling has been produced at El Porvenir and Atacocha OP mines. However, these additional data has been reviewed and determined not to have a material impact on estimated Mineral Resources.

Mineral Resources are reported based on actual production as of September 30, 2023, with production forecast to the effective date of December 31, 2023. Geological wireframes and estimation domains were generated using Leapfrog Geo software, with further refinement using Datamine software. Grade estimation was carried out in Datamine software.

Channel samples were included in the resource databases for the El Porvenir, Atacocha UG, and Atacocha OP estimates, while blast hole data was excluded from the Atacocha OP estimate. Grades were interpolated within the estimation domains using ordinary kriging (OK) and inverse distance cubed (ID³), with nearest neighbour (NN) estimates used for validation purposes. Dynamic anisotropy was used to interpolate grades reflecting vein orientations.

In addition to validation completed by the QP, the database, geological interpretation, and block model validation were also validated by SLR. For block model validation, SLR used visual checks, statistical checks, and swath plots.

NSR cut-off values were determined using a Zn price of US\$3,218.90/t, Pb price of US\$2,300.33/t, Cu price of US\$8,820.05/t, Ag price of US\$24.35/oz, and Au price of US\$1,875.57/oz. The sub-blocked model for the Atacocha OP was re-blocked to the SMU prior to reporting Mineral Resources, while the El Porvenir and Atacocha UG Mineral Resources were reported from the sub-blocked models.

Mineral Resources at El Porvenir are reported within optimized underground reporting panels generated in Deswik Stope Optimizer (DSO) software, satisfying minimum mining thickness. NSR cut-off values of US\$67.04/t were used for the sub-level stoping (SLS) Upper Zone, US\$63.98/t for the SLS Intermediate Zone, US\$63.77/t for the SLS Lower Zone, and US\$65.21/t for the SLS Mine Deepening Zone. NSR cut-off values of US\$69.04/t were used for the cut and fill (CAF) Upper Zone, US\$66.25/t for the CAF Intermediate Zone, US\$65.77/t for the CAF Lower Zone, and US\$67.21/t for the CAF Mine Deepening Zone.

Mineral Resources at Atacocha UG are reported within optimized reporting panels generated in DSO software, satisfying minimum mining thickness, NSR cut-off values of US\$71.07/t for CAF stopes, NSR cut-off values of US\$69.00/t for SLS stopes, and continuity criteria.



Mineral Resources at the Atacocha OP are reported within a preliminary pit shell generated in Datamine NPV Scheduler software package at a reporting NSR cut-off value of US\$22.44/t.

For the Cerro Pasco Complex, Mineral Resources as of December 31, 2023, are summarized in Table 11-1 and Table 11-2 on a Nexa attributable ownership basis and 100% ownership basis, respectively. Figure 11-1 illustrates the El Porvenir and Atacocha underground Mineral Resource reporting panels alongside San Gerardo Mineral Resource blocks exclusive of Mineral Reserves.

The QP is of the opinion that with consideration of the recommendations summarized in Sections 1 and 23 of this TRS, any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.



**Table 11-1: Summary of Cerro Pasco Complex Mineral Resource Estimate (Nexa Attributable Basis) - December 31, 2023**

Mine	Owner ship (%)	Category	Tonnage (Mt)	Grade					Contained Metal				
				Zn (%)	Cu (%)	Ag (g/t)	Pb (%)	Au (g/t)	Zn (kt)	Cu (kt)	Ag (koz)	Pb (kt)	Au (koz)
El Porvenir UG	83.48%	Measured	0.55	3.47	0.27	57.7	0.95	-	19.1	1.5	1,023	5.3	-
		Indicated	2.69	3.25	0.20	63.2	0.97	-	87.4	5.3	5,460	26.0	-
		Total Measured + Indicated	3.24	3.29	0.21	62.2	0.97	-	106.5	6.8	6,483	31.3	-
		Inferred	9.23	3.83	0.24	82.9	1.32	-	353.6	22.1	24,602	121.9	-
Atacocha UG	75.96%	Measured	0.80	3.47	0.27	55.0	0.98	-	27.6	2.1	1,411	7.8	-
		Indicated	1.91	3.30	0.36	54.9	0.92	-	63.2	6.9	3,379	17.6	-
		Total Measured + Indicated	2.71	3.35	0.33	54.9	0.94	-	90.8	9.0	4,790	25.4	-
		Inferred	6.12	4.09	0.56	77.3	1.21	-	250.4	34.3	15,216	74.1	-
Atacocha OP	75.96%	Measured	1.37	1.28	-	31.4	0.87	0.19	17.5	-	1,381	11.9	8.4
		Indicated	2.95	1.05	-	29.0	0.90	0.24	30.9	-	2,747	26.5	22.7
		Total Measured + Indicated	4.31	1.12	-	29.8	0.89	0.22	48.4	-	4,128	38.4	31.1
		Inferred	1.29	1.27	-	32.7	1.15	0.22	16.4	-	1,357	14.9	9.1
Total Cerro Pasco		Measured	2.72	2.37	0.13	43.7	0.92	0.10	64.2	3.6	3,815	25.0	8.4
		Indicated	7.55	2.40	0.16	47.7	0.93	0.09	181.5	12.3	11,586	70.2	22.7
		Total Measured + Indicated	10.27	2.39	0.15	46.7	0.93	0.09	245.8	15.9	15,401	95.2	31.1
		Inferred	16.65	3.73	0.34	76.9	1.27	0.02	620.5	56.4	41,175	210.8	9.1

Notes:

1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources which are consistent with CIM (2014) definitions.
2. Mineral Resources are reported on a Nexa attributable ownership basis.





3. Mineral Resources are estimated at the following NSR cut-off values, calculated based on the LOM costs:
 - o El Porvenir UG: varies by mining method from US\$63.77/t to US\$67.04/t for SLS, and from US\$65.77/t to US\$69.04/t for CAF, with an average of US\$66.04/t.
 - o Atacocha UG: US\$69.00/t for SLS and US\$71.07/t for CAF
 - o Atacocha OP: US\$ 22.44/t
4. Mineral Resources are estimated using average long-term metal prices of Zn: US\$3,218.90/t (US\$1.46/lb), Cu: US\$8,820.05/t (US\$4.00/lb), Ag: US\$24.35/oz, Pb: US\$2,300.33/t (US\$1.04/lb), and Au: US\$1,875.57/oz.
5. Metallurgical recoveries are based on historical processing data:
 - o El Porvenir UG: Zn (89.2%), Pb (80.0%), Cu (14.6%), and Ag (77.5%)
 - o Atacocha UG: Zn (89.3%), Pb (80.0%), Cu (15.7%), Ag (77.5%), and Au (30.2%)
 - o Atacocha OP: Zn (70.4%), Pb (84.0%), Ag (75.8%), and Au (65.5%)
6. Bulk density is assigned based on rock type and averages:
 - o El Porvenir UG: 3.13 t/m³
 - o Atacocha UG: 3.53 t/m³
 - o Atacocha OP: 2.76 t/m³
7. The minimum thickness for underground resource reporting panels (El Porvenir and Atacocha UG) is 4 m for CAF and 3 m for SLS. The minimum height for the Atacocha OP resource reporting is 6.0 m.
8. Mineral Resources were depleted according to actual production as of September 30, 2023, and forecast production to the effective date of December 31, 2023.
9. Mineral Resources are exclusive of Mineral Reserves.
10. There are no Cu grades estimated for Atacocha OP and no Au grades estimated for Atacocha UG and El Porvenir UG. This has reduced the Cu and Au average grades for the total Cerro Pasco tonnes.
11. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
12. Mineral Resources are constrained within optimized underground reporting shapes for El Porvenir and Atacocha UG and an optimized reporting pit shell for Atacocha OP.
13. Numbers may not add due to rounding.





Table 11-2: Summary of Cerro Pasco Complex Mineral Resource Estimate (100%) - December 31, 2023

Mine	Category	Tonnage (Mt)	Grade					Contained Metal				
			Zn (%)	Cu (%)	Ag (g/t)	Pb (%)	Au (g/t)	Zn (kt)	Cu (kt)	Ag (koz)	Pb (kt)	Au (koz)
El Porvenir UG	Measured	0.66	3.47	0.27	57.7	0.95	-	22.9	1.8	1,225	6.3	-
	Indicated	3.22	3.25	0.20	63.2	0.97	-	104.7	6.4	6,540	31.2	-
	Total Measured + Indicated	3.88	3.29	0.21	62.2	0.97	-	127.6	8.2	7,765	37.5	-
	Inferred	11.06	3.83	0.24	82.9	1.32	-	423.6	26.5	29,471	146.0	-
Atacocha UG	Measured	1.05	3.47	0.27	55.0	0.98	-	36.4	2.8	1,857	10.3	-
	Indicated	2.52	3.30	0.36	54.9	0.92	-	83.2	9.1	4,448	23.2	-
	Total Measured + Indicated	3.57	3.35	0.33	54.9	0.94	-	119.6	11.9	6,305	33.5	-
	Inferred	8.06	4.09	0.56	77.3	1.21	-	329.7	45.1	20,031	97.5	-
Atacocha OP	Measured	1.80	1.28	-	31.4	0.87	0.19	23.0	-	1,818	15.7	11.0
	Indicated	3.88	1.05	-	29.0	0.90	0.24	40.7	-	3,616	34.9	29.9
	Total Measured + Indicated	5.68	1.12	-	29.8	0.89	0.22	63.7	-	5,434	50.6	40.9
	Inferred	1.70	1.27	-	32.7	1.15	0.22	21.6	-	1,787	19.6	12.0
Total Cerro Pasco	Measured	3.51	2.34	0.13	43.4	0.92	0.10	82.3	4.6	4,900	32.3	11.0
	Indicated	9.62	2.38	0.16	47.2	0.93	0.10	228.6	15.5	14,604	89.3	29.9
	Total Measured + Indicated	13.13	2.37	0.15	46.2	0.93	0.10	310.9	20.1	19,504	121.6	40.9
	Inferred	20.82	3.72	0.34	76.6	1.26	0.02	774.9	71.6	51,289	263.1	12.0

- Notes:
1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources which are consistent with CIM (2014) definitions.
 2. Mineral Resources are reported on a 100% ownership basis.
 3. Mineral Resources are estimated at the following NSR cut-off values, calculated based on the LOM costs:



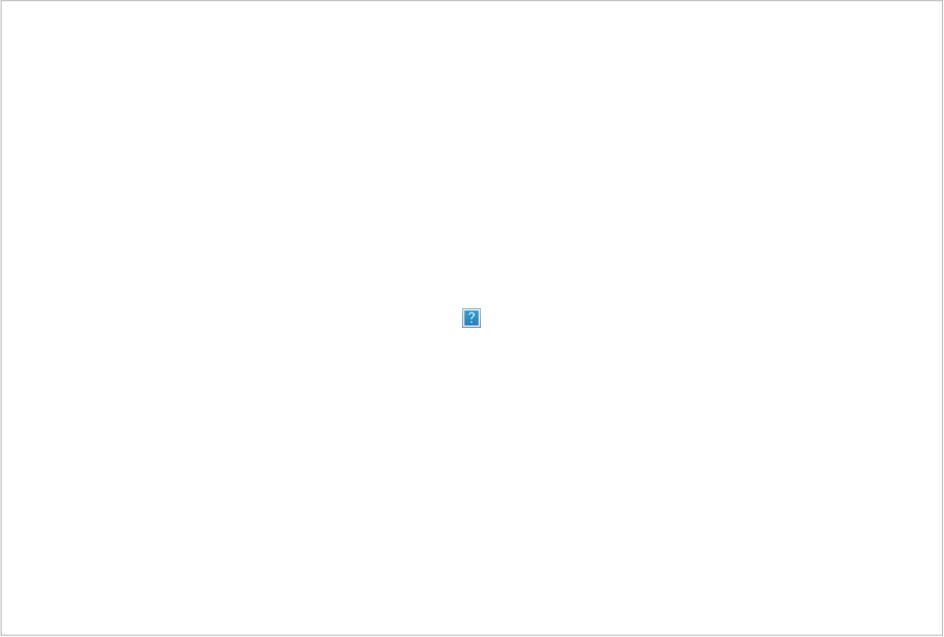


- o El Porvenir UG: varies by mining method from US\$63.77/t to US\$67.04/t for SLS, and from US\$65.77/t to US\$69.04/t for CAF, with an average of US\$66.04/t.
 - o Atacocha UG: US\$69.00/t for SLS and US\$71.07/t for CAF
 - o Atacocha OP: US\$ 22.44/t
4. Mineral Resources are estimated using average long-term metal prices of Zn: US\$3,218.90/t (US\$1.46/lb), Cu: US\$8,820.05/t (US\$4.00/lb), Ag: US\$24.35/oz, Pb: US\$2,300.33/t (US\$1.04/lb), and Au: US\$1,875.57/oz.
5. Metallurgical recoveries are based on historical processing data:
- o El Porvenir UG: Zn (89.2%), Pb (80.0%), Cu (14.6%), and Ag (77.5%)
 - o Atacocha UG: Zn (89.3%), Pb (80.0%), Cu (15.7%), Ag (77.5%), and Au (30.2%)
 - o Atacocha OP: Zn (70.4%), Pb (84.0%), Ag (75.8%), and Au (65.5%)
6. Bulk density is assigned based on rock type and averages:
- o El Porvenir UG: 3.13 t/m³
 - o Atacocha UG: 3.53 t/m³
 - o Atacocha OP: 2.76 t/m³
7. The minimum thickness for underground resource reporting panels is 4 m for CAF and 3 m for SLS. For open pit resource reporting, the minimum height is 6 m.
8. Mineral Resources were depleted according to actual production as of September 30, 2023, and forecast production to the effective date of December 31, 2023.
9. Mineral Resources are exclusive of Mineral Reserves.
10. There are no Cu grades estimated for Atacocha OP and no Au grades estimated for Atacocha UG and El Porvenir UG. This has reduced the Cu and Au average grades for the total Cerro Pasco tonnes.
11. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
12. Mineral Resources are constrained within optimized underground reporting shapes for El Porvenir and Atacocha UG and an optimized reporting pit shell for Atacocha OP.
13. Numbers may not add due to rounding.





Figure 11-1: El Porvenir and Atacocha Underground Resource Panels, with San Gerardo Mineral Resource Blocks Exclusive of Mineral Reserves





11.2 Comparison with Previous Estimate

The effective date of the previous Mineral Resource estimate for El Porvenir, San Gerardo, and Atacocha UG is December 31, 2022.

11.2.1 El Porvenir

Table 11-3 presents a comparative analysis between the December 31, 2023 Nexa Mineral Resource estimate, exclusive of Mineral Reserves, and the previous estimate from 2022. The comparison reveals an overall increase in both tonnage and grade. The changes are attributed to the following factors:

- Continuous drilling and channel program development, which added 274 new drill holes and 1,705 channels, throughout the mineral deposit extension.
- Infill drilling has resulted in an increase of 1.3 Mt across the VCN, POR9, EXITO, and AM domains.
- Exploration areas that are being reported for the first time.
- Depletion of material through mining.





Table 11-3: El Porvenir Comparison of 2022 Versus 2023 Mineral Resources (83.48% Ownership Basis)

Category	Tonnage (Mt)	Zn (%)	Cu (%)	Ag (g/t)	Pb (%)	Zn (kt)	Cu (kt)	Ag (koz)	Pb (kt)
December 31, 2022									
Measured	0.29	3.31	0.21	70.5	1.10	9.6	0.6	657	3.2
Indicated	2.54	3.04	0.20	57.1	0.92	77.2	5.1	4,663	23.4
Measured and Indicated	2.83	3.07	0.20	58.5	0.94	86.8	5.7	5,320	26.6
Inferred	8.92	3.83	0.19	72.9	1.05	341.6	16.9	20,907	93.7
December 31, 2023									
Measured	0.55	3.47	0.27	57.7	0.95	19.1	1.5	1,023	5.3
Indicated	2.69	3.25	0.20	63.1	0.97	87.4	5.3	5,460	26.0
Measured and Indicated	3.24	3.29	0.21	62.2	0.97	106.5	6.8	6,483	31.3
Inferred	9.23	3.83	0.24	82.8	1.32	353.6	22.1	24,602	121.9
DIFFERENCE (NOMINAL)									
Measured	0.26	0.16	0.06	-12.8	-0.15	9.52	0.90	366	2.1
Indicated	0.15	0.21	0.00	6.1	0.05	10.20	0.24	797	2.6
Measured and Indicated	0.41	0.22	0.01	3.7	0.02	19.72	1.15	1,163	4.7
Inferred	0.31	0.00	0.05	10.0	0.27	12.02	5.22	3,695	28.2
DIFFERENCE (%)									
Measured	90.0%	4.8%	28.6%	-18.1%	-13.6%	99.1%	150.4%	55.7%	64.4%
Indicated	5.8%	6.9%	0.0%	10.6%	5.4%	13.2%	4.8%	17.1%	11.3%
Measured and Indicated	14.5%	7.2%	5.0%	6.3%	3.2%	22.7%	20.1%	21.9%	17.7%
Inferred	3.5%	0.0%	26.3%	13.7%	25.7%	3.5%	30.9%	17.7%	30.1%





11.2.2 San Gerardo Open Pit

Table 11-4 presents a comparative analysis between the December 31, 2023 San Gerardo Mineral Resource estimate, exclusive of Mineral Reserves, and the previous estimate from 2022. The comparison reveals an overall decrease in both tonnage and grade. The changes are attributed to the following factors:

- The Inferred Mineral Resources decreased mainly due to limit of the pit shell constraint.
- The Measured and Indicated Mineral Resources decreased mainly due to the conversion to Mineral Reserves.

Table 11-4: San Gerardo Comparison of 2022 Versus 2023 Mineral Resources (75.96% Ownership Basis)

Category	Tonnage (Mt)	Zn (%)	Ag (g/t)	Pb (%)	Au (g/t)	Zn (kt)	Ag (koz)	Pb (kt)	Au (koz)
December 31, 2022									
Measured	2.42	1.04	36.9	1.02	0.25	25.2	2,871	24.7	19.5
Indicated	5.22	1.09	30.0	0.94	0.19	56.9	5,035	49.1	31.9
Measured and Indicated	7.64	1.07	32.2	0.97	0.21	82.1	7,906	73.8	51.4
Inferred	2.92	1.13	31.7	1.01	0.20	33.0	2,976	29.5	18.8
December 31, 2023									
Measured	1.37	1.28	31.4	0.87	0.19	17.5	1,381	11.9	8.4
Indicated	2.95	1.05	29.0	0.90	0.24	30.9	2,747	26.5	22.7
Measured and Indicated	4.31	1.12	29.8	0.89	0.22	48.4	4,128	38.4	31.1
Inferred	1.29	1.27	32.7	1.15	0.22	16.4	1,358	14.9	9.1
DIFFERENCE (NOMINAL)									
Measured	-1.05	0.24	-5.5	-0.15	-0.06	-7.7	-1,490	-12.8	-11.1
Indicated	-2.27	-0.04	-1.0	-0.04	0.05	-26	-2,288	-22.6	-9.2
Measured and Indicated	-3.33	0.05	-2.4	-0.08	0.01	-33.7	-3,778	-35.4	-20.3
Inferred	-1.63	0.14	1.0	0.14	0.02	-16.60	-1,619	-14.6	-9.7
DIFFERENCE (%)									
Measured	-43.5%	23.1%	-14.9%	-14.7%	-24.0%	-30.7%	-51.9%	-51.7%	-57.2%
Indicated	-43.5%	-3.7%	-3.4%	-4.3%	26.3%	-45.7%	-45.4%	-46.0%	-28.8%
Measured and Indicated	-43.5%	4.7%	-7.5%	-8.2%	4.8%	-41.1%	-47.8%	-47.9%	-39.6%
Inferred	-55.8%	12.4%	3.2%	13.9%	10.0%	-50.2%	-54.4%	-49.5%	-51.5%





11.2.3 Atacocha Underground

Table 11-5 presents a comparative analysis between the December 31, 2023 estimate and the estimate from 2022. The comparison reveals an overall increase in both tonnage and grade. The changes are attributed to the following factors:

- The Inferred Mineral Resources decreased mainly due to classification criteria revision.
- The Measured and Indicated Mineral Resources decreased mainly due to the conversion to Mineral Reserves.
- Depletion of material through mining.

Table 11-5: Atacocha Underground Comparison of 2022 Versus 2023 Mineral Resources (75.96% Ownership Basis)

Category	Tonnage (Mt)	Zn (%)	Cu (%)	Ag (g/t)	Pb (%)	Zn (kt)	Cu (kt)	Ag (koz)	Pb (kt)
December 31, 2022									
Measured	2.10	4.18	-	78.9	1.52	87.7	-	5,327	31.9
Indicated	3.27	4.15	-	76.0	1.43	135.7	-	7,990	46.8
Measured and Indicated	5.37	4.16	-	77.1	1.47	223.4	-	13,317	78.7
Inferred	6.16	4.45	-	82.0	1.26	274.1	-	16,240	77.6
December 31, 2023									
Measured	0.80	3.47	0.27	55.0	0.98	27.6	2.1	1,411	7.8
Indicated	1.91	3.30	0.36	54.9	0.92	63.2	6.9	3,379	17.6
Measured and Indicated	2.71	3.35	0.33	54.9	0.94	90.8	9.0	4,790	25.4
Inferred	6.12	4.09	0.56	77.3	1.21	250.4	34.3	15,216	74.1
DIFFERENCE (NOMINAL)									
Measured	-1.30	-0.71	-	-23.9	-0.54	-60.1	-	-3,916	-24.1
Indicated	-1.36	-0.85	-	-21.1	-0.51	-72.5	-	-4,611	-29.2
Measured and Indicated	-2.66	-0.81	-	-22.2	-0.53	-132.6	-	-8,527	-53.3
Inferred	-0.04	-0.36	-	-4.7	-0.05	-23.7	-	-1,024	-3.5
DIFFERENCE (%)									
Measured	-62.0%	-17.0%	-	-30.3%	-35.5%	-68.5%	-	-73.5%	-75.5%
Indicated	-41.5%	-20.5%	-	-27.8%	-35.7%	-53.4%	-	-57.7%	-62.3%
Measured and Indicated	-49.5%	-19.5%	-	-28.8%	-36.1%	-59.3%	-	-64.0%	-67.7%
Inferred	-0.6%	-8.1%	-	-5.7%	-4.0%	-8.6%	-	-6.3%	-4.6%





11.3 Reconciliation

Nexa provided reconciliation data comprising tonnages and grades for the main elements for the whole 2023 year. The Long-Term Factor (LTF) denotes the percentage variation between the Resource Model and the Plant Accounted figures, while the Short-Term Factor (STF) indicates the percentage variation between the Grade Control Model and Plant Accounted figures.

The tonnage and LTF and STF at the El Porvenir and Atacocha mines exhibit expected small fluctuations around zero, typically ranging from -5% and 8%, with sporadic occurrences reaching $\pm 11\%$. This trend is similarly observed for Zn and Ag data for El Porvenir. It is noteworthy that the Atacocha underground mine has been inactive since 2020, and consequently, the reconciliation information represents only the San Gerardo open pit.

Zn STF shows similar behaviour at Atacocha. However, Pb, Cu, and Au at Atacocha exhibit higher monthly variations, ranging between -21% and 42%. Despite the higher variations, the average STFs for 2023 for these variables are -6%, 6%, and 4% for Pb, Cu, and Au, respectively.

For El Porvenir, the LTF also demonstrates expected minor fluctuations around zero for most of the elements, except for Cu, which had an average of 26% at EOY 2023. Conversely, Atacocha's LTF displays wider variations for grade variables due to the reconciliation methodology, with annual variations ranging between 72% and 218%.

Grade Control models for El Porvenir and Atacocha UG incorporate channel and infill drill holes, while the San Gerardo Grade Control Model relies on blast hole data. Nexa's Technical Team attributes the increased grades mainly to opportunistic mining of ore within cross-strike mineralization structures, which are not adequately represented in the modelled mineralization, particularly within the LTM. Since the massive sulphides are visually identifiable, machine operators regularly identify such ore on the pit faces.

Figure 11-2 illustrates the Zn grades for the long- and short-term models, and the plant grades by month.





Figure 11-2: Zn Long- and Short-Term Grades and Plant Grade for El Porvenir (top) and Atacocha (bottom)



Of the three deposits, San Gerardo has the most comprehensive grade control dataset, due to its use of blast holes. Although the vertical holes are oriented parallel to the vertical mineralized structures, comparison of the San Gerardo LTM mineralization wireframes with the blast hole grades indicates significant differences (Figure 11-3). This includes reduced continuity of the along-strike structures and increased presence of across-strike structures, which is likely also the case at El Porvenir and Atacocha UG. The QP recommends a thorough reconciliation between the underground production volumes and the mineralization wireframes. This would facilitate a better understanding of the reconciliation between the along-strike mineralization, and enable a more precise quantification





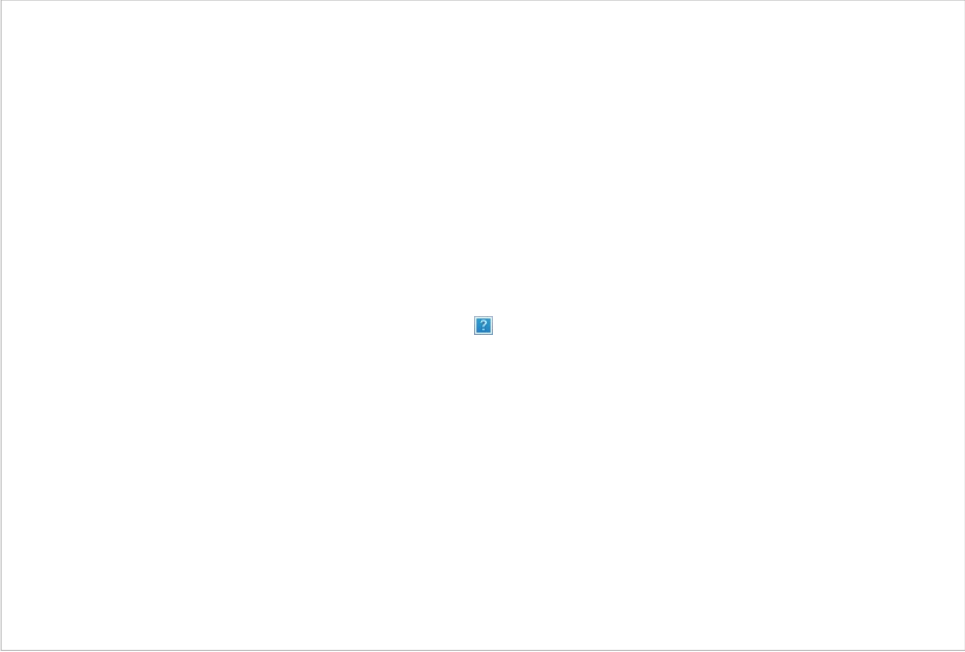
of the proportion of the discrepancy stemming from opportunistic mining of ore from across-strike structures.

To refine the definition of mineralized extents, it is recommended that closer-spaced exploration and infill drilling be carried out ahead of production. This includes drilling at orientations better designed to intercept across-strike mineralized structures.





Figure 11-3: San Gerardo Blast Hole Zn Grades with Mineralization Wireframes





11.4 El Porvenir

11.4.1 Resource Database

The El Porvenir database closure date is January 31, 2023. Between then and the effective date of this report, 252 drill holes and 1,727 channels were completed (Table 11-6 and Figure 11-4). The QP reviewed the additional data and is of the opinion that it does not have a material impact on the estimated Mineral Resources. Most of the data consists of channels and infill drilling completed near to existing workings and largely confirms the existing interpretation. Several holes completed in the Integration Zone are largely outside of the existing mineralization domains.

Table 11-6: El Porvenir Data Completed After January 31,2023 Resource Database Closure

Type	Count	Length (m)
Channels	1,596	9,360
DDH	252	43,534

As discussed in Section 7.2.1, 21 drill holes were excluded from the El Porvenir resource database. Table 11-7 summarizes the drilling and channel sampling included within the El Porvenir resource database, following exclusions.

Table 11-7: El Porvenir Resource Database

Type	Count	Length (m)
Channels	17,478	119,715
DDH	5,431	900,536

Table 11-8 summarizes the quantity of data in the provided resource database, filtered by the El Porvenir site.

Table 11-8: El Porvenir Resource Database Tables

Table	Count	Collars	Length (m)
Collar	22,909	22,909	-
Survey	153,334	22,909	-
Alteration	34,994	3,160	179,328
Geology	291,736	5,431	899,351
Litho	97,865	5,431	900,098
Assay	390,801	22,527	522,539
Structural	22,331	1,836	-
Mineralization	102,931	4,249	274,924
Geotechnical	12,902	601	111,537
Density	14,793	2,646	16,471





Table 11-9 summarizes the drilling and channel samples used to estimate the El Porvenir Mineral Resources, while Table 11-10 summarizes the density samples.





Figure 11-4: El Porvenir Drill Holes Completed After Database Cut-Off

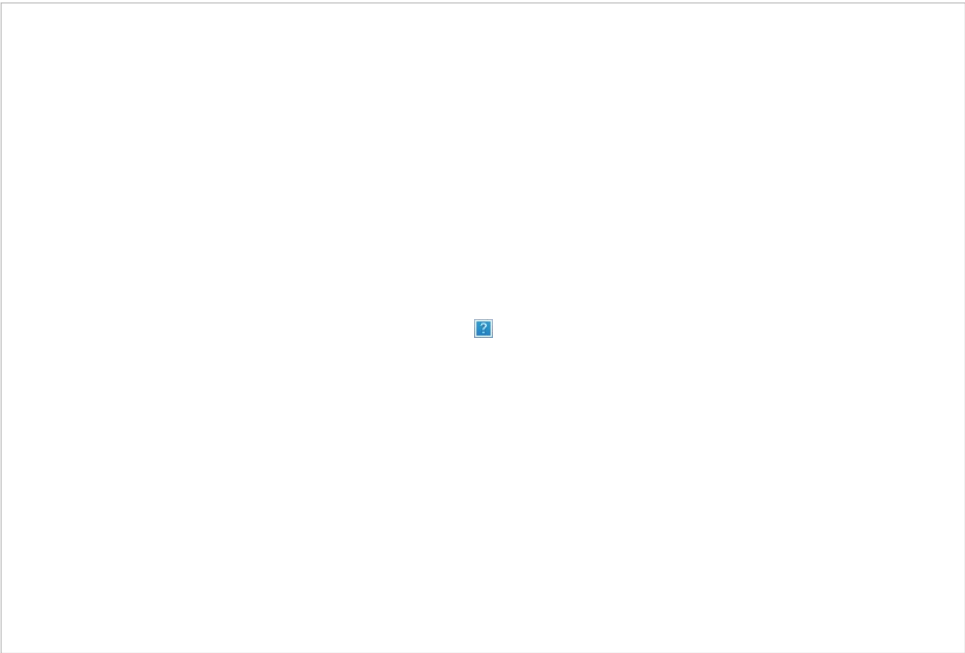




Table 11-9: El Porvenir Resource Database Assay Summary Statistics

Analyte	Count	Length	Mean	StdDev	CV	Variance	Min	Q25	Median	Q75	Max
Zn (%)	390,595	522,211	1.84	4.35	2.37	18.94	0.00	0.02	0.11	1.14	63.35
Pb (%)	385,765	514,832	0.62	2.30	3.70	5.28	0.00	0.01	0.03	0.19	75.00
Cu (%)	382,903	510,619	0.13	0.33	2.49	0.11	0.00	0.01	0.02	0.14	35.00
Ag (g/t)	390,330	521,881	37.84	123.47	3.26	15,244.28	0.09	2.00	5.70	24.88	14,727.19
Au (g/t)	130,351	168,515	0.12	0.58	4.97	0.33	0.00	0.01	0.03	0.08	55.50
Length (m)	390,801	522,539	1.34	0.53	0.40	0.28	0.01	1.00	1.40	1.68	35.80

Table 11-10: El Porvenir Resource Database Density Summary Statistics

Analyte	Count	Length	Mean	StdDev	CV	Variance	Min	Q25	Median	Q75	Max
Density (g/cm³)	14,793	16,471	2.94	0.46	0.16	0.21	0.85	2.69	2.81	3.23	6.17
Length (m)	14,793	16,471	1.11	0.49	0.44	0.24	0.20	0.85	1.10	1.50	6.40



11.4.2 Geological Interpretation

The El Porvenir UG Mineral Resource estimate relies on assay and geological interpretations conducted for each distinct mineralized domain. Geologists at El Porvenir built geological models utilizing assay results from drilling and channel sampling, alongside pertinent geological parameters. These models incorporate various geological domains, including rock types (such as sandstone, calcareous breccia, marble, and skarn), mineralization structure types (including veins, orebodies, and mantos), as well as structural and lithological features observed in underground workings and drill core logging data.

Based on observations of the drill core and underground mineralization exposures, discussions with the geologists on site, 3D data visualization, and statistical evaluations, the consensus regarding El Porvenir mineralization is that it is predominantly influenced by lithological and structural factors. The primary concentration of mineralization occurs within the “Porvenir 9”, “Don Ernesto”, “Exito”, “Veta Carmen Norte 3”, “Veta Progreso”, and “Sara” zones, while secondary occurrences are noted in the “Veta 5”, “Veta 1204”, “Veta 1204 Inferior”, “Veta 1204 Superior”, “Veta Carmen 1”, “Don Lucho”, and “SSM” domains. Additionally, there are minor mineralization occurrences in the “Veta VR” and “Integracion AT-EP” domains.

During the interpretation process, three main styles of mineralization were identified at the El Porvenir deposit:

- **Skarn:** mineralized zones of irregular to structurally controlled geometry, primarily contained within the Pucará Group, comprising garnet with associated metallic mineralization of galena, sphalerite, chalcopryrite, and Ag-bearing sulphosalts (i.e., tetrahedrite).
- **Structurally controlled zones** (i.e., veins): mineralization comprising galena, sphalerite, and Ag-bearing sulphosalts (i.e., tetrahedrite) with quartz, rhodochrosite, and pyrite that forms structurally controlled shoots with lengths of up to 150 m and vertical extents of up to 350 m.
- **Replacement:** lenses to irregular geometry contacts within the Pucará Group, comprising metallic mineralization of galena, sphalerite, chalcopryrite, and Ag-bearing sulphosalts (i.e., tetrahedrite), and lenses or “mantos” in stratabound galena, sphalerite, and pyrite mineralization hosted in the Goyllarisquizga sandstone.

Skarn bodies are highly irregular in geometry and structurally controlled by variable trends (north-south to northwest-southeast) around the Milpo stock. For the vein mineralization, at least three groups were identified:

- East-west striking.
- Replacement-style structures striking northwest-southeast dipping to the north.
- Veins associated with intrusive dikes striking northeast-southwest; dipping to the south, and for the “mantos”, a northwest trending with shallow dipping to the south was recognized.

Nexa executed the geological modelling of the El Porvenir deposit using Leapfrog Geo software. Contact surfaces were modelled upon drilling and channel sampling assay data, alongside structural and lithological controls gleaned from underground workings and drill core logging data. A total of 109 levels with underground mapping guided the modelling process, with polylines utilized to refine contacts in areas with sparse data and to replicate underground mapping for mineralization displacement adjustments. SLR observed that in certain locations,

wireframes were not aligned with available drill hole and channel data but instead relied solely on polylines. Mineralization wireframes were not subject to a minimum mining thickness constraint due to the utilization of DSO shapes for reporting Mineral Resources.

Although extrapolation of the mineralization wireframes was generally limited to within approximately 30 m to 40 m from the last mineralized intercept, SLR noted that some domains were extended beyond this. Nonetheless, such extrapolations were deemed reasonable, and their extent was duly considered during the classification of Mineral Resources. Leapfrog's vein and intrusion tools were employed for modelling mineralization, with additional boundary control imposed using polylines as required. The modelled mineralized zones were subsequently exported to Datamine software for block model encoding.

A total of 522 individual mineralization domains comprising 23 mineralization groups were interpreted and modelled (Figure 11-6), with most group zones situated within the operational area. Figure 11-5 illustrates the modelled mineralization domains, with the 25 most significant in terms of Mineral Resource tonnage (approximately 46%) highlighted in red. For this TRS, these domains will be referred to as the main domains for El Porvenir.

Upon thorough examination, SLR has assessed the mineralization wireframes of the El Porvenir underground mine and has deemed them suitable for Mineral Resource estimation. However, it was observed that numerous drill holes lacking assay data intersected the modelled wireframes. The rationale behind the absence of assays in these instances remains unclear, whether due to the absence of identified mineralization or other factors such as time constraints. Following estimation, Nexa excluded regions surrounding the non-assayed holes from the block model using an NN approach to delineate the influence area, which, as observed by SLR, resulted in irregularly shaped final domains in the block models. While this was not deemed to significantly impact the estimated Mineral Resources, SLR recommends that in future Mineral Resource updates, veins be set to pinch out upon non-assayed samples, to refine the grade estimate. The QP concurs with this recommendation.

SLR observed that certain mineralization wireframes, such as "wf_prog_3tr," were solely based on polylines without snapping to drill hole and channel sample contacts. These discrepancies contributed to a large proportion of snapping inconsistencies between the intervals assigned to a domain (referred to as "OB" in the drill hole and block model) and the resultant OB wireframes. An assessment revealed that 91% of intervals assigned to an OB were accurately captured within a modelled OB, while 97% of waste intervals were appropriately classified as waste. Although most discrepancies were located outside the Mineral Resource constraining shapes, it is recommended that these discrepancies be rectified in future Mineral Resource updates.

Contact analysis conducted by SLR on the mineralization domains indicated effective separation between mineralized and unmineralized populations, as illustrated in Figure 11-7. Nonetheless, opportunities were identified in certain areas to extend wireframes to incorporate additional mineralized intercepts. Notably, the populations within the modelled mineralization demonstrated approximately lognormal distributions.

Nexa created Zn, Pb and Ag, and Cu estimation domain groups using several geological parameters, which include geological domains (lithological control and mineralization type), and the anisotropy and orientation of the estimation domains. A total of 93 Zn, 96 Pb, 89 Ag, and 88 Cu estimation domain groups were defined, and subsequently used for variography and capping, although estimation was completed within the individual domains.



Figure 11-5: El Porvenir 25 Main Domains

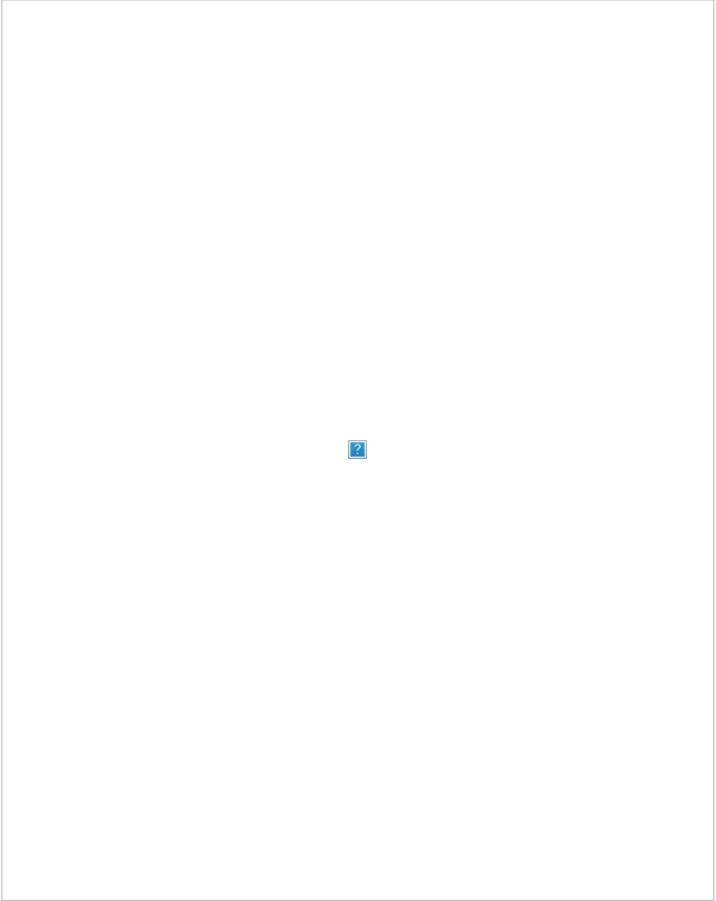




Figure 11-6: El Porvenir Grouped Mineralization

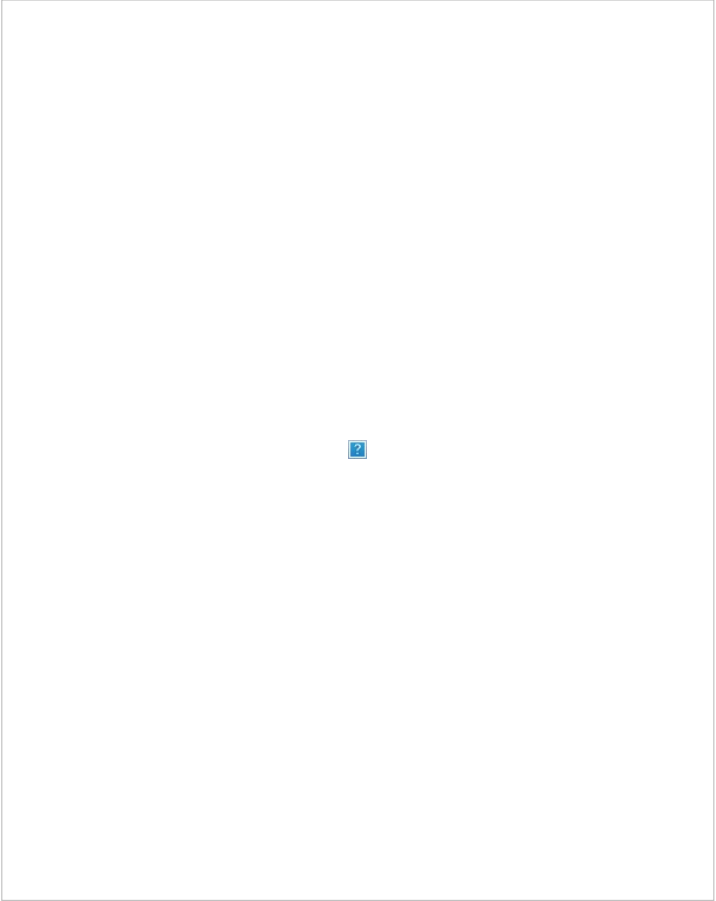




Figure 11-7: El Porvenir Underground Mineralization Contact Analysis



11.4.3 Resource Assays

The database used for generating the mineralization wireframes consists of both drill holes and channel samples. For the exploratory data analysis (EDA) process, the database is exported





from Leapfrog Geo and imported into Datamine Studio software. Non-sampled intervals are substituted by the half of the detection limits of the chemical elements. Univariate and bivariate statistics are then calculated for the assays, with separate assessments conducted for drill hole and channel samples due to their distinct natures.

For this TRS, Zn, Cu, Ag, and Pb, referred to as the main elements for El Porvenir, will be detailed in tables and figures, along with the 25 grade shells (main domains) that contribute most significantly to the Mineral Resource and Mineral Reserves, approximately 46% of the tonnage.

Table 11-11 presents the length-weighted statistics of the drill holes and channels combined.





Table 11-11: El Porvenir Assay Statistics (Length Weighted) for the Main Domains

Domain	Zn (%) - Assay (length weighted)						Cu (%) - Assay (length weighted)					
	Count	Mean	StdDev	CV	Min	Max	Count	Mean	StdDev	CV	Min	Max
amsk14	97	2.75	4.25	1.55	0.00	21.32	97	0.41	0.55	1.34	0.00	2.91
de2	2,873	2.30	3.45	1.5	0.00	35.00	2,873	0.07	0.18	2.5	0.00	3.44
dI05	434	2.19	3.28	1.5	0.02	28.60	434	0.18	0.19	1.1	0.01	1.45
exiti1	53	3.35	6.89	2.06	0.01	29.96	53	0.92	0.85	0.92	0.01	6.25
exito	2,393	3.89	4.18	1.07	0.00	38.40	2,393	0.36	0.48	1.32	0.00	10.04
exitoa	905	3.37	4.07	1.21	0.00	42.50	905	0.52	0.5	0.95	0.00	5.18
ints26	148	4.41	5.61	1.27	0.00	26.84	148	0.15	0.17	1.15	0.00	0.94
p2sw1	217	0.84	1.22	1.45	0.00	11.41	217	0.03	0.06	2.13	0.00	1.39
p2sw2	249	0.89	1.15	1.29	0.00	9.52	249	0.03	0.12	3.61	0.00	2.24
por9	860	5.73	5.33	0.93	0.00	40.58	860	0.40	0.56	1.42	0.00	13.25
por928	83	4.86	5.59	1.15	0.00	25.60	83	0.25	0.32	1.29	0.00	2.7
por929	85	8.41	7.58	0.9	0.00	30.00	85	0.30	0.21	0.7	0.00	1.00
por95	86	3.10	6.08	1.96	0.00	41.45	86	0.15	0.18	1.19	0.00	1.01
por9p	1,767	4.68	5.83	1.25	0.00	41.95	1,767	0.30	0.28	0.94	0.00	2.23
por9q	383	4.77	7.10	1.49	0.00	42.38	383	0.35	0.59	1.69	0.00	10.55
por9v	88	7.07	7.09	1.00	0.04	31.35	88	0.46	1.12	2.42	0.00	16.55
por9w	47	3.96	5.48	1.38	0.13	24.00	47	0.31	0.31	0.99	0.01	1.30
prog	6,176	5.24	6.37	1.22	0.00	43.94	6,176	0.4	0.54	1.35	0.00	17.23
sara2	185	2.11	3.26	1.55	0.01	19.75	185	0.04	0.1	2.43	0.00	1.52
v12i1	2,743	7.41	6.96	0.94	0.00	50.00	2,743	0.27	0.51	1.91	0.00	12.29
v12ne	221	4.31	6.32	1.47	0.00	34.92	221	0.21	0.36	1.69	0.00	5.93
v5i	3,317	7.15	6.60	0.92	0.00	63.35	3,317	0.40	0.46	1.15	0.00	13.12





Domain	Zn (%) - Assay (length weighted)						Cu (%) - Assay (length weighted)					
	Count	Mean	StdDev	CV	Min	Max	Count	Mean	StdDev	CV	Min	Max
vcarmen	1,368	5.53	7.81	1.41	0.00	44.47	1,368	0.09	0.14	1.63	0.00	1.90
vcn31	3,553	4.25	5.15	1.21	0.00	39.31	3,553	0.24	0.35	1.47	0.00	14.81
vcn3ei1	2,360	6.92	7.26	1.05	0.00	47.61	2,360	0.26	0.33	1.27	0.00	4.53
Domain	Ag (g/t) - Assay (length weighted)						Pb (%) - Assay (length weighted)					
	Count	Mean	StdDev	CV	Min	Max	Count	Mean	StdDev	CV	Min	Max
amsk14	97	72.87	108.42	1.49	0.00	637.00	97	0.22	0.54	2.45	0.00	3.69
de2	2,873	265.22	499.08	1.88	0.00	6,760.00	2,873	3.61	5.18	1.43	0.00	57.66
dl05	434	77.40	103.1	1.33	2.00	1,100.44	434	1.02	2.58	2.52	0.00	24.2
exiti1	53	14.98	11.53	0.77	2.02	74.96	53	0.02	0.05	2.65	0.01	0.52
exito	2,393	75.60	87.9	1.16	0.00	2,032.30	2,393	0.97	2.13	2.21	0.00	31.16
exitoa	905	45.46	70.38	1.55	0.00	939.64	905	0.52	1.84	3.52	0.00	20.98
ints26	148	20.28	40.7	2.01	0.00	284.60	148	0.31	1.08	3.5	0.00	8.25
p2sw1	217	94.57	152.31	1.61	0.00	3,484.21	217	1.54	1.81	1.18	0.00	26.73
p2sw2	249	122.25	322.95	2.64	0.00	4,379.99	249	1.59	2.51	1.58	0.00	42.96
por9	860	22.57	121.86	5.4	0.00	2,715.98	860	0.21	1.32	6.23	0.00	17.17
por928	83	31.33	47.31	1.51	0.00	200.00	83	0.53	1.39	2.61	0.00	7.80
por929	85	64.27	74.78	1.16	0.00	307.92	85	1.29	3.78	2.94	0.00	25.50
por95	86	12.57	42.47	3.38	0.00	368.89	86	0.11	0.64	5.59	0.00	5.79
por9p	1,767	23.86	43.99	1.84	0.00	855.03	1,767	0.28	1.29	4.64	0.00	22.59
por9q	383	19.31	39.48	2.04	0.00	566.39	383	0.21	1.23	5.79	0.00	23.97
por9v	88	78.37	128.96	1.65	2.02	811.18	88	1.50	3.75	2.49	0.01	26.23
por9w	47	54.00	58.23	1.08	1.56	220.21	47	0.70	1.33	1.91	0.01	5.77





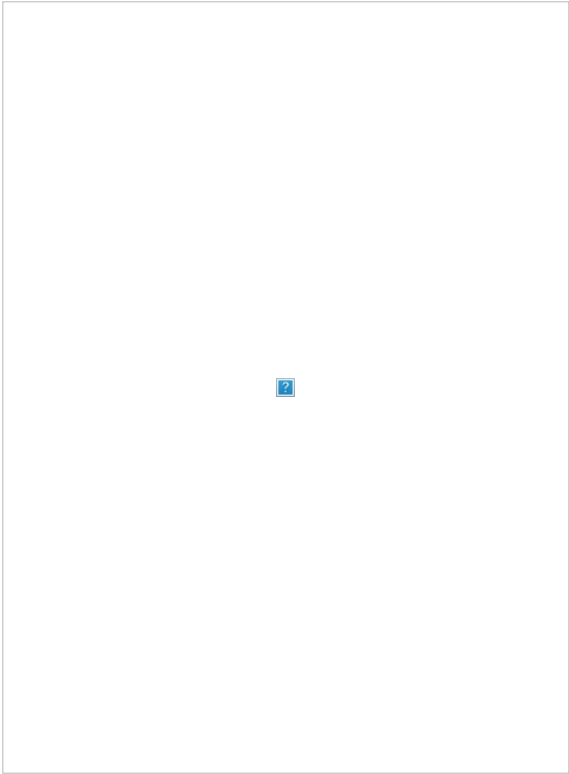
Domain	Ag (g/t) - Assay (length weighted)						Pb (%) - Assay (length weighted)					
	Count	Mean	StdDev	CV	Min	Max	Count	Mean	StdDev	CV	Min	Max
prog	6,176	49.19	87.93	1.79	0.00	2,901.95	6,176	0.78	2.56	3.29	0.00	37.60
sara2	185	209.01	377.09	1.8	1.80	5640.00	185	2.50	5.9	2.36	0.02	58.28
v12i1	2,743	43.08	65.28	1.52	0.00	1,100.13	2,743	0.33	1.37	4.18	0.00	36.40
v12ne	221	128.07	150.29	1.17	0.00	786.92	221	2.56	4.58	1.79	0.00	28.09
v5i	3,317	41.64	66.15	1.59	0.00	1,060.63	3,317	0.48	2.39	4.97	0.00	73.34
vcarmen	1,368	258.4	377.57	1.46	0.00	4,965.00	1,368	3.72	5.68	1.53	0.00	36.65
vcn31	3,553	24.70	73.17	2.96	0.00	1,100.75	3,553	0.45	2.16	4.85	0.00	40.80
vcn3ei1	2,360	69.09	126.48	1.83	0.00	2,059.05	2,360	1.43	3.55	2.48	0.00	37.26





In the El Porvenir mineral deposit, approximately 53% of the samples are derived from drill holes, while 47% originate from channels samples. Statistical differences are noticeable between them, with channel samples exhibiting generally higher grades for the most part of the statistical population. Figure 11-8 illustrates the cumulative distribution functions (CDF) and histograms of the samples within the mineralization wireframes.

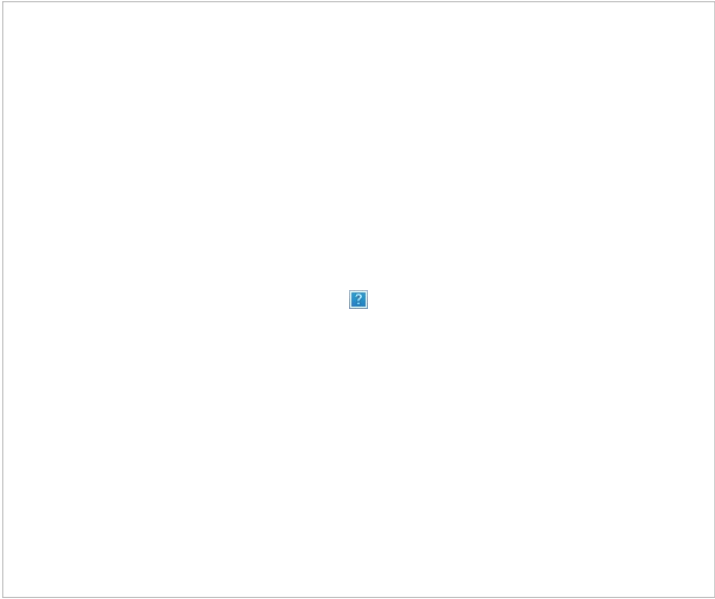
Figure 11-8: El Porvenir CDF and Histograms for the Drill Holes and Channels Samples





Given the polymetallic nature of the mineralization, a bivariate statistical analysis was conducted to evaluate the relationships between the variables. Figure 11-9 provides scatter plots for the main elements, alongside their correlation coefficients. Generally, stronger correlations are observed between Zn and Pb, as well as between Ag and Pb. Correlation between the remaining elements range from weak to negligible.

Figure 11-9: El Porvenir Scatter Plots for Zn, Ag, Pb, and Cu



11.4.4 Treatment of High Grade Assays

The main elements have a positively skewed distribution, as illustrated in Figure 11-4. Within these distributions, anomalous and extreme high grade values may be present, potentially impacting estimation accuracy and leading to a "blowing out" effect, smearing the high grades more than their actual continuity.

To address this issue and mitigate potential impacts, Nexa staff conducted a comprehensive assessment of the raw statistical distributions for the grouped mineralization domains. Probability plots and histograms were employed to identify anomalous values, particularly in the upper percentiles of the distribution. This evaluation was carried out separately for drill holes





and channel samples. Any identified outliers were capped to ensure their influence on trend analysis and resource estimation was controlled. Additionally, a second-level capping approach was implemented to further mitigate the influence of these values during the final estimation pass. Table 11-12 provides details of the top-cuts applied to both drill holes and channels for the main domains, as well as the second-level capping criteria utilized.

Table 11-12: El Porvenir Drill Hole (DDH), Channel (CHN), and the Second Level Top-Cut Values for the Main Elements

Domain	Zn DDH	Zn CHN	Zn 2 nd Level	Cu DDH	Cu CHN	Cu CHN 2 nd Level	Ag DDH	Ag CHN	Ag CHN 2 nd Level	Pb DDH	Pb CHN	Pb CHN 2 nd Level
amsk14	21.45	5.61	5.61	1.94	0.63	0.47	397.80	1,156.00	552.90	2.89	0.22	0.21
de2	15.95	16.64	10.44	0.56	1.24	0.33	1,196.00	2,030.00	1,396.00	16.20	18.46	16.39
d105	19.93	12.36	9.50	1.01	0.59	0.43	839.00	355.40	273.40	15.04	6.58	3.82
exiti1	19.74	7.56	6.98	3.25	1.79	1.77	125.70	45.83	36.25	0.59	1.31	0.14
exito	23.40	18.98	14.52	2.11	1.57	1.13	552.40	342.60	280.70	12.86	11.63	7.00
exitoa	23.40	18.98	14.52	2.09	1.72	1.52	275.60	93.78	93.78	9.69	8.31	3.38
ints26	17.98	7.81	7.81	1.41	0.49	0.48	127.90	19.74	18.90	4.34	0.09	0.08
p2sw1	6.01	2.27	2.27	0.42	0.41	0.27	613.80	630.30	630.30	15.56	8.46	6.06
p2sw2	6.01	2.27	2.27	0.42	0.41	0.27	613.80	630.30	630.30	15.56	8.46	6.06
por9	33.61	24.32	17.26	3.63	1.24	0.87	806.60	145.10	47.07	10.98	6.30	0.21
por928	33.61	24.32	17.26	3.63	1.24	0.87	444.50	183.70	168.00	10.98	6.30	0.21
por929	33.61	24.32	17.26	3.63	1.24	0.87	444.50	183.70	168.00	23.61	14.24	7.85
por95	20.03	---	---	1.03	---	---	214.90	---	---	1.73	---	---
por9p	29.98	30.03	15.81	2.67	1.38	0.74	509.70	172.20	94.13	14.83	12.92	0.90
por9q	29.98	30.03	15.81	2.67	1.38	0.74	509.70	172.20	94.13	14.83	12.92	0.90
por9v	29.98	30.03	15.81	2.67	1.38	0.74	509.70	172.20	94.13	4.92	2.73	2.73
por9w	23.68	27.07	20.40	3.31	2.72	1.09	312.60	747.70	260.80	14.26	23.12	5.58
prog	23.68	27.07	20.40	3.31	2.72	1.09	312.60	747.70	260.80	14.26	23.12	5.58
sara2	15.95	16.64	10.44	0.56	1.24	0.33	1,196.00	2,030.00	1,396.00	16.20	18.46	16.39
v12i1	34.63	29.67	20.90	2.10	1.60	0.58	91.23	275.50	155.10	1.38	9.50	1.57
v12ne	23.29	21.42	18.00	1.21	0.61	0.58	841.00	483.20	435.40	16.14	12.12	11.00
v5i	20.76	30.22	19.17	1.64	2.09	0.98	72.65	320.80	159.50	5.88	33.59	2.38
vcarmen	35.82	29.57	17.16	1.07	0.52	0.26	1,533.00	939.10	718.30	25.57	24.70	11.97
vcn31	35.82	29.57	17.16	3.53	4.86	0.75	1,333.00	1,050.00	356.00	18.35	17.77	6.59
vcn3ei1	30.01	30.49	24.14	3.53	4.86	0.75	1,333.00	1,050.00	356.00	25.57	24.70	11.97





Table 11-13 shows the statistics for the capped samples, as well as the metal loss for each of the main mineralization domains.





Table 11-13: El Porvenir Capped Statistics for the Main Elements

Domain	Zn (%) capped - Length weighted									Cu (%) capped - Length weighted								
	Count	Mean	StdDev	CV	Min	Max	Uncapped Mean	Uncapped Max	Metal Loss	Count	Mean	StdDev	CV	Min	Max	Uncapped Mean	Uncapped Max	Metal Loss
amsk14	97	2.75	4.25	1.55	0.00	21.32	2.75	21.32	0.00%	97	0.39	0.47	1.21	0.00	1.94	0.41	2.91	-4.88%
de2	2,873	2.24	3.16	1.41	0.00	16.64	2.30	35.00	-2.61%	2,873	0.07	0.14	2.09	0.00	1.24	0.07	3.44	0.00%
dl05	434	2.13	2.93	1.37	0.02	19.93	2.19	28.60	-2.74%	434	0.17	0.16	0.93	0.01	1.01	0.18	1.45	-5.56%
exiti1	53	3.02	5.84	1.94	0.01	19.74	3.35	29.96	-9.85%	53	0.89	0.68	0.76	0.01	3.25	0.92	6.25	-3.26%
exito	2,393	3.86	4.03	1.04	0.00	23.40	3.89	38.40	-0.77%	2,393	0.34	0.36	1.04	0.00	2.11	0.36	10.04	-5.56%
exitoa	905	3.35	3.96	1.18	0.00	23.40	3.37	42.50	-0.59%	905	0.51	0.43	0.84	0.00	2.09	0.52	5.18	-1.92%
ints26	148	4.06	4.81	1.18	0.00	17.98	4.41	26.84	-7.94%	148	0.15	0.17	1.14	0.00	0.94	0.15	0.94	0.00%
p2sw1	217	0.81	1.02	1.26	0.00	6.01	0.84	11.41	-3.57%	217	0.03	0.05	1.74	0.00	0.41	0.03	1.39	0.00%
p2sw2	249	0.89	1.11	1.25	0.00	6.01	0.89	9.52	0.00%	249	0.03	0.05	1.97	0.00	0.42	0.03	2.24	0.00%
por9	860	5.71	5.23	0.92	0.00	33.61	5.73	40.58	-0.35%	860	0.38	0.41	1.07	0.00	3.63	0.40	13.25	-5.00%
por928	83	4.86	5.59	1.15	0.00	25.60	4.86	25.60	0.00%	83	0.25	0.32	1.29	0.00	2.70	0.25	2.70	0.00%
por929	85	8.41	7.58	0.90	0.00	30.00	8.41	30.00	0.00%	85	0.30	0.21	0.70	0.00	1.00	0.30	1.00	0.00%
por95	86	2.85	4.84	1.70	0.00	20.03	3.10	41.45	-8.06%	86	0.15	0.18	1.19	0.00	1.01	0.15	1.01	0.00%
por9p	1,767	4.65	5.69	1.22	0.00	30.03	4.68	41.95	-0.64%	1,767	0.29	0.27	0.91	0.00	2.10	0.30	2.23	-3.33%
por9q	383	4.71	6.85	1.45	0.00	29.98	4.77	42.38	-1.26%	383	0.33	0.46	1.38	0.00	2.67	0.35	10.55	-5.71%
por9v	88	7.04	7.01	1.00	0.04	29.98	7.07	31.35	-0.42%	88	0.39	0.53	1.36	0.00	2.67	0.46	16.55	-15.22%
por9w	47	3.96	5.46	1.38	0.13	23.68	3.96	24.00	0.00%	47	0.31	0.31	0.99	0.01	1.30	0.31	1.30	0.00%
prog	6,176	5.20	6.23	1.20	0.00	27.07	5.24	43.94	-0.76%	6,176	0.39	0.42	1.08	0.00	3.31	0.40	17.23	-2.50%
sara2	185	2.08	3.13	1.50	0.01	15.95	2.11	19.75	-1.42%	185	0.04	0.06	1.64	0.00	0.56	0.04	1.52	0.00%
v12i1	2,743	7.38	6.85	0.93	0.00	34.63	7.41	50.00	-0.40%	2,743	0.24	0.29	1.20	0.00	2.10	0.27	12.29	-11.11%
v12ne	221	4.18	5.82	1.39	0.00	23.29	4.31	34.92	-3.02%	221	0.20	0.24	1.21	0.00	1.21	0.21	5.93	-4.76%
v5i	3,317	7.10	6.38	0.90	0.00	30.22	7.15	63.35	-0.70%	3,317	0.39	0.33	0.86	0.00	2.09	0.40	13.12	-2.50%
vcarmen	1,368	5.52	7.75	1.40	0.00	35.82	5.53	44.47	-0.18%	1,368	0.08	0.12	1.44	0.00	1.07	0.09	1.90	-11.11%
vcn31	3,553	4.25	5.14	1.21	0.00	35.82	4.25	39.31	0.00%	3,553	0.23	0.23	1.00	0.00	3.53	0.24	14.81	-4.17%





Domain	Zn (%) capped - Length weighted									Cu (%) capped - Length weighted								
	Count	Mean	StdDev	CV	Min	Max	Uncapped Mean	Uncapped Max	Metal Loss	Count	Mean	StdDev	CV	Min	Max	Uncapped Mean	Uncapped Max	Metal Loss
vcn3ei1	2,360	6.89	7.12	1.03	0.00	30.49	6.92	47.61	-0.43%	2,360	0.26	0.33	1.27	0.00	4.53	0.26	4.53	0.00%

Domain	Ag (g/t) capped - Length weighted									Pb (%) capped - Length weighted								
	Count	Mean	StdDev	CV	Min	Max	Uncapped Mean	Uncapped Max	Metal Loss	Count	Mean	StdDev	CV	Min	Max	Uncapped Mean	Uncapped Maximum	Metal Loss
amsk14	97	70.02	96.79	1.38	0.00	397.80	72.87	637.00	-3.91%	97	0.21	0.49	2.32	0.00	2.89	0.22	3.69	-4.55%
de2	2,873	245.14	376.95	1.54	0.00	2,030.00	265.22	6,760.00	-7.57%	2,873	3.40	4.20	1.24	0.00	18.46	3.61	57.66	-5.82%
d105	434	76.22	96.10	1.26	2.00	839.00	77.40	1,100.44	-1.52%	434	0.95	2.13	2.25	0.00	15.04	1.02	24.20	-6.86%
exiti1	53	14.98	11.53	0.77	2.02	74.96	14.98	74.96	0.00%	53	0.02	0.05	2.65	0.01	0.52	0.02	0.52	0.00%
exito	2,393	73.52	72.15	0.98	0.00	552.40	75.60	2,032.30	-2.75%	2,393	0.93	1.86	2.00	0.00	12.86	0.97	31.16	-4.12%
exitoa	905	41.97	53.73	1.28	0.00	275.60	45.46	939.64	-7.68%	905	0.47	1.43	3.03	0.00	9.69	0.52	20.98	-9.62%
ints26	148	17.84	29.68	1.66	0.00	127.90	20.28	284.60	-12.03%	148	0.27	0.85	3.18	0.00	4.34	0.31	8.25	-12.90%
p2sw1	217	89.59	105.52	1.18	0.00	630.30	94.57	3,484.21	-5.27%	217	1.53	1.70	1.11	0.00	12.21	1.54	26.73	-0.65%
p2sw2	249	95.75	126.31	1.32	0.00	630.30	122.25	4,379.99	-21.68%	249	1.54	1.93	1.25	0.00	15.56	1.59	42.96	-3.14%
por9	860	18.03	50.78	2.82	0.00	806.60	22.57	2,715.98	-20.12%	860	0.17	0.91	5.34	0.00	10.98	0.21	17.17	-19.05%
por928	83	31.33	47.31	1.51	0.00	200.00	31.33	200.00	0.00%	83	0.53	1.39	2.61	0.00	7.80	0.53	7.80	0.00%
por929	85	56.97	55.93	0.98	0.00	183.70	64.27	307.92	-11.36%	85	1.08	2.61	2.41	0.00	14.24	1.29	25.50	-16.28%
por95	86	10.86	29.23	2.69	0.00	214.90	12.57	368.89	-13.60%	86	0.07	0.27	4.08	0.00	1.73	0.11	5.79	-36.36%
por9p	1,767	22.26	31.84	1.43	0.00	315.39	23.86	855.03	-6.71%	1,767	0.26	1.10	4.18	0.00	14.01	0.28	22.59	-7.14%
por9q	383	19.25	38.68	2.01	0.00	509.70	19.31	566.39	-0.31%	383	0.20	1.03	5.16	0.00	14.83	0.21	23.97	-4.76%
por9v	88	72.88	102.45	1.41	2.02	509.70	78.37	811.18	-7.01%	88	0.93	1.55	1.67	0.01	4.92	1.50	26.23	-38.00%
por9w	47	54.00	58.23	1.08	1.56	220.21	54.00	220.21	0.00%	47	0.70	1.33	1.91	0.01	5.77	0.70	5.77	0.00%
prog	6,176	48.50	77.60	1.60	0.00	747.70	49.19	2,901.95	-1.40%	6,176	0.76	2.42	3.17	0.00	23.12	0.78	37.60	-2.56%
sara2	185	190.24	263.89	1.39	1.80	1,196.00	209.01	5,640.00	-8.98%	185	2.08	3.28	1.58	0.02	16.20	2.50	58.28	-16.80%
v12i1	2,743	41.00	51.55	1.26	0.00	275.50	43.08	1,100.13	-4.83%	2,743	0.30	1.00	3.33	0.00	9.50	0.33	36.40	-9.09%
v12ne	221	128.07	150.29	1.17	0.00	786.92	128.07	786.92	0.00%	221	2.39	3.95	1.65	0.00	16.14	2.56	28.09	-6.64%





Domain	Ag (g/t) capped - Length weighted									Pb (%) capped - Length weighted								
	Count	Mean	StdDev	CV	Min	Max	Uncapped Mean	Uncapped Max	Metal Loss	Count	Mean	StdDev	CV	Min	Max	Uncapped Mean	Uncapped Maximum	Metal Loss
v5i	3,317	39.74	53.76	1.35	0.00	320.80	41.64	1,060.63	-4.56%	3,317	0.46	1.86	4.06	0.00	33.59	0.48	73.34	-4.17%
vcarmen	1,368	242.67	305.39	1.26	0.00	1,533.00	258.40	4,965.00	-6.09%	1,368	3.67	5.49	1.49	0.00	25.57	3.72	36.65	-1.34%
vcn31	3,553	24.70	73.17	2.96	0.00	1,100.75	24.70	1,100.75	0.00%	3,553	0.43	1.95	4.56	0.00	18.35	0.45	40.80	-4.44%
vcn3ei1	2,360	68.43	118.48	1.73	0.00	1,333.00	69.09	2,059.05	-0.96%	2,360	1.41	3.44	2.43	0.00	25.57	1.43	37.26	-1.40%





11.4.5 Compositing

The average sample length within the mineralized domains is 1.43 m, with most occurrences around 1.5 m. Nexa opted to composite the capped assays downhole to 1.0 m lengths, which corresponds to half of the parent block size height for the deposit. The remaining end lengths were then added to the previous interval. Composites were created within the mineralization domain wireframes and were flagged accordingly.

Figure 11-10 showcases the length histograms of both the raw and composited samples for reference.

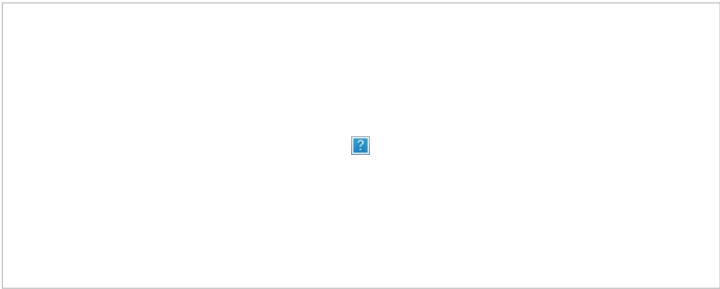
Figure 11-10: El Porvenir Raw (on the left) and Composited (on the right) Histograms



Unsampled core intervals were assigned grades equal to half of the detection limit value for each of the elements.

The composite length was selected based on analysis of three composite lengths (0.1 m, 0.5 m, and 1.0 m). Figure 11-11 illustrates a comparison of the mean Zn relative error between length-weighted raw assay mean versus composite mean by mineralization domain for the different composite lengths.

Figure 11-11: El Porvenir Compositing Analysis



Source: Nexa, 2023





Table 11-14 shows the summary length-weighted statistics for the capped variables for the main domains.



Table 11-14: Capped and Composited Statistics

Domain	Zn (%) Capped - Length weighted						Cu (%) Capped - Length weighted					
	Count	Mean	StdDev	CV	Min	Max	Count	Mean	StdDev	CV	Min	Max
amsk14	121	2.75	3.87	1.41	0.00	18.00	121	0.39	0.44	1.13	0.00	1.89
de2	3,721	2.24	2.95	1.32	0.00	16.64	3,721	0.07	0.13	1.93	0.00	1.24
dI05	502	2.13	2.65	1.24	0.02	19.93	502	0.17	0.15	0.86	0.01	1.01
exiti1	74	3.02	5.49	1.82	0.02	19.74	74	0.89	0.63	0.71	0.01	2.67
exito	3,425	3.86	3.73	0.97	0.00	23.40	3,425	0.34	0.33	0.97	0.00	2.11
exitoa	1,165	3.35	3.59	1.07	0.00	20.85	1,165	0.51	0.40	0.79	0.00	2.09
ints26	180	4.06	4.33	1.07	0.00	17.98	180	0.15	0.15	1.05	0.00	0.76
p2sw1	284	0.81	0.95	1.17	0.00	6.01	284	0.03	0.04	1.65	0.00	0.36
p2sw2	334	0.89	1.01	1.14	0.00	5.23	334	0.03	0.05	1.82	0.00	0.41
por9	1,049	5.71	4.79	0.84	0.00	32.60	1,049	0.38	0.37	0.96	0.00	3.63
por928	152	4.86	5.42	1.12	0.00	25.60	152	0.25	0.30	1.20	0.00	2.64
por929	113	8.41	7.19	0.86	0.00	29.98	113	0.30	0.20	0.67	0.00	1.00
por95	101	2.85	4.46	1.56	0.00	19.77	101	0.15	0.16	1.07	0.00	0.97
por9p	2,626	4.65	5.41	1.16	0.00	30.03	2,626	0.29	0.25	0.86	0.00	2.10
por9q	472	4.71	6.20	1.32	0.00	29.98	472	0.33	0.43	1.27	0.00	2.58
por9v	84	7.04	6.12	0.87	0.09	29.98	84	0.39	0.47	1.19	0.00	2.18
por9w	60	3.96	4.72	1.19	0.13	20.84	60	0.31	0.28	0.90	0.01	1.30
prog	10,639	5.20	6.14	1.18	0.00	27.07	10,639	0.39	0.40	1.04	0.00	3.31
sara2	198	2.08	2.87	1.38	0.02	15.95	198	0.04	0.05	1.37	0.00	0.46
v12i1	4,914	7.38	6.71	0.91	0.00	34.63	4,914	0.24	0.28	1.16	0.00	2.10
v12ne	289	4.18	5.22	1.25	0.00	23.29	289	0.20	0.21	1.07	0.00	1.21



Domain	Zn (%) Capped - Length weighted						Cu (%) Capped - Length weighted					
	Count	Mean	StdDev	CV	Min	Max	Count	Mean	StdDev	CV	Min	Max
v5i	6,269	7.10	6.30	0.89	0.00	30.22	6,269	0.39	0.33	0.85	0.00	2.09
vcarmen	1,735	5.52	7.05	1.28	0.00	32.07	1,735	0.08	0.11	1.30	0.00	1.07
vcn31	4,613	4.25	4.74	1.12	0.00	34.80	4,613	0.23	0.22	0.95	0.00	3.53
vcn3ei1	3,693	6.89	6.78	0.98	0.00	30.49	3,693	0.26	0.32	1.21	0.00	4.53
Domain	Ag (g/t) Capped - Length weighted						Pb (%) Capped - Length-weighted					
	Count	Mean	StdDev	CV	Min	Max	Count	Mean	StdDev	CV	Min	Max
amsk14	121	70.02	90.15	1.29	0.10	397.8	121	0.21	0.44	2.11	0.00	2.89
de2	3,721	245.14	351.46	1.43	0.00	2030	3,721	3.40	3.91	1.15	0.00	18.46
dI05	502	76.22	82.59	1.08	2.00	674.19	502	0.95	1.89	2.00	0.00	15.04
exiti1	74	14.98	10.51	0.70	2.02	60.28	74	0.02	0.04	2.26	0.01	0.40
exito	3,425	73.52	66.56	0.91	0.00	501.51	3,425	0.93	1.73	1.86	0.00	12.86
exitoa	1,165	41.97	50.98	1.21	0.00	275.6	1,165	0.47	1.34	2.85	0.00	9.69
ints26	180	17.84	28.97	1.62	0.00	127.9	180	0.27	0.82	3.07	0.00	4.34
p2sw1	284	89.59	98.38	1.10	0.31	630.3	284	1.53	1.53	1.00	0.00	12.11
p2sw2	334	95.75	118.45	1.24	0.20	630.3	334	1.54	1.71	1.11	0.00	13.03
por9	1,049	18.03	44.22	2.45	0.00	806.6	1,049	0.17	0.80	4.66	0.00	10.98
por928	152	31.33	46.19	1.47	0.00	200	152	0.53	1.35	2.53	0.00	7.80
por929	113	56.97	55.30	0.97	0.00	183.7	113	1.08	2.60	2.40	0.00	14.24
por95	101	10.86	25.72	2.37	0.00	214.9	101	0.07	0.24	3.53	0.00	1.73
por9p	2,626	22.26	30.57	1.37	0.00	218.66	2,626	0.26	1.06	4.02	0.00	12.99
por9q	472	19.25	34.00	1.77	0.00	283.35	472	0.20	0.95	4.71	0.00	14.83
por9v	84	72.88	85.48	1.17	2.02	509.7	84	0.93	1.39	1.50	0.01	4.92
por9w	60	54.00	54.47	1.01	1.92	220.21	60	0.70	1.23	1.77	0.01	5.77





Domain	Ag (g/t) Capped - Length weighted						Pb (%) Capped - Length-weighted					
	Count	Mean	StdDev	CV	Min	Max	Count	Mean	StdDev	CV	Min	Max
prog	10,639	48.50	76.52	1.58	0.00	747.7	10,639	0.76	2.38	3.12	0.00	23.12
sara2	198	190.24	234.10	1.23	7.40	1196	198	2.08	3.01	1.45	0.02	16.20
v12i1	4,914	41.00	51.30	1.25	0.00	275.5	4,914	0.30	1.00	3.31	0.00	9.50
v12ne	289	128.07	135.05	1.05	0.00	786.92	289	2.39	3.60	1.51	0.00	16.14
v5i	6,269	39.74	53.51	1.35	0.00	320.8	6,269	0.46	1.85	4.05	0.00	33.59
vcarmen	1,735	242.67	273.23	1.13	0.00	1,533	1,735	3.67	4.94	1.35	0.00	25.57
vcn31	4,613	24.70	69.09	2.80	0.00	1,100.75	4,613	0.43	1.82	4.28	0.00	18.35
vcn3ei1	3,693	68.43	113.02	1.65	0.00	1,050	3,693	1.41	3.28	2.32	0.00	24.70





11.4.6 Trend Analysis

11.4.6.1Variography

Nexa staff generated downhole and directional variograms for each domain utilizing the one-metre composites for each variable. These variograms served to improve the understanding and quantification of spatial grade variability within the mineralization domains. Variograms were standardized and modelled using three spherical structures and served as a guide when selecting search ellipse ranges. Figure 11-12 illustrates the normal-score variograms for the “de2” domain.

Figure 11-12: Downhole and Directional Zn Experimental Variograms and Models for "de2" Domain

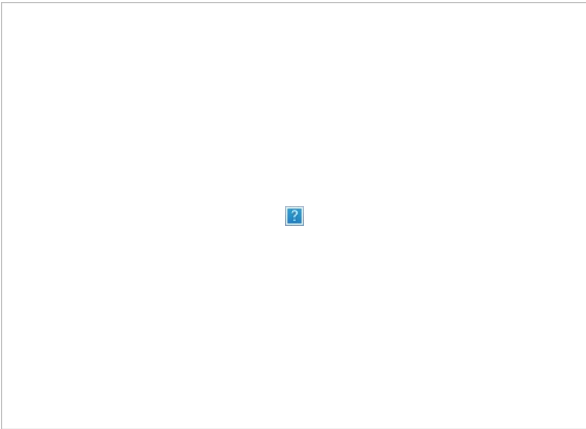


Table 11-15 presents the back-transformed variogram parameters for Zn corresponding to the 25 largest domain tonnage contributors to the Mineral Resource.





Table 11-15: El Porvenir Variogram Parameters for the Main Domains (Back-Transformed)

Domain	Datamine Rotation			Datamine Axis			Nugget Effect	Structure 1				Structure 2				Structure 3		
	VANGLE1	VANGLE2	VANGLE3	VAXIS1	VAXIS2	VAXIS3		ST1PAR1	ST1PAR2	ST1PAR3	C1	ST2PAR1	ST2PAR2	ST2PAR3	C2	ST3PAR1	ST3PAR2	ST3PAR3
amsk14	-115.506	67.731	-62.727	3	2	1	0.271	13	5	5	0.57	24	14	8	0.056	30	20	12
de2	5.34	48.974	168.308	3	2	1	0.118	8	2	5	0.337	39	19	10	0.297	66	31	22
dio5	146.781	62.009	-43.219	3	2	1	0.182	15	3	6	0.668	26	5	11	0.075	32	12	14
exit1l	-74.561	75.894	-44.561	3	2	1	0.031	16	30	10	0.667	19	32	17	0.164	31	33	18
exito	125.506	67.731	-117.273	3	2	1	0.069	5	4	4	0.506	26	9	16	0.288	37	26	19
exitoa	125.506	67.731	-117.273	3	2	1	0.069	5	4	4	0.506	26	9	16	0.288	37	26	19
ints26	139.107	48.59	139.107	3	2	1	0.048	9	15	3	0.579	27	21	9	0.183	34	26	11
p2sw1	-77.24	33.826	-127.005	3	2	1	0.249	10	14	8	0.362	25	20	14	0.199	45	21	18
p2sw2	-77.24	33.826	-127.005	3	2	1	0.249	10	14	8	0.362	25	20	14	0.199	45	21	18
por9	-106.74	58.525	-70.575	3	2	1	0.124	6	6	6	0.418	25	12	14	0.24	36	22	22
por928	-106.74	58.525	-70.575	3	2	1	0.124	6	6	6	0.418	25	12	14	0.24	36	22	22
por929	-106.74	58.525	-70.575	3	2	1	0.124	6	6	6	0.418	25	12	14	0.24	36	22	22
por95	105.725	29.499	78.492	3	2	1	0.095	6	4	4	0.449	29	15	7	0.22	35	20	12
por9p	132.727	67.731	25.506	3	2	1	0.145	21	7	10	0.653	44	16	12	0.1	52	23	16
por9q	132.727	67.731	25.506	3	2	1	0.145	21	7	10	0.653	44	16	12	0.1	52	23	16
por9v	132.727	67.731	25.506	3	2	1	0.145	21	7	10	0.653	44	16	12	0.1	52	23	16
por9w	130	70	-90	3	2	1	0.15	2	6	11	0.241	18	23	20	0.24	42	27	21
prog	130	70	-90	3	2	1	0.15	2	6	11	0.241	18	23	20	0.24	42	27	21
sara2	5.34	48.974	168.308	3	2	1	0.118	8	2	5	0.337	39	19	10	0.297	66	31	22
v12i1	104.561	75.894	44.561	3	2	1	0.186	12	8	11	0.549	26	18	18	0.13	37	25	23
v12ne	150	80	90	3	2	1	0.148	5	3	4	0.466	23	8	10	0.234	36	12	12
v5i	135.439	75.894	-44.561	3	2	1	0.152	10	4	6	0.445	28	13	25	0.192	52	40	29
vcarmen	142.727	67.731	-154.494	3	2	1	0.168	2	2	5	0.572	15	9	14	0.157	27	21	16
vcn31	142.727	67.731	-154.494	3	2	1	0.168	2	2	5	0.572	15	9	14	0.157	27	21	16
vcn3e1l	132.727	67.731	25.506	3	2	1	0.124	4	4	6	0.45	26	26	12	0.274	47	33	20





11.4.6.2Grade Contouring

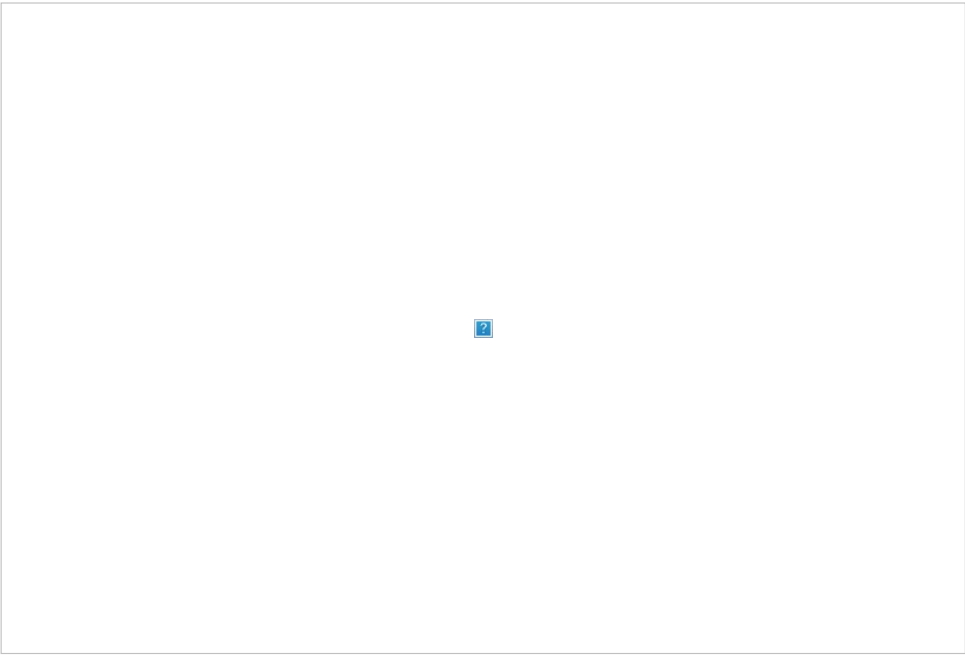
Grade contours play an important role in aiding the initial detection of preferential grade patterns within mineralization domains. A brief assessment was carried out for the “de2” and “por9q” domains to assess potential grade trends.

Figure 11-13 illustrates the Zn contours for these domains. While the “de2” domain exhibits no clear trend, the “por9q” domain shows a more distinct trend extending northward and down-dip.





Figure 11-13: Contour Zn Grades for the “de2” (left) and “por9q” (right) Domains





11.4.7 Search Strategy and Grade Interpolation Parameters

The final estimated values for Zn, Cu, Ag, and Pb grades at El Porvenir are determined by ID³. Initially, the estimation process incorporates OK, ID³, and NN interpolators, followed by an individual domain analysis to select between OK or ID³ results. This selection is based on domain-specific criteria such as sample quantity, average difference between OK and ID³ compared to NN, and domain size/volume. Variograms are defined based on estimation groups, allowing even domains with limited samples to be estimated via OK for comparison and validation purposes. Grade variables are not density or length-weighted during estimation.

To capture domain trends, dynamic anisotropy angles are calculated in Studio RM using domain wireframes. The estimation process includes three passes: the first pass utilizes search ellipse radii equivalent to variogram ranges for each variable; the second pass increases the radii by a factor of 1.5 to 2.5; and the third pass employs radii ten times larger than the first pass.

The minimum and maximum sample numbers typically range from eight to 12 for the first pass, six to eight for the second pass, and one to six for the third pass, with a maximum of two samples per drill hole. Minor adjustments are made as needed to improve the final estimation result. Table 11-16 presents the search parameters for Zn in the main estimation domains.

Table 11-16: El Porvenir Search Parameters for the Main Domains

Domain	Search Ellipse (m)			Pass 1	No. Composites		Pass 2	No. Composites		Pass 3	No. Composites		Max Per Hole
	X	Y	Z	S-Vol	Min	Max	S-Vol	Min	Max	S-Vol	Min	Max	
amsk14	25	14	15	1	8	12	2	6	8	10	1	6	2
de2	30	20	10	1	8	12	2	6	8	10	1	6	2
dl05	30	20	10	1	8	12	2	6	8	10	1	6	2
exit1	30	20	10	1	8	12	2	6	8	10	1	6	2
exito	30	20	10	1	8	12	2	6	8	10	1	6	2
exitoa	30	20	10	1	8	12	2	6	8	10	1	6	2
ints26	26	16	10	1	8	12	2	6	8	10	1	6	2
p2sw1	30	20	10	1	8	12	2	6	8	10	1	6	2
p2sw2	65	18	6	1	6	16	2	6	16	10	1	4	2
por9	30	20	17	1	8	12	2	6	8	10	1	6	2
por928	30	20	10	1	8	12	2	6	8	10	1	6	2
por929	16	12	8	1	8	12	2	6	8	10	1	6	2
por95	30	20	10	1	8	12	2	6	8	10	1	6	2
por9p	30	20	10	1	8	12	2	6	8	10	1	6	2
por9q	30	20	10	1	8	12	2	6	8	10	1	6	2
por9v	30	20	10	1	8	12	2	6	8	10	1	6	2
por9w	30	20	10	1	8	12	2	6	8	10	1	6	2
prog	30	20	20	1	8	12	2	6	8	10	1	6	2
sara2	80	30	10	1	5	16	2	6	12	10	1	4	2





Domain	Search Ellipse (m)			Pass 1	No. Composites		Pass 2	No. Composites		Pass 3	No. Composites		Max Per Hole
	X	Y	Z	S-Vol	Min	Max	S-Vol	Min	Max	S-Vol	Min	Max	
v12i1	30	20	10	1	8	12	2	6	8	10	1	6	2
v12ne	30	20	10	1	8	12	2	6	8	10	1	6	2
v5i	30	20	10	1	8	12	2	6	8	10	1	6	2
vcarmen	30	20	10	1	8	12	2	6	8	10	1	6	2
vcn31	30	20	10	1	8	12	2	6	8	10	1	6	2
vcn3el1	30	20	10	1	8	12	2	6	8	10	1	6	2

For the samples with missing values, half of the detection limit was used for the estimation, and for the final block model, the influence of theses samples was calculated in the blocks using NN, and those blocks were excluded from the block model.

The QP is of the opinion that the current search parameters are reasonable and provide an acceptable level of local precision for the estimate.

11.4.8 Bulk Density

A total of 2,909 density measurements were taken across the various zones within the El Porvenir deposit. These measurements provide data for 301 of the 522 mineralization domains and the capped values range from 2.69 t/m³ and 4.34 t/m³.

Density values are best correlated with the Zn grades, as demonstrated in Figure 11-14.

Figure 11-14: El Porvenir Density Correlation Matrix and Scatter Plots

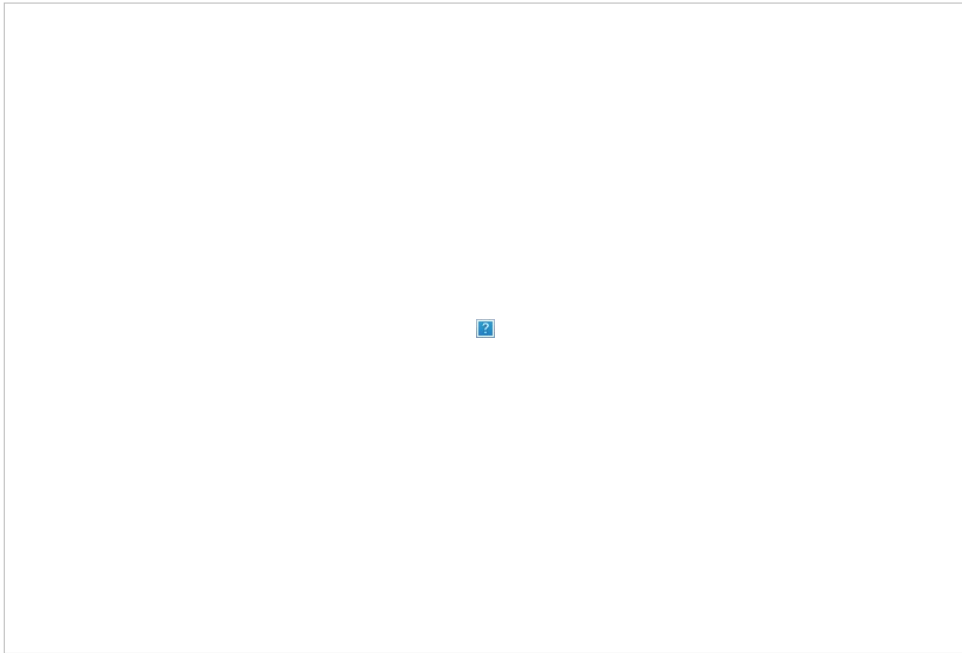


Figure 11-15 shows a plan and isometric view of density composites in relation to the mineralized domains, indicating relatively widespread coverage but with some significant gaps where mineralized bodies are lacking informing density samples, although the largest of these are located outside of the Mineral Resource and Mineral Reserve reporting shapes.





Figure 11-15: El Porvenir Density Composites





Considering the main domains, 17 of the 25 have density values, totalling 942 density samples. Figure 11-16 and Table 11-17 show the boxplots and statistics for density values of the 17 main domains with available density samples.

Figure 11-16: El Porvenir Boxplots Showing the Density Values for the Main Domains.

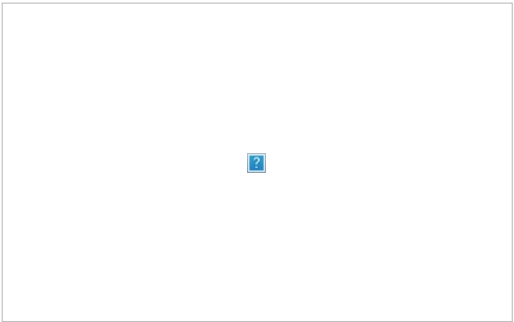


Table 11-17: El Porvenir Statistics of the Density Values for the Main Domains

Domain	Count	Mean (t/m³)	StdDev (t/m³)	Minimum (t/m³)	Maximum (t/m³)
de2	91	2.60	0.15	2.44	2.98
p2sw1	9	2.62	0.05	2.59	2.75
sara2	11	2.69	0.20	2.42	3.01
p2sw2	14	2.69	0.09	2.59	2.86
dl05	40	3.13	0.24	2.92	3.81
amsk14	25	3.25	0.61	2.72	4.45
por9	34	3.26	0.24	2.75	3.86
vcarmen	105	3.33	0.58	2.73	4.54
ints26	44	3.34	0.34	2.8	4.1
exito	85	3.34	0.39	2.7	3.95
vcn31	167	3.45	0.43	2.9	4.42
v5i	18	3.50	0.40	2.69	3.93
prog	108	3.52	0.49	2.74	4.35
por9p	10	3.57	0.18	3.28	3.89
vcn3ei1	54	3.62	0.45	2.9	4.35
exitoa	97	3.62	0.34	2.7	3.95



Domain	Count	Mean (t/m ³)	StdDev (t/m ³)	Minimum (t/m ³)	Maximum (t/m ³)
v12i1	30	3.68	0.22	3.41	4.2

Similar mineralization domains were grouped (previously shown in Figure 11-6) and an average density value calculated for each group (Table 11-18). To assign density values to the block model, a local ID³ estimation method was used with a search neighbourhood radii equivalent to that applied to the Indicated Mineral Resources. For blocks situated beyond these radii or within domains lacking samples, the grouped domain's average density value was assigned.

Table 11-18: El Porvenir Grouped Domain Density Statistics

Group	No. Samples	Mean (t/m ³)	StdDev (t/m ³)	Minimum (t/m ³)	Maximum (t/m ³)
AM	113	3.27	0.52	2.49	4.63
DE	80	2.59	0.21	2.11	3.70
DL	72	3.11	0.40	2.31	4.25
EXPLO	120	2.97	0.38	2.39	4.38
INTEG	90	3.23	0.50	2.43	4.56
PORV2SE	50	2.86	0.28	2.47	3.84
PORV2SW	44	2.66	0.13	2.40	3.58
PORV3	49	2.88	0.24	2.23	4.38
PORV9	304	3.34	0.37	1.74	4.78
SARA	75	2.56	0.36	2.12	5.01
SOC	53	3.21	0.54	2.44	4.66
VCN1	207	3.31	0.65	2.28	4.74
VCN3	366	3.41	0.54	1.57	5.09
VCN4	23	3.14	0.50	2.63	4.38
VC1	17	3.69	0.75	2.55	4.76
VC2	88	3.24	0.55	2.43	4.89
VC3	70	3.41	0.68	2.57	5.18
VPROG	143	3.56	0.52	2.36	4.66
V12	328	3.17	0.39	2.35	4.30
V12i	47	3.69	0.39	2.72	4.48
V12s	208	2.93	0.43	2.52	5.98
V5	121	3.11	0.57	2.32	5.22
ÉXITO	241	3.50	0.49	2.62	5.36



11.4.9 Block Models

A non-rotated blocked model was generated in Studio RM with parent blocks size of 2 m x 2 m x 2 m and a minimum sub-cell size of 0.5 m x 0.5 m x 0.5 m. Sub-blocking took place at mineralization domain wireframe boundaries.

Table 11-19 shows the parameters of the block model.

Table 11-19: El Porvenir Blocked Model Definition

	X	Y	Z
Base Point	367,000	8,826,060	2,400
Boundary Size (m)	1,780	3,340	2,150
Number of Blocks	890	1,670	1,075
Parent Block (m)	2	2	2
Minimum Sub-Block (m)	0.5	0.5	0.5

11.4.10Net Smelter Return and Cut-off Value

NSR values were calculated using the Mineral Resource metal prices, metallurgical recovery rates, transportation, treatment, and refining costs, for the different mining methods and regions of the mine. Metal prices applied to Mineral Resources are 15% greater than Mineral Reserves, which are derived from consensus long-term forecasts obtained from financial institutions, banks, and other reliable sources. The NSR value is denominated in US\$/t and is computed for Mineral Resources to enable a meaningful comparison with production costs, helping to ascertain the economic viability of mining the mineralized material.

Currently, the mine yields Zn concentrate containing Ag, Pb concentrate containing Ag and Au, and Cu concentrate containing Ag and Au as saleable products. The payable metals in these concentrates include transportation costs, refining charges, deductions, and penalty elements, as outlined in sales agreements established between the mine and smelters or traders.

The NSR factors are determined based on the smelter terms and metal prices, detailed in Table 11-20.





Table 11-20: El Porvenir NSR Parameters

Item	Unit	Value	Item	Unit	Value
Plant Metallurgical Recovery*			Pb Concentrate Payable %		
Zn	%	89.21	Pb	%	95
Cu	%	14.60	Ag	%	95
Ag	%	77.51	Logistics and TC		
Pb	%	80.02	Zn concentrate	US\$/t conc	356.63
Metal Prices			Cu concentrate	US\$/t conc	279.33
Zn	US\$/t	3,218.90	Pb concentrate	US\$/t conc	221.10
Cu	US\$/t	8,820.05	Integrated Zn		
Ag	US\$/t	24.35	Conversion cost	US\$/t Zn prod	655.83
Pb	US\$/t	2,300.33	Premium	US\$/t Zn prod	103.18
Zn Concentrate Payable %			Refining cost		
Zn	%	85	Au in Pb conc	US\$/oz	10.00
Ag	%	70	Ag in Pb conc	US\$/oz	1.00
Cu Concentrate Payable %			Ag in Cu conc	US\$/oz	0.50
Cu	%	96.7			
Ag	%	90			

* Based on LOM average metal grades.

Nexa assessed supply and demand dynamics for Zn, Pb, and Cu, alongside consensus long-term (ten-year) metal price forecasts. The QP verified that the metal prices chosen for Mineral Reserve estimation align with independent forecasts provided by banks and other credible sources. Metal prices selected for Mineral Resource estimation purposes are set 15% higher, a standard practice within the industry.

The average NSR factors are derived by calculating the LOM revenue contribution from each metal, net of off-site costs and factors, and then dividing it by the reserve grade for that specific metal. These factors serve to highlight the relative economic significance of each metal unit to the mine's overall financial performance. For most metals, a variable recovery rate (as a function of head grade) was employed. Therefore, the average NSR factors should not be applied to head grades without considering the head grade and recovery.

Various cut-off NSR values have been calculated for El Porvenir, contingent upon the mining zone and the chosen mining method, which can be either SLS or CAF. Each zone is subject to distinct material movement costs, determined by whether truck haulage, shaft, or a combination of both methods is employed. The break-even cut-off grade reflects direct and indirect mining costs, processing costs, as well as general and administrative (G&A) expenses, as presented in Table 11-21.



**Table 11-21: El Porvenir Cut-off Value Calculation by Mining Zone and Method**

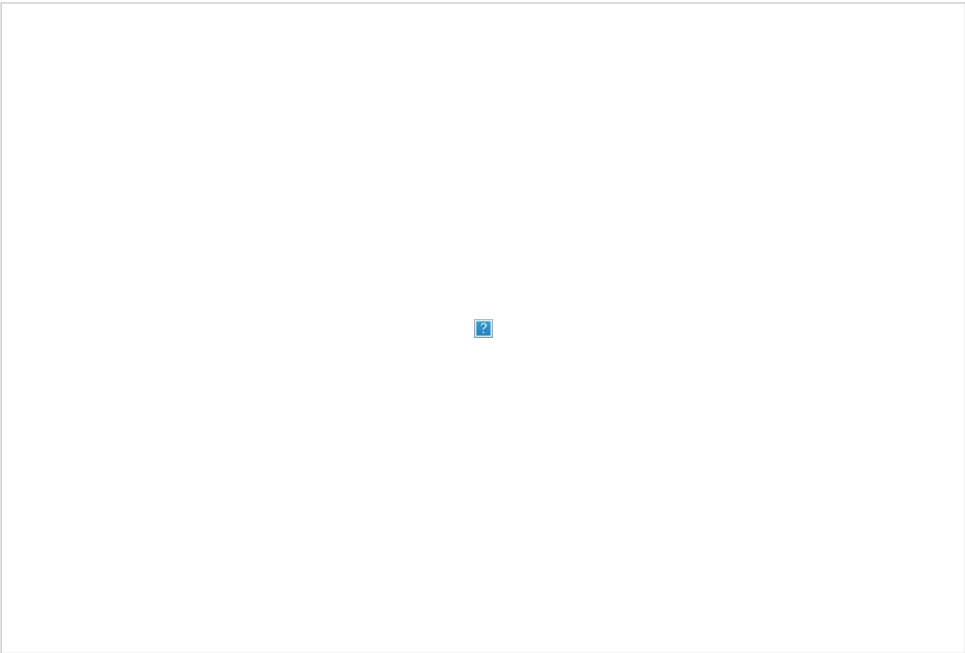
Item	Unit	Value		Item	Unit	Value
SLS - Upper Zone				CAF - Upper Zone		
Mine cost	US\$/t	50.24		Mine cost	US\$/t	52.24
Development	US\$/t	23.91		Development	US\$/t	23.91
Plant costs	US\$/t	10.43		Plant costs	US\$/t	10.43
G&A	US\$/t	6.37		G&A	US\$/t	6.37
Cut-off Value	US\$/t	67.04		Cut-off Value	US\$/t	69.04
SLS - Intermediate Zone				CAF - Intermediate Zone		
Mine cost	US\$/t	47.18		Mine cost	US\$/t	49.95
Development	US\$/t	23.91		Development	US\$/t	23.91
Plant costs	US\$/t	10.43		Plant costs	US\$/t	10.43
G&A	US\$/t	6.37		G&A	US\$/t	6.37
Cut-off Value	US\$/t	63.98		Cut-off Value	US\$/t	66.25
SLS - Lower Zone				CAF - Lower Zone		
Mine cost	US\$/t	46.97		Mine cost	US\$/t	48.97
Development	US\$/t			Development	US\$/t	23.91
Plant costs	US\$/t	10.43		Plant costs	US\$/t	10.43
G&A	US\$/t	6.37		G&A	US\$/t	6.37
Cut-off Value	US\$/t	63.77		Cut-off Value	US\$/t	65.77
SLS - Mine Deepening Zone				CAF - Mine Deepening Zone		
Mine cost	US\$/t	48.41		Mine cost	US\$/t	50.41
Development	US\$/t	23.91		Development	US\$/t	23.91
Plant costs	US\$/t	10.43		Plant costs	US\$/t	10.43
G&A	US\$/t	6.37		G&A	US\$/t	6.37
Cut-off Value	US\$/t	65.21	Cut-off Value	US\$/t	67.21	

Figure 11-17 illustrates the Mineral Resource panels calculated for El Porvenir, based on the NSR values discussed above.





Figure 11-17: View of the Mineral Resource Reporting Panels at El Porvenir



11.4.11 Classification

The Mineral Resource categories and classification criteria utilized in this TRS are consistent with the definitions outlined by the SEC in S-K 1300, with Mineral Resources assigned to Measured, Indicated, and Inferred categories. The following factors were considered for the classification:

- Confidence in the modelling of mineralization domains.
- Reliability of sampling data, including database integrity and absence of significant bias observed in QA/QC analysis results.
- Confidence in the estimation of block grades for the various metals.
- Variogram model parameters.
- Visual assessments of the geometries of mineralized domains in relation to drill hole spacing.
- Production experience in the deposit.

Three groups were established based on geology, grade continuity, and volume of the domains. The classification between the resource categories is based on the number of holes and the distances between them according to the variogram ranges. Separate classification interpolation passes were conducted to designate the resource categories for each group, these being:

Major Continuity Group (domains with volumes more than 95,000 m³):

- Measured Mineral Resource: Composites from a minimum of three holes within a 25 m by 25 m by 12.5 m radii search.
- Indicated Mineral Resource: Composites from a minimum of three holes within a 50 m by 50 m by 25 m radii search.
- Inferred Mineral Resource: Composites from a minimum of two holes within a 100 m by 100 m by 50 m radii search.

Medium Continuity Group (domains with volumes between 20,000 m³ and 95,000 m³):

- Measured Mineral Resource: Composites from a minimum of three holes within a 20 m by 20 m by 10 m radii search.
- Indicated Mineral Resource: Composites from a minimum of three holes within a 50 m by 50 m by 25 m radii search.
- Inferred Mineral Resource: Composites from a minimum of two holes within a 100 m by 100 m by 50 m radii search.

Minor Continuity Group (domains with volumes less than 20,000 m³):

- Measured Mineral Resource: Composites from a minimum of three holes within a 15 m by 15 m by 10 m radii search.
- Indicated Mineral Resource: Composites from a minimum of three holes within a 40 m by 40 m by 20 m radii search.
- Inferred Mineral Resource: Composites from a minimum of two holes within a 60 m by 60 m by 30 m radii search.



In addition to the criteria mentioned above, the classification of Measured Mineral Resources relies on data with low uncertainty levels, particularly in well-drilled areas, thereby enhancing confidence in geological modelling and grade estimation. The classification of Indicated Mineral Resources is based on data with varying levels of uncertainty, ranging from low to medium, typically supported by a minimum of three drill holes. For areas with fewer drill holes than Measured regions, particularly at mineralization boundaries, there is generally good to acceptable consistency between drill holes and underground geological mapping. Inferred Mineral Resources exhibit the lowest confidence level compared to Measured and Indicated categories, often confined to areas with sparse drilling. Nonetheless, results from estimation validation remain reasonable, providing support for the grade and tonnage estimates within these regions.

A post-processing clean-up script was applied to the classification model to reduce the "spotted dog" effect and to demonstrate a better continuity between categories. Figure 11-18 illustrates histograms showing the number of samples used for estimation, and the Mineral Resource classification related to the search pass.

Figure 11-18: Histograms Showing the Number of Samples Used for the Estimation (on the left), and the Estimation Search Volume (on the right)

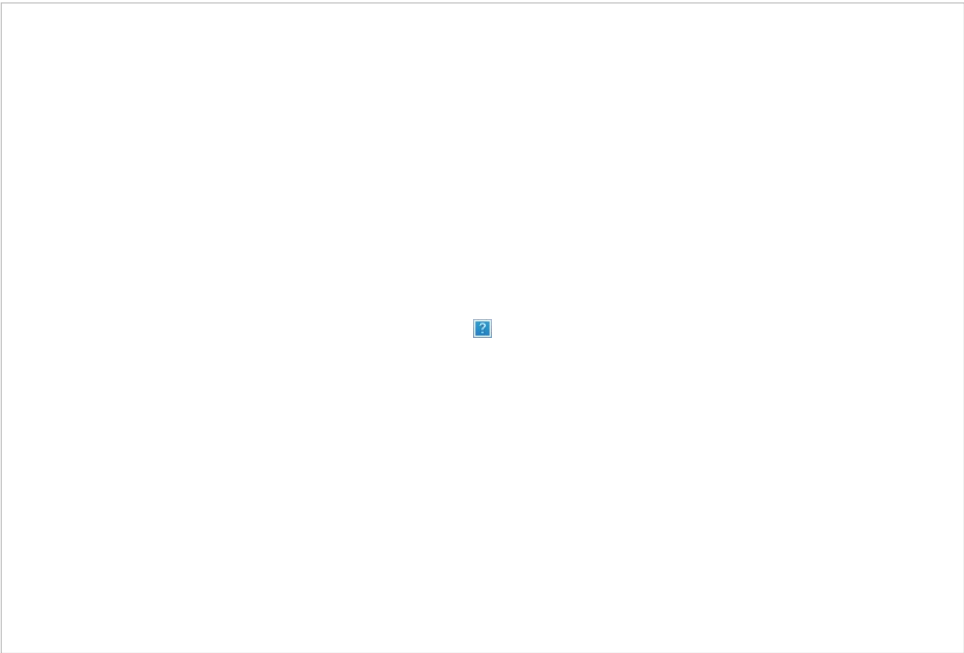


Figure 11-19 illustrates the Mineral Resource classification for the El Porvenir domains.





Figure 11-19: Longitudinal and Plan View of the Mineral Resource Classification for the El Porvenir Domains



The QP is of the opinion that employing various approaches tailored to the size of domains and the spatial variability of variograms is a more robust way to address the uncertainty associated with the resource estimation and geological modelling in the mineral deposit.

In a few regions, artifacts such as isolated drill holes with isolated Measured classifications (“spotted dog” effect) are observed, demonstrating inadequate post-processing. Though these artifacts constitute a small portion of the Mineral Resource classification, the QP recommends to enhance the post-processing workflow to mitigate these issues.

11.4.12Block Model Validation

The QP performed several validations of the geological modelling and block model estimation, grade shell volume comparison against the previous version, visual inspections of the dynamic anisotropy angles, estimation statistics by search volume, global statistics, visual validations, and swath plots. These aim to confirm the consistency of the estimation process and the results.

SLR reviewed the files provided by Nexa staff, such as validation tables and figures, and performed extensive independent validations, including statistical correlations, visual validations, statistic validations, and swath plot analysis. The main checks are discussed in the following sections.

11.4.12.1Global Statistics

Global statistics of the interpolated OK, ID³, and NN grades were compared with those of the capped composites, assessing performance of the different estimators and confirming the estimate’s reproduction of the samples used for the estimation. Global statistics also help to identify inconsistencies in the estimation process.

Statistics for the main variables and domains are shown in Table 11-22. The capped and composited values are weighted by decluster weights.

Table 11-22: El Porvenir Statistical Comparison Between OK, ID³, NN, and the Capped Composites

Domain	Zn (%) - OK			Zn (%) - ID3			Zn (%) - NN			Zn (%) - Composites		
	Mean	Minimum	Maximum	Mean	Minimum	Maximum	Mean	Minimum	Maximum	Mean	Minimum	Maximum
amsk14	2.22	0.10	11.41	2.05	0.00	14.03	1.94	0.00	18.00	2.36	0.00	18.00
de2	1.40	0.01	12.24	1.33	0.01	15.89	1.29	0.00	16.64	1.81	0.00	16.64
dl05	2.24	0.25	13.87	2.25	0.03	19.70	2.30	0.02	19.93	2.02	0.02	19.93
exiti1	3.12	0.03	18.38	3.60	0.02	19.73	3.52	0.02	19.74	1.56	0.02	19.74
exito	3.75	0.03	17.39	3.61	0.02	21.06	3.70	0.00	23.40	3.43	0.00	23.40
exitoa	3.63	0.06	17.19	3.33	0.00	20.46	3.39	0.00	20.85	3.13	0.00	20.85
ints26	4.15	0.48	15.41	4.42	0.03	17.63	4.37	0.00	17.98	4.03	0.00	17.98
p2sw1	0.79	0.03	4.18	0.81	0.00	5.92	0.78	0.00	6.01	0.81	0.00	6.01
p2sw2	1.01	0.01	3.89	1.08	0.00	5.20	0.98	0.00	5.23	0.96	0.00	5.23
por9	6.82	0.01	26.27	6.85	0.00	28.58	6.79	0.00	32.60	6.53	0.00	32.60
por928	5.74	0.51	20.55	5.28	0.05	24.62	5.62	0.00	25.60	5.69	0.00	25.60
por929	7.73	1.44	24.46	9.62	0.80	29.21	11.08	0.00	29.98	9.20	0.00	29.98
por95	3.66	0.24	13.06	2.92	0.00	18.06	3.13	0.00	19.77	1.88	0.00	19.77
por9p	4.19	0.07	23.77	4.08	0.00	29.34	4.08	0.00	30.03	4.13	0.00	30.03
por9q	4.73	0.13	23.45	4.50	0.00	27.80	4.63	0.00	29.98	3.93	0.00	29.98
por9v	6.42	1.13	22.33	6.10	0.32	29.32	6.13	0.09	29.98	4.94	0.09	29.98
por9w	4.11	0.49	13.04	4.52	0.14	20.72	4.98	0.13	20.84	3.59	0.13	20.84
prog	4.53	0.00	23.30	4.39	0.00	26.98	4.37	0.00	27.07	3.96	0.00	27.07
sara2	1.54	0.07	9.04	1.73	0.03	15.79	1.85	0.02	15.95	1.67	0.02	15.95
v12i1	5.71	0.01	26.36	5.90	0.00	33.68	5.64	0.00	34.63	6.38	0.00	34.63
v12ne	4.67	0.40	17.85	4.61	0.04	22.86	4.36	0.00	23.29	4.38	0.00	23.29



Domain	Zn (%) - OK			Zn (%) - ID3			Zn (%) - NN			Zn (%) - Composites		
	Mean	Minimum	Maximum	Mean	Minimum	Maximum	Mean	Minimum	Maximum	Mean	Minimum	Maximum
v5i	5.95	0.01	24.23	5.94	0.00	29.05	6.03	0.00	30.22	6.17	0.00	30.22
vcarmen	6.35	0.00	25.31	6.50	0.00	31.17	6.54	0.00	32.07	5.98	0.00	32.07
vcn31	4.13	0.06	22.81	4.21	0.01	31.40	4.28	0.00	34.28	3.64	0.00	34.80
vcn3ei1	6.63	0.03	26.05	6.64	0.00	30.05	6.69	0.00	30.49	6.45	0.00	30.49

Domain	Cu (%) - OK			Cu (%) - ID3			Cu (%) - NN			Cu (%) - Composites		
	Mean	Minimum	Maximum	Mean	Minimum	Maximum	Mean	Minimum	Maximum	Mean	Minimum	Maximum
amsk14	0.34	0.03	1.56	0.48	0.00	1.84	0.50	0.00	1.89	0.34	0.00	1.89
de2	0.05	0.00	0.80	0.05	0.00	1.20	0.05	0.00	1.24	0.05	0.00	1.24
dl05	0.19	0.04	0.83	0.21	0.01	1.01	0.21	0.01	1.01	0.16	0.01	1.01
exiti1	0.93	0.18	1.82	0.91	0.03	2.12	0.89	0.01	2.40	1.18	0.01	2.67
exito	0.31	0.02	1.74	0.30	0.00	2.10	0.31	0.00	2.11	0.29	0.00	2.11
exitoa	0.45	0.03	1.73	0.46	0.00	2.06	0.47	0.00	2.09	0.45	0.00	2.09
ints26	0.15	0.01	0.59	0.15	0.00	0.67	0.16	0.00	0.76	0.16	0.00	0.76
p2sw1	0.02	0.00	0.16	0.02	0.00	0.32	0.02	0.00	0.36	0.02	0.00	0.36
p2sw2	0.02	0.00	0.19	0.02	0.00	0.30	0.02	0.00	0.41	0.03	0.00	0.41
por9	0.43	0.08	2.92	0.43	0.00	3.62	0.43	0.00	3.63	0.40	0.00	3.63
por928	0.34	0.02	1.57	0.28	0.01	2.21	0.27	0.00	2.64	0.28	0.00	2.64
por929	0.21	0.10	0.56	0.24	0.10	0.82	0.27	0.00	1.00	0.28	0.00	1.00
por95	0.17	0.01	0.60	0.15	0.00	0.78	0.16	0.00	0.97	0.13	0.00	0.97
por9p	0.33	0.01	1.46	0.32	0.00	1.68	0.31	0.00	2.10	0.33	0.00	2.10
por9q	0.34	0.00	2.05	0.33	0.00	2.39	0.36	0.00	2.58	0.43	0.00	2.58
por9v	0.34	0.03	1.54	0.32	0.00	1.82	0.34	0.00	1.94	0.29	0.00	2.18





Domain	Cu (%) - OK			Cu (%) - ID3			Cu (%) - NN			Cu (%) - Composites		
	Mean	Minimum	Maximum	Mean	Minimum	Maximum	Mean	Minimum	Maximum	Mean	Minimum	Maximum
por9w	0.34	0.04	1.05	0.40	0.01	1.30	0.42	0.01	1.30	0.32	0.01	1.30
prog	0.34	0.00	2.56	0.34	0.00	3.30	0.34	0.00	3.31	0.33	0.00	3.31
sara2	0.03	0.00	0.28	0.03	0.00	0.34	0.04	0.00	0.46	0.04	0.00	0.46
v12i1	0.40	0.00	1.90	0.42	0.00	2.10	0.39	0.00	2.10	0.30	0.00	2.10
v12ne	0.22	0.02	0.89	0.22	0.00	1.21	0.21	0.00	1.21	0.18	0.00	1.21
v5i	0.40	0.02	1.85	0.41	0.00	1.92	0.41	0.00	2.09	0.41	0.00	2.09
vcarmen	0.09	0.00	0.70	0.09	0.00	1.04	0.10	0.00	1.07	0.09	0.00	1.07
vcn31	0.25	0.00	1.84	0.26	0.00	3.44	0.26	0.00	3.53	0.25	0.00	3.53
vcn3ei1	0.23	0.00	1.45	0.24	0.00	2.75	0.24	0.00	3.30	0.23	0.00	4.53
Domain	Ag (g/t) - OK			Ag (g/t) - ID3			Ag (g/t) - NN			Ag (g/t) - Composites		
	Mean	Minimum	Maximum	Mean	Minimum	Maximum	Mean	Minimum	Maximum	Mean	Minimum	Maximum
amsk14	48.87	1.67	289.89	55.57	0.10	375.20	55.72	0.10	397.80	59.45	0.10	397.80
de2	166.71	3.66	1,495.40	167.65	0.30	1,973.91	169.17	0.00	2,030.00	180.52	0.00	2,030.00
dI05	80.36	14.91	374.65	78.43	2.00	556.82	78.27	2.00	674.19	65.02	2.00	674.19
exitil	14.52	5.54	35.38	13.81	2.05	49.07	14.04	2.02	60.28	17.02	2.02	60.28
exito	72.95	6.63	311.86	74.08	0.28	409.02	74.59	0.00	501.51	65.39	0.00	501.51
exitoa	47.44	2.62	257.68	48.64	0.04	273.97	48.01	0.00	275.60	35.57	0.00	275.60
ints26	16.21	1.90	109.27	19.95	0.13	127.57	24.51	0.00	127.90	16.33	0.00	127.90
p2sw1	66.50	6.21	393.69	69.05	1.01	574.36	68.85	0.31	630.30	64.58	0.31	630.30
p2sw2	76.78	13.52	442.21	77.46	0.39	563.24	73.08	0.20	630.30	75.45	0.20	630.30
por9	19.43	1.37	333.13	19.16	0.01	469.31	19.76	0.00	539.33	22.14	0.00	806.60
por928	42.76	2.31	115.16	24.13	0.49	155.06	22.32	0.00	176.67	27.71	0.00	200.00
por929	25.21	7.58	136.55	25.72	6.22	169.42	28.78	0.00	183.70	42.57	0.00	183.70





Domain	Ag (g/t) - OK			Ag (g/t) - ID3			Ag (g/t) - NN			Ag (g/t) - Composites		
	Mean	Minimum	Maximum	Mean	Minimum	Maximum	Mean	Minimum	Maximum	Mean	Minimum	Maximum
por95	7.60	1.49	130.66	7.58	0.08	151.92	7.95	0.00	214.90	8.77	0.00	214.90
por9p	21.38	1.48	156.48	21.83	0.01	208.43	21.26	0.00	218.66	19.14	0.00	218.66
por9q	20.63	0.90	182.30	20.34	0.02	280.33	21.60	0.00	283.35	16.09	0.00	283.35
por9v	77.29	12.17	349.66	61.94	2.23	431.16	62.35	2.02	509.70	60.55	2.02	509.70
por9w	61.60	8.04	190.94	69.44	4.41	219.19	72.54	3.76	220.21	49.80	1.92	220.21
prog	46.14	0.00	616.10	43.20	0.00	723.26	41.79	0.00	747.70	40.63	0.00	747.70
sara2	157.69	22.95	988.81	163.65	10.77	1,195.37	172.73	7.40	1,196.00	163.77	7.40	1,196.00
v12i1	28.07	0.33	248.54	27.81	0.00	274.07	27.28	0.00	275.50	34.64	0.00	275.50
v12ne	140.71	3.89	561.26	159.53	0.38	783.45	152.22	0.00	786.92	141.74	0.00	786.92
v5i	30.62	1.52	256.99	29.93	0.02	306.32	30.57	0.00	320.80	32.14	0.00	320.80
vcarmen	254.51	0.00	1,166.86	257.89	0.00	1,495.17	262.12	0.00	1,533.00	303.41	0.00	1,533.00
vcn31	21.52	0.74	481.82	21.06	0.03	724.78	22.54	0.00	1,100.75	19.78	0.00	1,100.75
vcn3ei1	75.19	1.44	653.16	78.37	0.08	829.11	79.02	0.00	1,050.00	77.59	0.00	1,050.00

Domain	Pb (%) - OK			Pb (%) - ID3			Pb (%) - NN			Pb (%) - Composites		
	Mean	Minimum	Maximum	Mean	Minimum	Maximum	Mean	Minimum	Maximum	Mean	Minimum	Maximum
amsk14	0.24	0.02	1.54	0.17	0.00	2.52	0.14	0.00	2.89	0.23	0.00	2.89
de2	2.20	0.10	15.19	2.19	0.01	18.17	2.14	0.00	18.46	2.47	0.00	18.46
dl05	1.06	0.02	10.81	1.00	0.01	14.88	0.95	0.00	15.04	0.79	0.00	15.04
exiti1	0.01	0.01	0.03	0.01	0.01	0.04	0.02	0.01	0.04	0.03	0.01	0.40
exito	0.90	0.00	10.14	0.91	0.00	12.35	0.94	0.00	12.86	0.86	0.00	12.86
exitoa	0.51	0.00	8.07	0.42	0.00	9.37	0.40	0.00	9.69	0.29	0.00	9.69
ints26	0.23	0.00	3.73	0.30	0.00	4.33	0.43	0.00	4.34	0.23	0.00	4.34





Domain	Pb (%) - OK			Pb (%) - ID3			Pb (%) - NN			Pb (%) - Composites		
	Mean	Minimum	Maximum	Mean	Minimum	Maximum	Mean	Minimum	Maximum	Mean	Minimum	Maximum
p2sw1	1.37	0.21	7.14	1.50	0.01	12.00	1.49	0.00	12.11	1.27	0.00	12.11
p2sw2	1.55	0.09	7.20	1.71	0.00	12.84	1.53	0.00	13.03	1.39	0.00	13.03
por9	0.19	0.01	7.39	0.20	0.00	9.60	0.23	0.00	10.98	0.24	0.00	10.98
por928	0.86	0.00	5.23	0.33	0.00	6.47	0.34	0.00	7.80	0.49	0.00	7.80
por929	0.27	0.00	9.74	0.30	0.00	12.14	0.29	0.00	14.24	0.62	0.00	14.24
por95	0.03	0.01	0.90	0.03	0.00	1.21	0.03	0.00	1.73	0.05	0.00	1.73
por9p	0.25	0.01	8.74	0.24	0.00	12.48	0.24	0.00	12.99	0.19	0.00	12.99
por9q	0.33	0.01	7.46	0.33	0.00	14.67	0.32	0.00	14.83	0.14	0.00	14.83
por9v	1.18	0.04	4.16	0.97	0.01	4.92	0.94	0.01	4.92	0.99	0.01	4.92
por9w	0.87	0.02	4.61	1.29	0.01	5.73	1.29	0.01	5.77	0.47	0.01	5.77
prog	0.77	0.00	19.12	0.70	0.00	23.07	0.66	0.00	23.12	0.70	0.00	23.12
sara2	1.62	0.10	10.84	1.78	0.02	15.48	1.90	0.02	16.20	1.98	0.02	16.20
v12i1	0.17	0.00	7.87	0.16	0.00	9.26	0.17	0.00	9.50	0.23	0.00	9.50
v12ne	2.22	0.02	13.19	2.45	0.01	16.05	2.43	0.00	16.14	2.62	0.00	16.14
v5i	0.31	0.00	27.07	0.30	0.00	29.00	0.32	0.00	33.59	0.36	0.00	33.59
vcarmen	3.94	0.00	15.21	4.06	0.00	23.00	4.10	0.00	24.84	4.03	0.00	25.57
vcn31	0.32	0.00	10.57	0.32	0.00	17.64	0.35	0.00	18.35	0.30	0.00	18.35
vcn3ei1	1.67	0.00	16.46	1.77	0.00	23.54	1.79	0.00	24.70	1.78	0.00	24.70

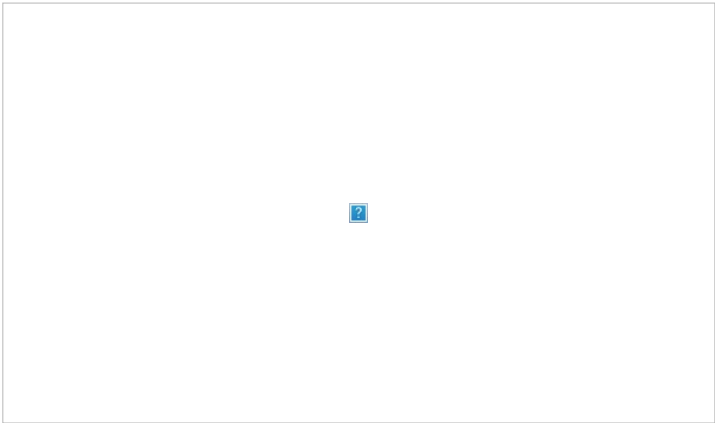




As expected, the comparisons of the OK and ID³ estimates with the NN estimate show less variation than a comparison with the capped composites. The most significant disparities are noted in the “por929” and “por95” domains for both comparisons, against NN and the capped composites. Visual assessments indicate a reasonable correspondence between samples and estimated blocks, with further investigation suggesting that this reflects the distribution of samples throughout the domain, which is highly clustered in certain instances.

Figure 11-20 illustrates the comparison between final main grades estimated in the block model and the capped and composited samples. In general, the estimated grades and composites show good agreement, while differences observed do not suggest any consistent bias.

Figure 11-20: El Porvenir Final Grade Variables and Capped and Composited Samples Comparison



SLR observes that these variations fall within the expected range, and the larger discrepancies may be attributed to either the degree of sample clustering or the dynamic anisotropy angles. To some extent, the decluster weights for the capped and composited samples may also impact these variations.

11.4.12.2Visual Validation

The QP conducted random checks across various estimation domains, comparing the samples utilized for estimation with the block model. Particular emphasis was placed on the main domains owing to their significance for Mineral Resources and Mineral Reserves.

Overall, the block grades correspond well with the surrounding samples. However, in certain areas, particularly those with limited information, some artifacts were observed. These included grade stripes exhibiting abrupt transitions between high and low grade areas. Some of these artifacts can be seen in Figure 11-21.





Figure 11-21 and Figure 11-22 show longitudinal sections of some of the main veins for Zn and Cu, “de2” and “exito”, respectively.





Figure 11-21: Longitudinal View of the “de2” Domain - Zn Estimation

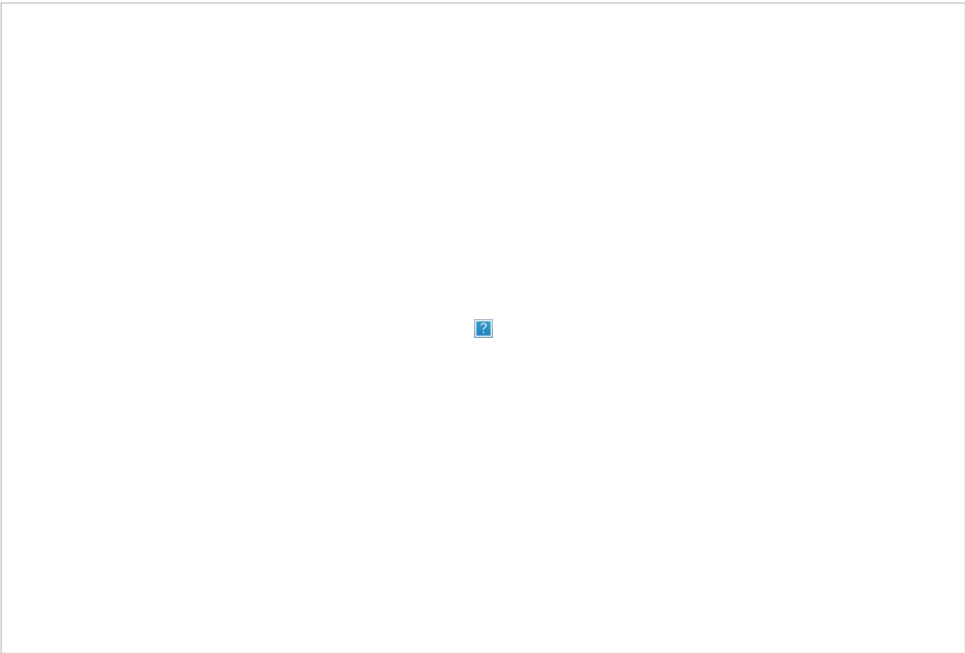
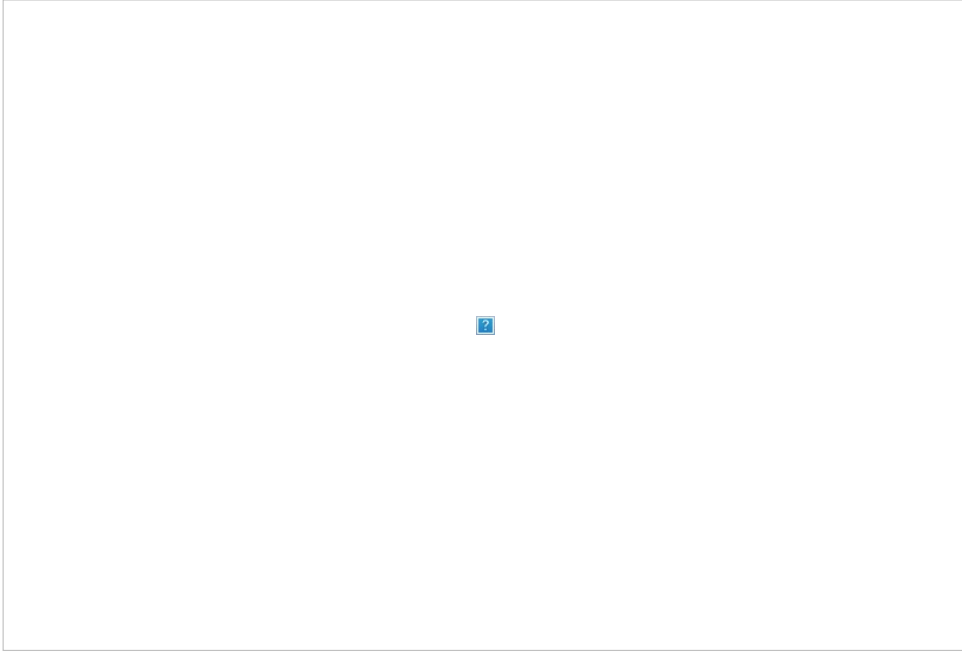




Figure 11-22: Longitudinal View of the “exito” Domain - Cu Estimation





SLR observes that the visual artifacts beforementioned do not significantly affect the Mineral Resource assessment. However, the QP is of the opinion that there is room for improvement in the estimation workflow to prevent or minimize such instances. Enhancements to the dynamic anisotropy angles and adjustments to the minimum and maximum samples utilized in the estimation process may help mitigate these occurrences.

11.4.12.3Swath Plots

Swath plots were generated for the entire block model to evaluate the global grade trend within the mineral deposit. Figure 11-23 illustrates swath plots for Zn and Cu in the X, Y, and Z directions.

Figure 11-23: El Porvenir Swath Plots for Zn and Cu





Overall, the trend in capped and composited grades is reflected by the estimated grades. Similar discrepancies in average grades between the capped composites and block grades, as discussed previously, are also evident in these charts. The charts reveal a consistent positive bias in the estimation, which is attributed to the use of decluster weights for the average calculation of capped and composited grades. SLR conducted an analysis of the capped and composited grade averages, both with and without decluster weights, employing different decluster methodologies. It was concluded that this apparent bias stems from limitations in the cell decluster method. A more suitable approach would involve calculating decluster weights for each individual grade shell, which is expected to yield a better fit with the estimated grades.

11.4.13 Mineral Resource Reporting

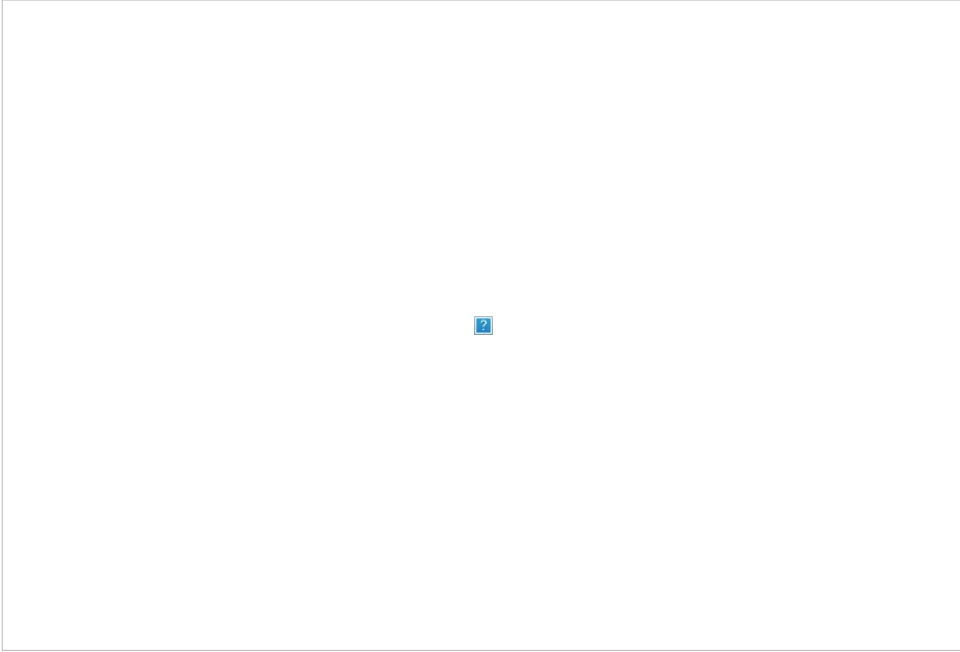
Mineral Resources have been classified in accordance with the definitions for Mineral Resources in S-K 1300, which are consistent with Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves dated May 10, 2014 (CIM (2014) definitions).

Mineral Resources are reported exclusive of Mineral Reserves, within underground resource reporting shapes calculated as described in Section 11.4.10, using a minimum thickness of 4.0 m. Figure 11-24 illustrates the Mineral Resource blocks.





Figure 11-24: View of the Mineral Resource Blocks





In the QP’s opinion, the assumptions, parameters, and methodology used for the El Porvenir Mineral Resource estimate are appropriate for the style of mineralization and mining methods. The QP is not aware of any environmental, permitting, legal, title, taxation, socio-economic, political, or other relevant factors that could significantly affect the El Porvenir Mineral Resource at the Cerro Pasco operation.

The QP is of the opinion that with consideration of the recommendations summarized in Sections 1 and 23 of this TRS, any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work

Mineral Resources with an effective date of December 31, 2023 for El Porvenir underground mine are shown in Table 11-23 on an 83.48% Nexa attributable ownership basis and Table 11-24 on a 100% ownership basis:

Table 11-23: El Porvenir Underground Mine: Summary of Mineral Resources (on an 83.48% Nexa Attributable Ownership Basis) - December 31, 2023

Category	Tonnage (Mt)	Grade				Contained Metal			
		Zn (%)	Cu (%)	Ag (g/t)	Pb (%)	Zn (000 t)	Cu (000 t)	Ag (000 oz)	Pb (000 t)
Measured	0.55	3.47	0.27	57.7	0.95	19.1	1.5	1,030	5.3
Indicated	2.69	3.25	0.20	63.2	0.97	87.4	5.3	5,460	26.0
M&I	3.24	3.29	0.21	62.2	0.97	106.5	6.8	6,483	31.3
Inferred	9.23	3.83	0.24	82.9	1.32	353.6	22.1	24,602	121.9

Notes:

1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources which are consistent with CIM (2014) definitions.
2. Mineral Resources are estimated at an NSR cut-off value of US\$66.04/t, calculated based on the LOM costs. It represents the average NSR for both the SLS (that ranges from US\$63.77/t to US\$67.04/t) and for CAF (that ranges from US\$65.77/t to US\$69.04/t).
3. Mineral Resources are estimated using average long-term metal prices of Zn: US\$ 3,218.90/t (US\$1.46/lb), Pb: US\$2,300.33/t (US\$1.04/lb), Cu: US\$ 8,820.05/t (US\$4.00/lb), and Ag: US\$24.35/oz.
4. Metallurgical recoveries are based on historical processing data: 89.2% for Zn, 80.0% for Pb, 14.6% for Cu, and 77.5% for Ag.
5. Bulk density is assigned based on rock type and averages 3.13 t/m³.
6. Mineral Resources were depleted according to actual production as of September 30, 2023, and forecast production to the effective date of December 31, 2023.
7. The minimum thickness for the resource panels are 4.0 m for CAF and 3 m for SLS.
8. Mineral Resources are exclusive of Mineral Reserves.
9. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
10. Mineral Resources are constrained by optimized underground reporting shapes.
11. Numbers may not add due to rounding.





Table 11-24: El Porvenir Underground Mine: Summary of Mineral Resources (on a 100% Ownership Basis) - December 31, 2023

Category	Tonnage (Mt)	Grade				Contained Metal			
		Zn (%)	Cu (%)	Ag (g/t)	Pb (%)	Zn (000 t)	Cu (000 t)	Ag (000 oz)	Pb (000 t)
Measured	0.66	3.47	0.27	57.7	0.95	22.9	1.8	1,225	6.3
Indicated	3.22	3.25	0.20	63.2	0.97	104.7	6.4	6,540	31.2
M&I	3.88	3.29	0.21	62.2	0.97	127.6	8.2	7,765	37.5
Inferred	11.06	3.83	0.24	82.9	1.32	423.6	26.5	29,471	146.0

Notes:

1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources which are consistent with CIM (2014) definitions.
2. Mineral Resources are estimated at an NSR cut-off value of US\$66.04/t, calculated based on the LOM costs. It represents the average NSR for both the SLS (that ranges from US\$63.77/t to US\$67.04/t) and for CAF (that ranges from 65.77 to 69.04).
3. Mineral Resources are estimated using average long-term metal prices of Zn: US\$ 3,218.90/t (US\$1.46/lb), Pb: US\$2,300.33/t (US\$1.04/lb), Cu: US\$ 8,820.05/t (US\$4.00/lb), and Ag: US\$24.35/oz.
4. Metallurgical recoveries are based on historical processing data: Zn (89.2%), Pb (80.0%), Cu (14.6%), and Ag (77.5%).
5. Bulk density is assigned based on rock type and averages 3.13 t/m³.
6. Mineral Resources were depleted according to actual production as of September 30, 2023, and forecast production to the effective date of December 31, 2023.
7. The minimum thickness for the resource shapes are 4.0 m for CAF and 3 m for SLS.
8. Mineral Resources are exclusive of Mineral Reserves.
9. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
10. Mineral Resources are constrained by optimized underground reporting shapes.
11. Numbers may not add due to rounding.





11.5 Atacocha (San Gerardo) Open Pit

11.5.1 Resource Database

Although the Atacocha OP and UG Mineral Resources were estimated separately, a unified resource database was utilized. All drilling and sampling data available within the Atacocha concession were included in the resource database, except for data completed after the closure date of the database.

The Atacocha database closure date was January 31, 2023. Subsequent to this date and up to the effective date of the TRS, 32 channels and 18 DDH were completed in the San Gerardo open pit area (Table 11-25 and Figure 11-25). The QP reviewed the additional data and is of the opinion that it would not have a material impact on the estimated Mineral Resources.

Table 11-25: Atacocha Data Completed After Resource Database Closure

Type	Count	Length (m)
Channels	32	106
DDH	18	2,942





Figure 11-25: Atacocha Drill Holes Completed after Database Cut-Off

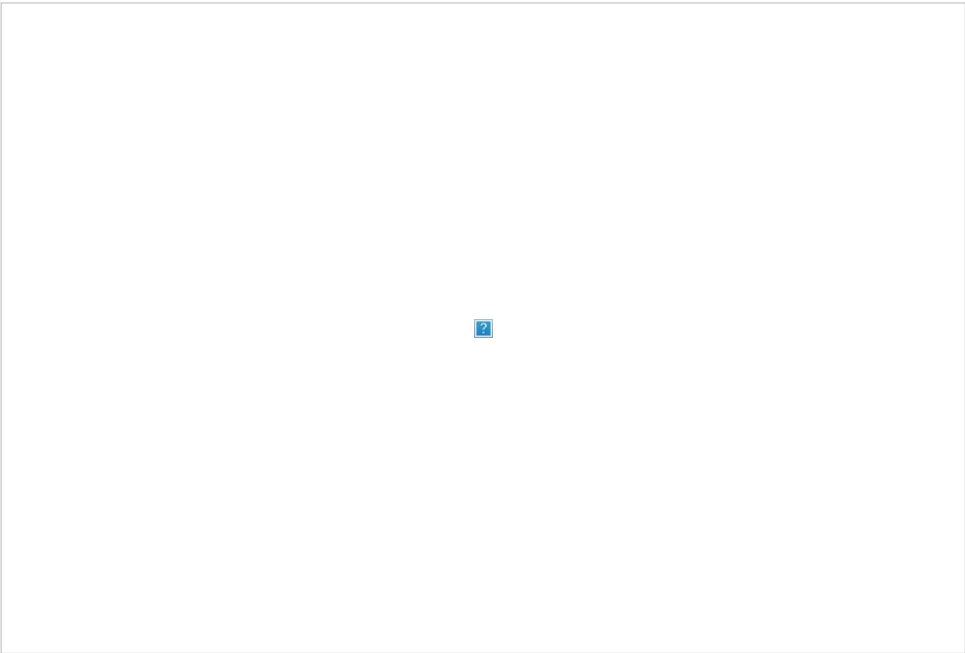


Table 11-26 summarizes the drilling and channel sampling used to estimate Mineral Resources at the Atacocha mineral deposit.

Table 11-26: Atacocha Resource Database

Type	Count	Length
Channels	69,122	262,065
DDH Holes	5,153	883,875
RC Holes	35	8,687

Table 11-27 summarizes the quantity of data in the provided resource database, filtered by the Atacocha site.

Table 11-27: Atacocha Resource Database Tables

Table	Count	Holes	Length (m)
collar	74,310	74,310	-
survey	117,574	74,310	-
alteration	38,939	2,658	228,488
geology	141,202	5,188	892,066
litho	99,924	5,188	892,563
assay	518,145	74,146	687,400
structural	20,289	1,243	-
mineralisation	88,901	3,324	361,620
geotech	4,875	127	27,784
density	7,612	2,902	7,211

Table 11-28 summarizes the statistics of the drilling and channel samples used to estimate the Atacocha Mineral Resources, while Table 11-29 summarizes the statistics for the density samples.

Table 11-28: Atacocha Resource Database Assay Summary Statistics

Analyte	Count	Length	Mean	StdDev	CV	Variance	Min	Q25	Median	Q75	Max
ZN_PER	518,088	687,327	2.31	5.08	2.20	25.85	0.00	0.03	0.17	1.41	60.00
PB_PER	518,143	687,398	1.01	2.99	2.96	8.92	0.00	0.01	0.04	0.29	70.35
CU_PER	518,145	687,400	0.19	0.49	2.61	0.24	0.00	0.01	0.03	0.16	40.00
AG_PPM	518,145	687,400	47.69	125.91	2.64	15,853.83	0.09	2.02	5.29	23.02	6,236.25
AU_GR	242,034	298,014	0.13	1.00	7.55	0.99	0.00	0.02	0.04	0.10	171.50
Length	518,145	687,400	1.33	0.54	0.41	0.30	0.05	1.00	1.35	1.50	12.10

Table 11-29: Atacocha Resource Database Density Summary Statistics

Analyte	Count	Length	Mean	StdDev	CV	Variance	Min	Q25	Median	Q75	Max
GE_gcm3	7,612	7,211	2.93	0.44	0.15	0.19	1.41	2.68	2.78	3.21	5.73
Length	7,612	7,211	0.95	0.52	0.55	0.27	0.10	0.30	1.00	1.44	2.60

11.5.2 Geological Interpretation

The 2023 Mineral Resource estimation included a full review of the mineralized domains previously modelled in 2021, in 3D, section, and plan views by the QP and by SLR. Mineralized wireframes were constructed using the interpretations on cross sections and plans generated by the mine geologists. The strike of some mineralized domains was modified based on the observations and interpretations from these sections.

Mineralized wireframes within the operational area of the pit were reinterpreted in consideration of sectional interpretation, bench mapping, blast holes, and mining polygons. Mineralization was generally not extrapolated beyond 30 m to 40 m from the last composite. SLR noted that some domains were extended beyond this, however, distance from composites was also considered during classification of Mineral Resources. The southern part of the pit was revised for 2023 with the same procedures used in 2022.

Eight lithological domains were modelled: skarn, San Gerardo intrusive, hydrothermal breccia, tectonic breccia, marble, sandstone, limestone, and conglomerate.

Two main mineralization types were modelled: “fault” type mineralization modelled using the Leapfrog vein tool, and “brecciation” type mineralization modelled using the Leapfrog intrusion tool (Figure 11-26). The first group is mostly composed of narrow tabular planes oriented northwest-southeast, with steep angles of inclination. The second group are massive mineralized bodies, rounded in shape, which usually possess greater volume than the fault-controlled veins.

Interpretation of the 220 mineralized wireframes was completed in consideration of other geological parameters including structural type (mineralized body and vein), type of emplacements (hydrothermal gap, structural, and replacement), lithological control (fault or brecciation), and the anisotropy and orientation of the mineralization. A minimum NSR cut-off value of US\$15.66/t was used when interpreting the mineralized wireframes, although considering as low as US\$10.00/t in some cases, depending on the mineralization continuity.

Drill holes lacking assays were treated as barren and veins were set to pinch out when modelling the mineralization domains.

The modelled mineralization consists of eleven large groups (Figure 11-27), mostly vein systems and a small number of bodies: “Asuncion Vein System”, “Chercher Vein System”, “OB10 Vein System”, “Lizzy Vein System”, “Vetas V Vein System”, “Vetas Norte Vein System”, “Rubi Vein System”, “Claudia Vein System”, “Zoe Vein System”, “Milpo-Atacocha Vein System” and mineralized bodies called “Cuerpos”. These groups were used as the basis for establishing average density values.

Each orebody containing more than 200 representative samples and with a coefficient of variation (CV) greater than 1.8 was split into high grade and low grade sub-domains using the intrusion tool in Leapfrog (Figure 11-28). The individual high grade cut-off values were based on the distribution within each domain and the variable in question. SLR observed that some of the resulting high and low grade sub-domain volumes were supported by as few as one drill hole and sometimes resulted in discontinuous shapes. Although SLR considers the sub-domains acceptable for use in the estimate, SLR recommends that the sub-domaining be improved in future Mineral Resource updates, particularly as hard boundaries are applied to the sub-domains. The QP agrees with this recommendation.



Each of the modelled mineralization wireframes was treated as a separate estimation domain for Zn, Pb, Cu, Ag, and Au, except for where the high grade and low grade sub-domains were implemented on a case-by-case basis for the different variables.

In the estimation nomenclature, the estimation process considers “OB” as the name of each mineralization domain, “COD_OB” as the numerical code for each mineralization domain and “C_DOM” as the numerical code for each estimation domain. “C_ANIS” refers to an initial grouping of mineralization domains based on structural anisotropy, while “C_ESTIM” refers to a subsequent sub-grouping used for variography.

The 25 largest contributors to the San Gerardo Mineral Resources are shown in red in Figure 11-29.





Figure 11-26: San Gerardo Geological Control Type

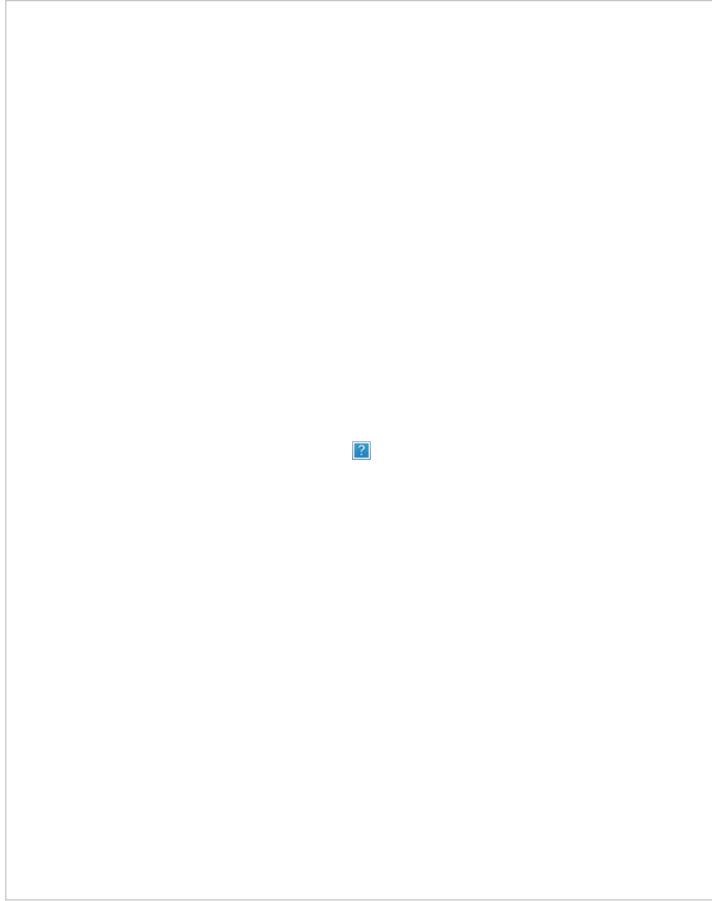




Figure 11-27: San Gerardo Grouped Mineralization

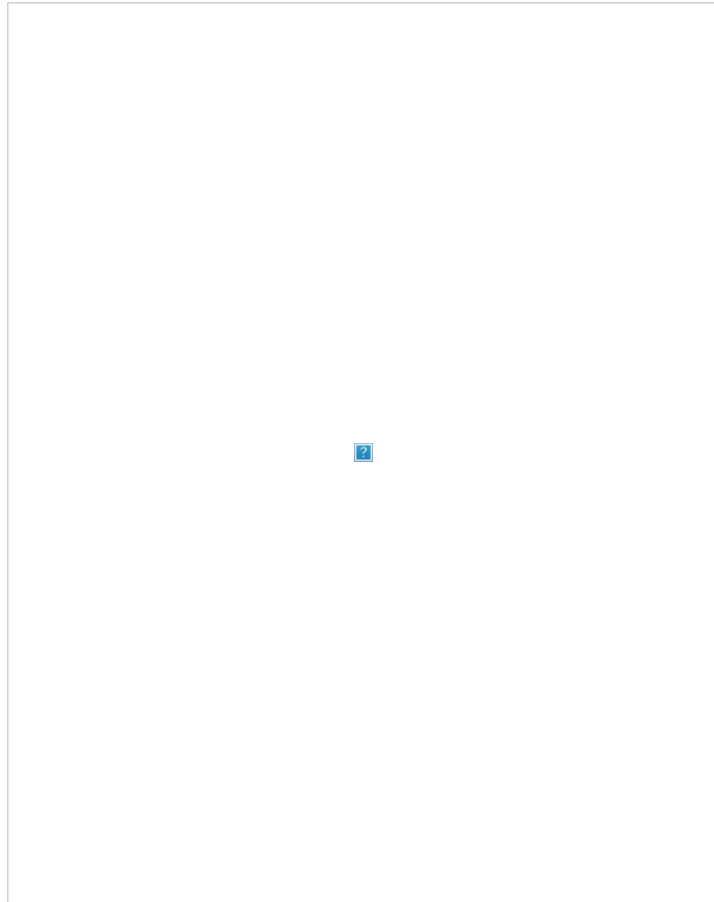




Figure 11-28: San Gerardo High Grade and Low Grade Estimation Domains

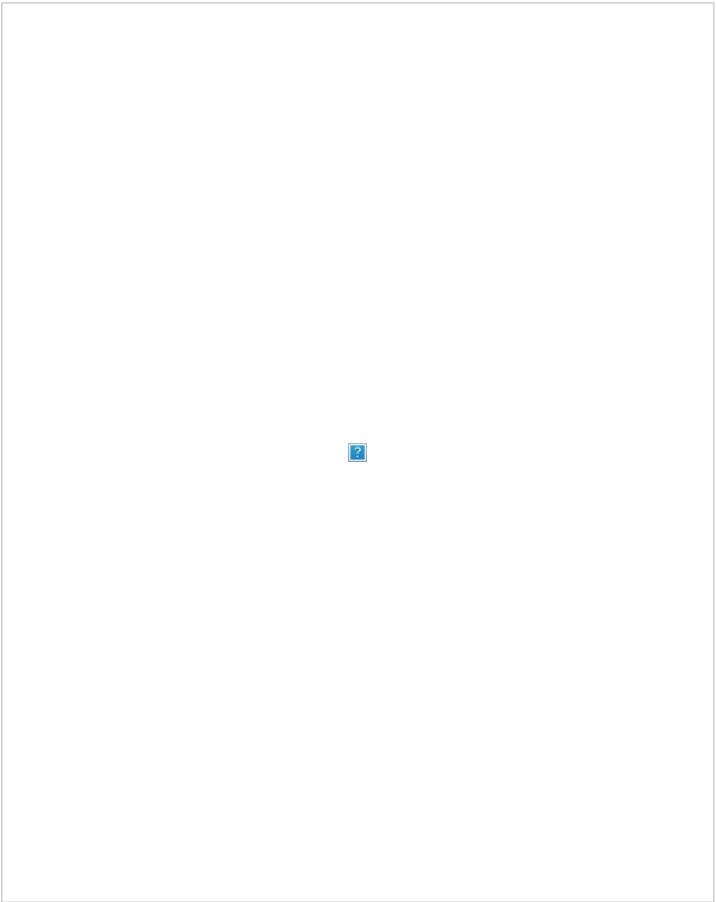
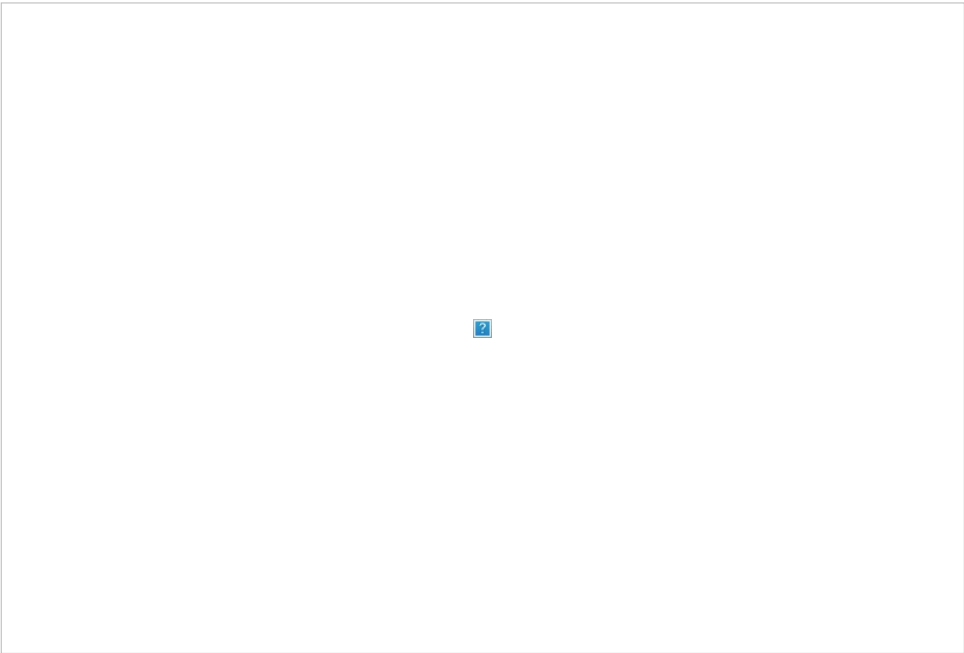




Figure 11-29: San Gerardo 25 Main Domains





The QP reviewed the mineralization wireframes for the San Gerardo open pit and considers them acceptable for the estimation of Mineral Resources. Unlike the approach taken for Atacocha UG and El Porvenir, mineralization wireframes for the San Gerardo model pinch out for non-assayed drill holes. Although this has resulted in some isolated holes in the resulting domains, this is not considered to have a material impact on Mineral Resources and is considered preferable to the subsequent post-processing of the domains undertaken for Atacocha UG and El Porvenir.

It was identified that mineralized bodies crossing the arbitrary model boundary between the Atacocha UG and OP models had not been modelled as continuous shapes. This is most obvious in the San Gerardo “wf_10_2r” and Atacocha UG “OB_10” intrusion-style wireframes, however, it is noted that several veins have also not been modelled across the boundary. This is not considered to have a material impact on estimated Mineral Resources but should be addressed in future Mineral Resource updates.

Extrapolation of the wireframes was considered reasonable and was subsequently considered during Mineral Resource classification.

An analysis of snapping discrepancies showed that 99% of intervals assigned to an OB were correctly modelled as such, while 99% of waste intervals were correctly modelled. This is considered acceptable by the QP, especially as many of the discrepancies were located outside of the Mineral Resource constraining reporting shapes.

Contact analysis completed by SLR on the mineralization domains indicates that they are generally effective in separating mineralized and unmineralized populations (Figure 11-30), although it was identified in some areas that opportunities existed to extend the wireframes to include additional mineralized intercepts. The populations within the modelled mineralization were approximately lognormal.





Figure 11-30: San Gerardo Mineralization Contact Analysis



11-83





11.5.3 Resource Assays

The database flagged and used for generating the mineralization wireframes consists of both drill holes and channel samples. For the EDA process, the database is exported from Leapfrog Geo and imported into Datamine Studio software. Non-sampled intervals are substituted with the half of the detection limits of the chemical elements.

For the purpose of this TRS, Zn, Au, Ag, and Pb, referred to as the main elements for San Gerardo, will be detailed in tables and figures, along with the 25 grade shells (main domains) that contribute most significantly to the Mineral Resource and Mineral Reserves, approximately 46% of the tonnage.

Table 11-30 presents the length-weighted statistics of the drill holes and channels combined.





Table 11-30: San Gerardo Assay Statistics (Length-Weighted) for the Main Domains

Domain Code	Orebody	Zn (%) - Assay (2 m composites)						Ag (g/t) - Assay (2 m composites)					
		Count	Mean	StdDev	CV	Min	Max	Count	Mean	StdDev	CV	Min	Max
asu8	208	213	1.08	1.5	1.39	0	9.62	213	57.93	158.54	2.74	0.4	1393.04
che1	301	194	1.49	2.57	1.72	0	19.03	194	33.4	59.17	1.77	0.27	545.55
che2	302	276	1.34	2.77	2.07	0	26.36	276	35.98	243.04	6.76	0.1	4475.79
che3	303	504	2.75	4.47	1.63	0.01	31.67	504	21.39	35.32	1.65	0.31	356.57
che4	304	249	1.32	2.23	1.69	0	26.35	249	33.61	41.49	1.23	0.72	260.49
che6	306	922	1.54	2.49	1.62	0	21.01	922	37.08	67	1.81	0.1	730.29
che7	307	399	2.76	5.27	1.91	0	34.27	399	44.4	125.31	2.82	0.1	1809.87
che10	310	363	1.5	3.42	2.28	0	41.47	363	28.71	70.06	2.44	0.1	1163.89
che14	314	553	2.01	3.8	1.89	0.01	34.38	553	36.41	77.91	2.14	0.34	1855.16
che15	315	195	0.88	1.57	1.79	0	18	195	41.7	97.72	2.34	0.1	1296
che16	316	456	1.47	2.55	1.73	0	29.8	456	52.37	95.31	1.82	0.1	998.2
che22	322	17	1.38	1.01	0.74	0.04	4.31	17	25.77	20.01	0.78	2.02	92.69
che24	324	252	0.79	1.22	1.55	0.01	9.94	252	34.49	68.05	1.97	0.58	796.87
che27	327	179	1.26	2.84	2.25	0	26.8	179	41.11	66.42	1.62	0.2	646.01
n1	601	215	1.27	1.91	1.5	0	20.24	215	29.13	43.58	1.5	1.2	762.97
n2	602	378	0.89	1.81	2.03	0	30.89	378	28.64	44.43	1.55	0.1	507
n3	603	259	1.26	3.2	2.54	0	28.1	259	57.07	162.39	2.85	0.09	2056.56
n9	609	101	1.07	2.93	2.73	0	32.67	101	29.58	72.16	2.44	0.31	1011.43
n12	612	166	0.83	2.4	2.88	0	25.1	166	35.93	79.27	2.21	0.41	610.29
n22	622	85	0.89	1.55	1.74	0	10.26	85	41.63	89.54	2.15	0.69	667.85
cpo2	2002	1,500	1.33	2.32	1.74	0	30.95	1500	41.6	74.06	1.78	0.1	1046.32





Domain Code	Orebody	Zn (%) - Assay (2 m composites)						Ag (g/t) - Assay (2 m composites)					
		Count	Mean	StdDev	CV	Min	Max	Count	Mean	StdDev	CV	Min	Max
cpo5	2005	1,128	1.94	3.12	1.61	0	33.57	1128	43.17	59.2	1.37	1.01	540.89
cpo7	2007	294	3.54	4.1	1.16	0.03	22.04	294	11.53	38.7	3.36	2.02	442.6
cpo15	2015	735	1.39	1.99	1.43	0.01	25.04	735	24.47	48.45	1.98	0.62	781.32
cpo16	2016	909	0.78	1.47	1.89	0	15.46	909	66.55	95.41	1.43	1.58	1045.39
Domain Code	Orebody	Pb (%) - Assay (2 m composites)						Au (g/t) - Assay (2 m composites)					
		Count	Mean	StdDev	CV	Min	Max	Count	Mean	StdDev	CV	Min	Max
asu8	208	213	1.53	3.21	2.1	0.01	33.5	213	0.37	1.05	2.83	0.02	16.5
che1	301	194	0.93	1.77	1.89	0	17.86	194	0.33	0.41	1.25	0	3.36
che2	302	276	0.61	1.57	2.58	0	19.66	276	0.63	2.09	3.31	0.01	23.1
che3	303	504	0.7	1.48	2.12	0.01	14.05	504	0.63	1.37	2.2	0.01	15.3
che4	304	249	1.04	1.56	1.49	0	12.47	249	0.33	0.36	1.1	0.01	3.38
che6	306	922	1.27	2.54	1.99	0	28.71	922	0.29	0.56	1.95	0	4.9
che7	307	399	1.46	3.07	2.11	0	28.67	399	1.05	9.47	9.03	0	128.4
che10	310	363	0.76	2.11	2.79	0	37.11	363	0.35	0.73	2.09	0.01	13.35
che14	314	553	1.03	1.89	1.84	0	16.46	553	0.66	1.22	1.84	0	9
che15	315	195	1.26	2.81	2.23	0	25.18	195	0.24	0.45	1.85	0	4.34
che16	316	456	1.63	3.59	2.21	0	45.8	456	0.43	1.28	2.95	0.01	25.4
che22	322	17	0.87	0.92	1.06	0.03	2.7	17	0.49	0.1	0.21	0.34	0.62
che24	324	252	1.17	2.36	2.02	0.01	33.9	252	0.65	3.27	5.06	0	54.3
che27	327	179	1.41	2.51	1.78	0	26.88	179	0.52	0.68	1.3	0.01	6.9
n1	601	215	1.09	1.52	1.39	0.01	20.22	215	0.75	2.97	3.98	0.01	42.5
n2	602	378	1.13	2.02	1.8	0	23.14	378	0.58	0.78	1.35	0	16
n3	603	259	1.95	4.6	2.36	0	34.91	259	0.88	5.26	5.95	0	78.6





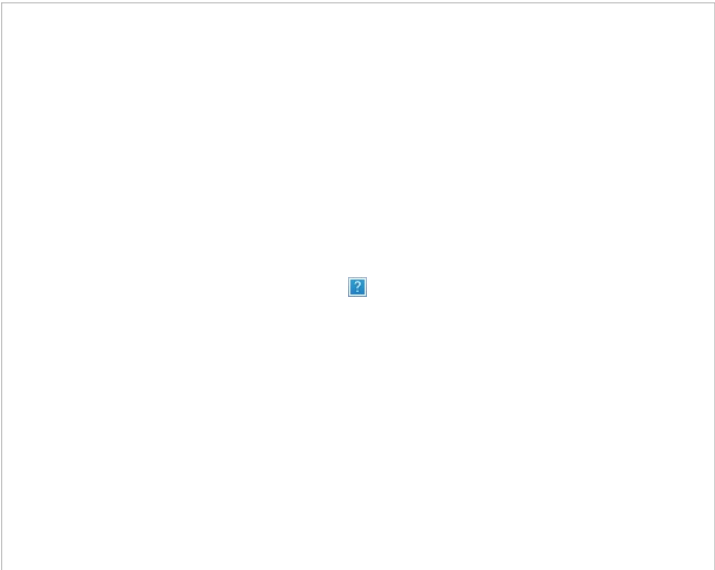
Domain Code	Orebody	Pb (%) - Assay (2 m composites)						Au (g/t) - Assay (2 m composites)					
		Count	Mean	StdDev	CV	Min	Max	Count	Mean	StdDev	CV	Min	Max
n9	609	101	0.98	1.78	1.82	0	20	101	0.34	0.52	1.5	0.01	5.71
n12	612	166	1.34	2.7	2.02	0	28.99	166	0.3	0.4	1.35	0	3.46
n22	622	85	1.12	1.6	1.43	0.01	8.54	85	1.63	12.16	7.46	0.01	115.7
cpo2	2002	1,500	1.29	2.68	2.08	0	42.44	1,500	0.37	1.69	4.53	0	42
cpo5	2005	1,128	1.35	2	1.48	0.01	24.33	1,128	0.34	0.93	2.77	0	8.4
cpo7	2007	294	0.29	1.5	5.18	0.01	18.86	294	0.53	0.56	1.05	0.04	3.4
cpo15	2015	735	0.81	2.02	2.49	0.01	25.59	735	0.27	0.38	1.39	0	2.82
cpo16	2016	909	1.51	3.1	2.05	0.01	33.05	909	0.44	0.9	2.06	0	10.45





In the San Gerardo deposit, approximately 78% of the samples are derived from drill holes, which consist of RC and DDH from both surface and underground, while 22% originate from channel samples. Grade control is mainly based on blast hole sampling, which is not directly incorporated in the LTM, although is reportedly used in conjunction with bench mapping as a guide when constructing mineralization wireframes. Sampling is uneven across the open pit, as it is usually the case for mining operations. Figure 11-31 shows CDFs of the samples with and without declustering weights. The declustered statistics have a slightly lower mean for all variables, proving the preferential bias for sampling mineralized locations.

Figure 11-31: San Gerardo CDFs Comparing Declustered and Original data.

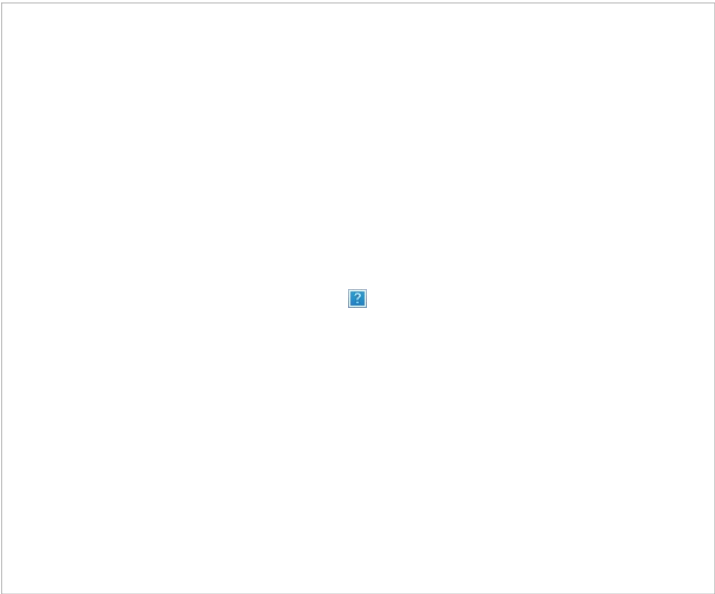


Given the polymetallic nature of the mineralization, a bivariate statistical analysis is conducted to evaluate the relationships between the variables. Figure 11-32 provides scatter plots for the main elements, in addition to their correlation coefficients. Generally, intermediate to strong correlations are observed between most elements, with the exception of Au, which is uncorrelated to other variables.





Figure 11-32: San Gerardo Scatter Plots between the Elements



11.5.4 Treatment of High Grade Assays

After completing 3D solid models, Nexa assesses the assay data contained inside the solid models to determine whether any additional domaining is required prior to capping. Typically, raw assay data are extracted from each domain and are then assessed using histograms and cumulative probability plots.

Where the assay distribution is positively skewed or approaches lognormal, erratic high grade values can have a disproportionate effect on the average grade of a deposit. One method of treating these outliers to reduce their influence on the average grade is to cap them at a specific grade level.

Atacocha staff evaluated the raw grades using log-probability plots to assess the influence of higher grades for each element using the estimation domains. The approach applied by Atacocha staff for restricting outliers was to identify a pronounced break in the probability curve that occurs above the 95th percentile.



A second capping level is applied for the third interpolation pass in channel composites to restrict the high grade influence.

Table 11-31 lists the capping levels for drill hole, channel raw data determined for each high grade estimation for the main domains, and the second capping levels applied to samples used for the third interpolation pass.

Table 11-31: San Gerardo DDH and CHNL First and Second Level Top-Cut Values

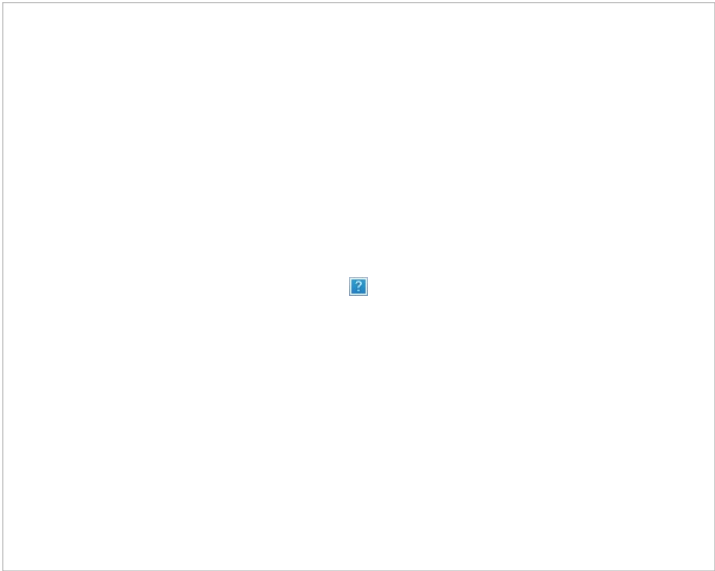
Domain	Zn DDH	Zn CHNL	Zn CHNL 2 nd Level	Ag DDH	Ag CHNL	Ag CHNL 2 nd Level	Pb DDH	Pb CHNL	Pb CHNL 2 nd Level	Au DDH	Au CHN	Au CHN 2 nd Level
asu8	7.20	-	-	690.00	-	-	12.50	-	-	6.00	-	-
che1	8.00	-	15.26	200.00	-	203.73	9.20	-	7.91	2.30	-	-
che2	15.00	12.00	9.57	500.00	75.00	46.66	14.00	-	1.72	14.50	-	-
che3	15.00	17.50	16.59	165.00	100.00	56.06	9.30	5.70	4.39	9.00	-	-
che4	11.00	-	6.33	145.00	140.00	136.17	7.00	-	4.35	1.60	-	-
che6	10.30	12.00	8.37	400.00	330.00	273.21	12.80	18.50	8.75	3.00	-	4.31
che7	8.00	26.00	25.32	680.00	270.00	243.23	16.00	14.50	12.96	10.00	-	1.28
che10	18.00	15.50	13.72	600.00	-	108.78	16.50	-	1.90	4.30	-	1.05
che14	14.50	22.00	12.94	450.00	255.00	159.39	11.00	12.50	5.94	5.60	-	0.25
che15	8.70	-	-	520.00	-	-	12.00	-	-	3.00	-	-
che16	10.40	6.00	5.98	540.00	350.00	239.31	18.00	11.50	5.15	8.00	-	0.78
che22	13.00	20.00	14.47	270.00	78.00	53.65	6.30	-	2.60	3.50	-	-
che24	6.00	-	-	420.00	-	-	16.50	-	-	12.00	-	-
che27	13.50	-	-	240.00	-	-	13.00	-	-	2.80	-	-
n1	8.00	-	-	200.00	-	-	7.00	-	-	5.00	-	-
n2	10.00	-	-	310.00	-	-	12.00	-	-	4.00	-	-
n3	13.00	-	-	850.00	-	-	18.00	-	-	20.00	-	-
n9	15.00	-	-	550.00	-	-	9.30	-	-	2.30	-	-
n12	7.00	-	-	340.00	-	-	15.00	-	-	-	-	-
n22	5.00	-	-	380.00	-	-	5.80	-	-	16.00	-	-
cpo2	10.00	12.00	6.61	730.00	380.00	175.02	27.00	9.20	4.52	9.00	-	-
cpo5	12.50	13.50	9.27	140.00	220.00	170.14	7.00	14.00	6.06	5.20	-	-
cpo7	13.20	17.00	16.32	-	160.00	139.23	13.00	-	4.63	-	-	-
cpo15	10.50	6.50	5.05	27.00	-	2.68	13.00	-	-	2.10	-	-
cpo16	7.50	2.10	1.33	500.00	370.00	301.95	16.50	9.30	6.84	6.60	-	-

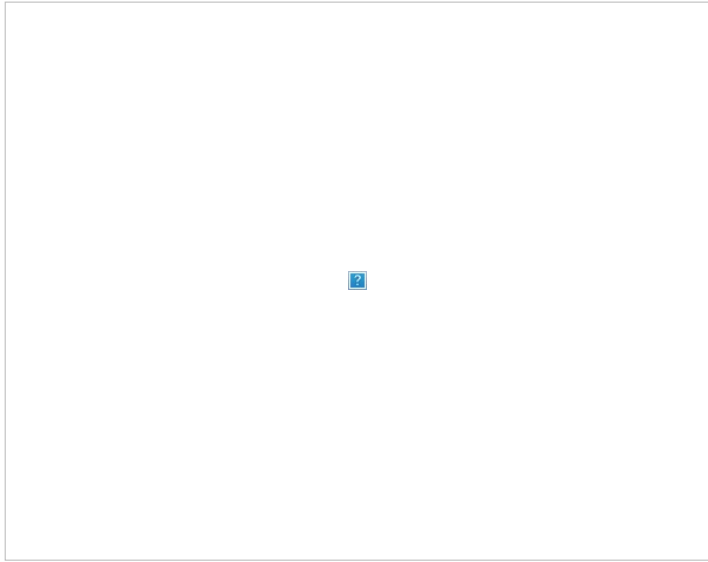
Figure 11-33 shows the capping effect on overall distribution of grades for drill holes and channels within the San Gerardo open pit. Since channel distributions have higher grade-values on average, they are more affected by capping limits than the drill holes. Historically, channels



from underground have not been assayed for Au in Atacocha, therefore the capping analysis for channels does not include Au.

Figure 11-33: San Gerardo Capping Effect on Drill Hole and Channel Distributions





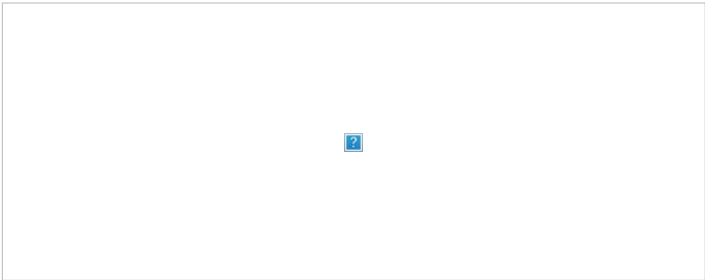
11.5.5 Compositing

The average length of samples within the mineralized domains is 1.16 m. Assay data was composited to two metre lengths, which corresponds to one third of the parent block heights. The composite length was selected based on the analysis of eight compositing lengths (0.5 m, 1.0 m, 1.5 m, 2.0 m, 2.5 m, 3.0 m, 3.5 m, and 4.0 m). Figure 11-34 illustrates a comparison of the mean relative error for Zn between length-weighted raw assay mean versus composite mean by mineralization domain for the different composite lengths.





Figure 11-34: San Gerardo Open Pit Zn Compositing Analysis



Source: Nexa, 2023

Figure 11-35 shows the drill hole sample distributions both before and after compositing to 2.0 m lengths. The QP finds that the composites acceptably reproduce the raw distributions, with only minor decreases observed in the averages of composited data distribution for Ag, Pb, and Zn. For Au, while neither the mean nor the variance undergoes significant changes, the composited distributions exhibit a relatively higher proportion of data with grades close to the detection limit.





Figure 11-35: San Gerardo Drilling Sample Distributions before and after Compositing to 2 m Length

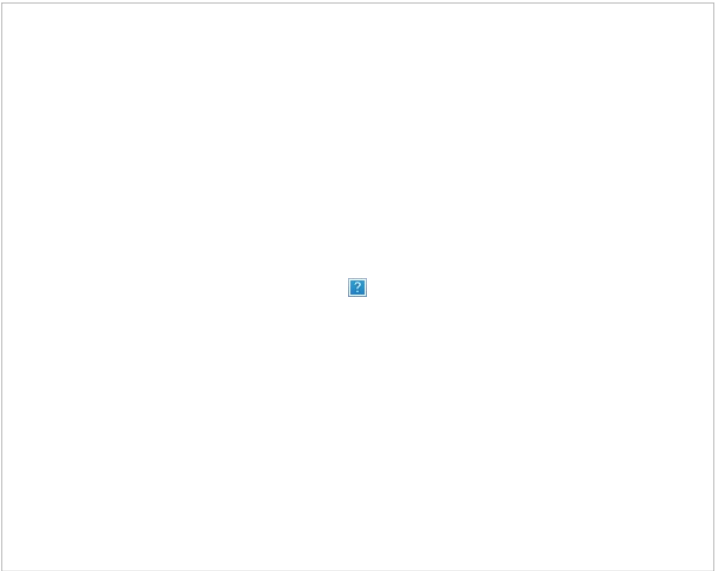


Table 11-32 shows the summary statistics for the 25 largest tonnage contributors to the Mineral Resource, before and after compositing. Summary statistics indicate that the composites are representative of the raw samples.



Table 11-32: San Gerardo Compositing Statistics for the 25 Main Domains

Domain	Domain Code	Zn (%) - Assay (2 m composites)						Au (g/t) - Assay (2 m composites)					
		Count	Mean	StdDev	CV	Min	Max	Count	Mean	StdDev	CV	Min	Max
asu8	208	118	1.47	1.62	1.1	0.01	7.17	118	0.2	0.32	1.58	0.01	3.74
che1	301	125	1.52	1.9	1.25	0	11.73	125	0.2	0.23	1.15	0.01	1.19
che2	302	179	1.89	2.8	1.48	0	12.6	179	0.42	1.36	3.24	0.01	11.95
che3	303	333	2.08	3.12	1.5	0	17.01	333	0.22	0.43	2.01	0.01	5.05
che4	304	161	1.09	1.79	1.64	0	8.27	161	0.19	0.22	1.15	0.01	1.13
che6	306	562	1.36	1.8	1.33	0	10.3	563	0.18	0.35	1.97	0.01	2.63
che7	307	244	1.99	2.85	1.43	0	25.47	244	0.37	0.66	1.79	0.01	5.72
che10	310	214	1.47	2.12	1.44	0	16.54	213	0.2	0.35	1.7	0.01	3.24
che14	314	350	2.08	2.72	1.31	0	14.8	350	0.27	0.62	2.27	0.01	4.82
che15	315	117	0.77	1.06	1.37	0	4.66	117	0.27	0.38	1.42	0.01	2.14
che16	316	257	1.18	1.47	1.25	0	8.68	257	0.26	0.49	1.88	0.01	5.82
che22	322	349	1.46	2.25	1.54	0	14.72	348	0.16	0.29	1.88	0.01	3.5
che24	324	164	0.78	0.88	1.12	0	4.21	164	0.38	0.85	2.2	0.01	6.73
che27	327	125	1.83	2.8	1.53	0.01	12.94	125	0.34	0.39	1.12	0.01	2.67
n1	601	136	1.66	1.86	1.12	0.01	8	136	0.37	0.54	1.46	0.01	5
n2	602	243	1.03	1.09	1.06	0	8.12	243	0.38	0.43	1.14	0.01	2.71
n3	603	157	1.91	2.76	1.45	0	12.05	157	0.5	1.33	2.66	0.01	18.15
n9	609	62	1.89	3.68	1.95	0	15	62	0.31	0.3	0.96	0.01	1.57
n12	612	108	0.94	1.2	1.28	0	6.5	108	0.25	0.34	1.34	0.01	1.29
n22	622	53	0.77	0.91	1.17	0	4.26	53	0.58	1.34	2.3	0.01	8.65
cpo2	2002	946	1.01	1.34	1.32	0	10.63	948	0.18	0.42	2.35	0.01	5.4



Domain	Domain Code	Zn (%) - Assay (2 m composites)						Au (g/t) - Assay (2 m composites)					
		Count	Mean	StdDev	CV	Min	Max	Count	Mean	StdDev	CV	Min	Max
cpo5	2005	765	1.6	2.09	1.3	0.01	13.5	765	0.12	0.29	2.41	0.01	4.23
cpo7	2007	183	3.35	3.07	0.92	0.1	16.13	183	0.16	0.37	2.34	0.01	2.52
cpo15	2015	422	1.12	1.31	1.16	0.01	7.78	424	0.07	0.16	2.34	0.01	1.4
cpo16	2016	507	0.78	1.14	1.47	0	7.5	507	0.12	0.32	2.61	0.01	6.13
Domain	Domain Code	Ag (g/t) - Assay (2 m composites)						Pb (%) - Assay (2 m composites)					
		Count	Mean	StdDev	CV	Min	Max	Count	Mean	StdDev	CV	Min	Max
asu8	208	118	35.22	43.06	1.22	1	598.67	118	1.2	1.46	1.22	0.01	9.48
che1	301	125	29.19	30.5	1.04	1	163.2	127	0.93	1.21	1.29	0	6.08
che2	302	179	29.71	44.05	1.48	1	272.15	179	0.79	1.41	1.78	0	7.6
che3	303	333	21.46	30.14	1.4	1	165	333	0.88	1.61	1.83	0	9.3
che4	304	161	28.44	26.54	0.93	1	118.73	161	0.99	1.1	1.11	0	5.08
che6	306	562	33.22	41.39	1.25	1	330	562	1.08	1.48	1.38	0	16.17
che7	307	243	44.57	63.6	1.43	1	559.75	243	1.42	1.94	1.37	0	16
che10	310	214	29.55	37.83	1.28	1	192.27	213	0.81	1.16	1.44	0	8
che14	314	351	35.09	44.19	1.26	1	304.76	350	1.33	2.1	1.58	0	9.63
che15	315	117	36.79	41.95	1.14	1	229.6	117	0.95	1.1	1.16	0	6.65
che16	316	257	56.61	91.56	1.62	1	466.29	257	1.76	3.13	1.78	0	14.46
che22	322	348	18.67	21.93	1.17	1	270	348	0.56	0.74	1.32	0	6.3
che24	324	164	31.74	39.77	1.25	1	288.94	164	1.27	1.75	1.38	0.01	10.8
che27	327	125	47.2	38.32	0.81	1	141.69	125	1.9	2.02	1.06	0.01	8
n1	601	136	41.3	32.13	0.78	2.02	131.04	136	1.43	1.45	1.02	0.01	7
n2	602	243	27.01	26.11	0.97	1	194.97	243	0.88	1	1.15	0	8.47
n3	603	157	66.15	106.39	1.61	1	710.07	157	2.43	3.88	1.6	0	16.94





Domain	Domain Code	Ag (g/t) - Assay (2 m composites)						Pb (%) - Assay (2 m composites)					
		Count	Mean	StdDev	CV	Min	Max	Count	Mean	StdDev	CV	Min	Max
n9	609	62	35.88	43.55	1.21	2.12	155.21	62	1.25	1.85	1.49	0	7.68
n12	612	108	31.81	38.24	1.2	1	226.19	108	1.03	1.29	1.25	0	12.13
n22	622	53	60.71	98.46	1.62	1	380	53	0.98	1.13	1.15	0.01	5.21
cpo2	2002	949	27.93	38.14	1.37	1	428.09	949	0.82	1.41	1.71	0	20.03
cpo5	2005	765	36.6	37.99	1.04	2.02	220	765	1.09	1.24	1.14	0.01	9.27
cpo7	2007	183	19.4	45.53	2.35	2.02	281.74	182	0.54	1.42	2.63	0.01	8.26
cpo15	2015	424	31.49	38.97	1.24	1.7	279.64	424	1.07	1.73	1.61	0	13
cpo16	2016	507	57.21	61.97	1.08	1.14	348.99	507	1.37	2.05	1.5	0.01	13.99





11.5.6 Trend Analysis

11.5.6.1Variography

Variograms were used to characterize the spatial continuity of grade within the mineralization domains.

San Gerardo generated downhole and directional variograms using the two-metre capping and composite values in groups. Since the small number of samples inside each individual structure were insufficient to generate robust variograms, the structures were instead grouped according to their anisotropy and statistics. An initial “C_ANIS” grouping was based on structural anisotropy (Figure 11-36), which was then analyzed further using box plots to define a smaller grouping. The resulting grouping was assigned code “C_ESTIM” and used for the variography.

Variograms were standardized and modelled using two or three spherical structures in three directions. The variograms were used for OK interpolation and as a guide for selecting search ellipse ranges.

The results for variogram parameters for the 25 largest tonnage contributors to the San Gerardo Mineral Resource are tabulated in Table 11-33. An example of downhole and directional variogram models for the three main directions of continuity in C_ESTIM=306 is shown in Figure 11-37.





Figure 11-36: San Gerardo Variography Grouping

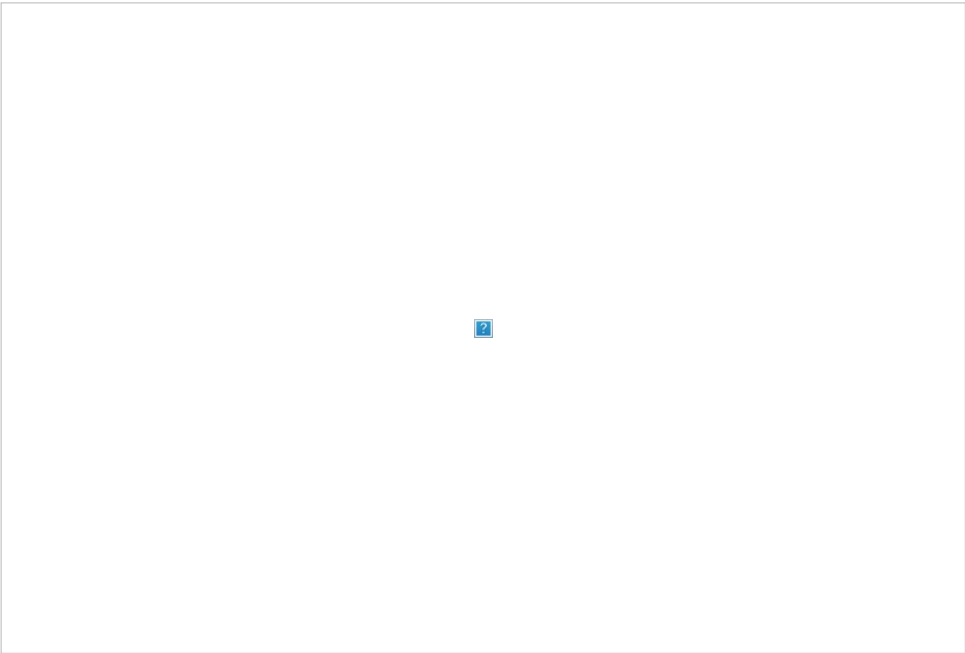




Table 11-33: Atacocha Open Pit Zn Variogram Parameters for Main 25 Domains

Mineralization Domain	ESTIM	Datamine Rotation			Nugget	Structure 1				Structure 2			
		1	2	3		ST1PAR1	ST1PAR2	ST1PAR3	C1	ST2PAR1	ST2PAR2	ST2PAR3	C2
asu8	207	-27.73	-67.73	-154.49	0.21	3	15	9	0.29	40	32	20	0.50
che1	322	6.53	-69.41	-104.35	0.19	17	9	7	0.39	58	35	20	0.42
che10	306	-0.51	-67.73	-117.27	0.24	13	8	6	0.38	46	36	13	0.39
che14	314	-5.42	-65.19	-128.08	0.28	11	4	10	0.35	58	36	20	0.37
che15	316	-0.51	-67.73	-117.27	0.19	11	18	8	0.28	52	40	22	0.54
che16	316	-0.51	-67.73	-117.27	0.19	11	18	8	0.28	52	40	22	0.54
che2	322	6.53	-69.41	-104.35	0.19	17	9	7	0.39	58	35	20	0.42
che22	322	6.53	-69.41	-104.35	0.19	17	9	7	0.39	58	35	20	0.42
che24	324	46.30	-78.83	-63.26	0.21	8	11	18	0.42	34	26	20	0.37
che27	324	46.30	-78.83	-63.26	0.21	8	11	18	0.42	34	26	20	0.37
che3	303	-6.30	-78.83	-116.74	0.17	24	32	16	0.35	50	38	22	0.48
che4	322	6.53	-69.41	-104.35	0.19	17	9	7	0.39	58	35	20	0.42
che6	306	-0.51	-67.73	-117.27	0.24	13	8	6	0.38	46	36	13	0.39
che7	314	-5.42	-65.19	-128.08	0.28	11	4	10	0.35	58	36	20	0.37
cpo15	2015	45.00	-70.00	-90.00	0.19	53	32	25	0.17	60	45	26	0.64
cpo16	2016	-30.65	-69.41	-166.53	0.15	43	10	17	0.50	66	40	34	0.35
cpo2	2002	31.98	-74.21	-108.68	0.17	29	12	12	0.38	40	20	15	0.45
cpo5	2005	79.56	-75.89	-44.56	0.15	11	10	6	0.56	34	24	14	0.30
cpo7	2007	71.30	-78.83	-63.26	0.20	15	21	6	0.13	40	34	20	0.66
n1	602	21.42	-59.62	-99.93	0.26	8	10	8	0.43	50	28	16	0.31
n12	612	-140.02	-44.78	97.05	0.20	11	7	5	0.28	50	30	20	0.52
n2	602	21.42	-59.62	-99.93	0.26	8	10	8	0.43	50	28	16	0.31



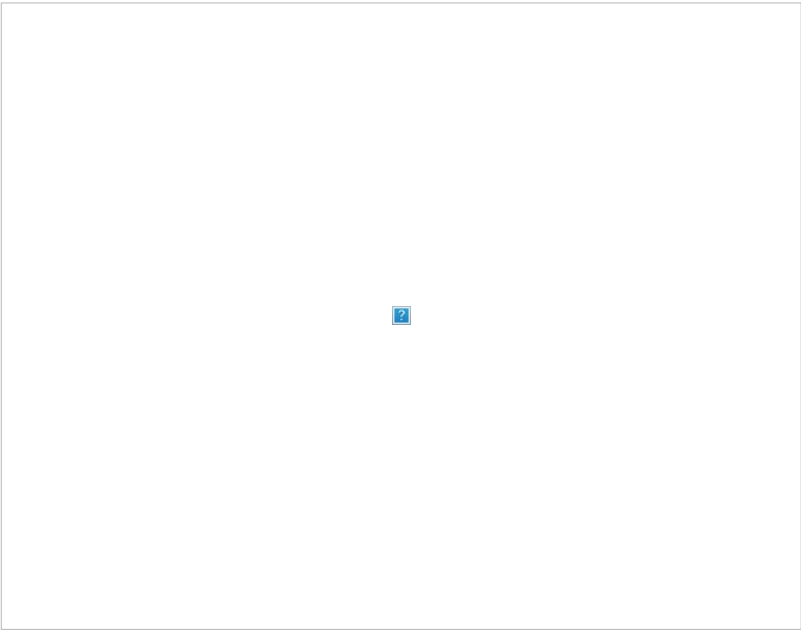


Mineralization Domain	ESTIM	Datamine Rotation			Nugget	Structure 1				Structure 2			
		1	2	3		ST1PAR1	ST1PAR2	ST1PAR3	C1	ST2PAR1	ST2PAR2	ST2PAR3	C2
n22	602	21.42	-59.62	-99.93	0.26	8	10	8	0.43	50	28	16	0.31
n3	602	21.42	-59.62	-99.93	0.26	8	10	8	0.43	50	28	16	0.31
609	612	-140.02	-44.78	97.05	0.20	11	7	5	0.28	50	30	20	0.52





Figure 11-37: Downhole and Directional Zn Experimental Variograms and Models for Estimation Group C_ESTIM=306





11.5.6.2 Grade Contouring

Grade contours play an important role in aiding the initial detection of preferential grade patterns within mineralization domains. A brief assessment was carried out for Zn within the “che16” domain (Orebody=316) to assess potential grade trends (Figure 11-38). While grades are generally much higher in the lower portion, the domain exhibits no clear trend.

11.5.7 Search Strategy and Grade Interpolation Parameters

The final estimated values for Zn, Au, Ag, and Pb grades at San Gerardo are determined by OK or ID³. Initially, the estimation process incorporates OK, ID³, and NN interpolators, followed by an individual domain analysis to select between OK and ID³ results. This selection is based on domain-specific criteria such as sample quantity, average difference between OK and ID³ compared to NN, and domain size/volume. Variograms are defined based on estimation groups, allowing even domains with limited samples to be estimated via OK for comparison and validation purposes. Grade variables are not density or length-weighted during estimation.

To capture domain trends, dynamic anisotropy angles are calculated in Studio RM using domain wireframes. The estimation process includes three passes: the first pass utilizes search ellipse radii equivalent to variogram ranges for each variable; the second pass increases the radii by a factor of 1.5 to 10; and the third pass employs radii 10 to 30 times larger than the first pass.

The minimum and maximum sample numbers range from two to 15 for the first pass, one to 12 for the second pass, and one to 10 for the third pass, with a maximum of two samples per drill hole. Minor adjustments are made as needed to improve the final estimation result (Figure 11-38).





Figure 11-38: Contour Zn Grades for the “che16” Domain (Orebody=316)

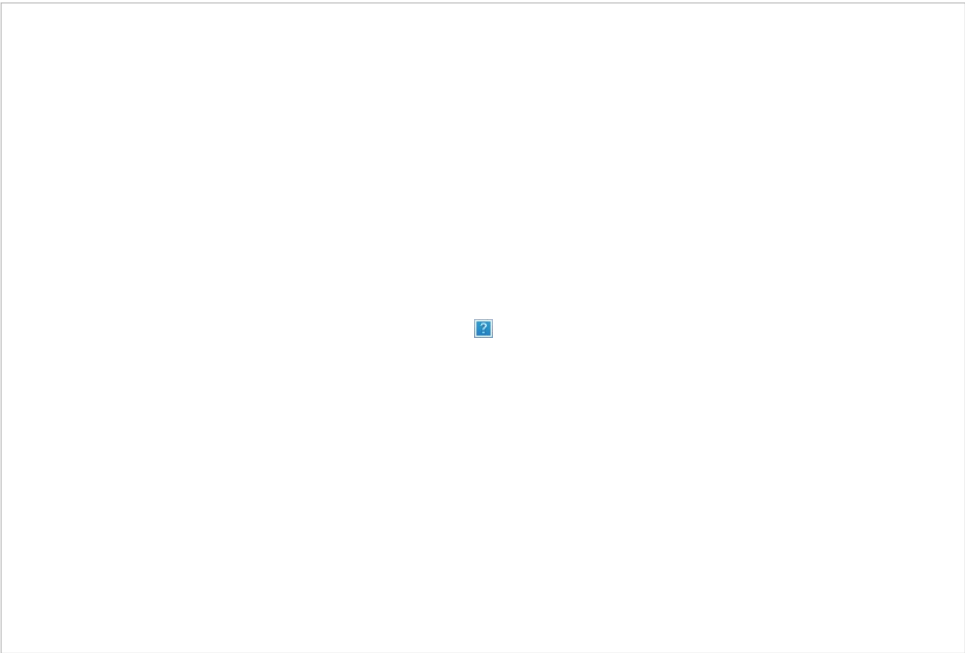




Table 11-34: San Gerardo Zn Search Parameters for Main 25 Domains

Mineralization Domain	C_DOM	Search Ellipse			Pass 1	No. Composites		Pass 2	No. Composites		Pass 3	No. Composites	
		1	2	3	S-Vol	Min	Max	S-Vol	Min	Max	S-Vol	Min	Max
asu8	2080	40	32	15	1	7	15	2	6	10	20	3	6
che1	3010	32	25	10	1	10	15	2	9	10	20	3	5
che10	3100	45	30	15	1	4	8	2	3	6	30	1	2
che10	3101	35	22	15	1	7	14	2.2	4	7	20	3	4
che14	3140	30	20	10	1	6	10	2	5	8	20	3	5
che14	3141	30	22	10	1	9	15	2	7	10	20	3	6
che15	3150	32	20	11	1	8	15	2	7	10	20	3	6
che16	3160	36	24	13	1	9	15	2	8	10	20	3	6
che2	3020	30	18	10	1	6	15	2	5	8	20	3	5
che2	3021	32	18	10	1	8	15	2	7	10	20	3	6
che22	3220	28	18	10	1	6	15	2	5	8	20	3	5
che22	3221	30	19	12	1	10	15	2	9	10	20	3	6
che24	3240	31	19	12	1	10	15	2	8	10	20	3	6
che27	3270	25	15	10	1	7	15	2	5	10	20	3	6
che3	3030	28	19	12	1	10	15	2	8	10	20	3	5
che4	3040	32	20	12	1	9	15	2	7	10	20	3	6
che6	3060	32	23	12	1	9	12	2	7	10	20	3	6
che7	3070	53	38	25	1	5	12	2	4	8	20	3	5
che7	3071	36	24	12	1	10	15	2	9	10	20	3	6
cpo15	20150	30	20	10	1	9	15	2	8	10	20	3	5
cpo16	20160	30	20	15	1	10	15	2	9	10	20	3	5





Mineralization Domain	C_DOM	Search Ellipse			Pass 1	No. Composites		Pass 2	No. Composites		Pass 3	No. Composites	
		1	2	3	S-Vol	Min	Max	S-Vol	Min	Max	S-Vol	Min	Max
cpo2	20020	32	22	12	1	10	15	2	9	10	20	3	5
cpo5	20050	26	22	10	1	9	15	2	8	10	20	3	5
cpo7	20070	30	22	10	1	8	15	2	8	10	20	3	5
n1	6010	28	23	13	1	8	15	2	7	10	20	3	10
n12	6120	34	26	12	1	8	15	2	6	10	20	3	10
n2	6020	28	23	14	1	7	15	2	6	10	20	3	10
n22	6220	32.5	17	8.5	1	4	7	2	3	4	20	1	3
n3	6030	33	27	15	1	6	15	2	5	10	20	3	10
n9	6090	30	20	10	1	8	14	2	5	10	20	3	10





11.5.8 Bulk Density

A total of 5,748 density measurements were taken in San Gerardo, 1,107 of those occurring within 137 of the 220 mineralized bodies. In a quantitative analysis, the density values are better correlated with the Zn grades, as demonstrated in Figure 11-39.

Figure 11-39: San Gerardo Correlation Matrix between Density and Other Elements (left) and Scatter Plot between Density and Zn (right)

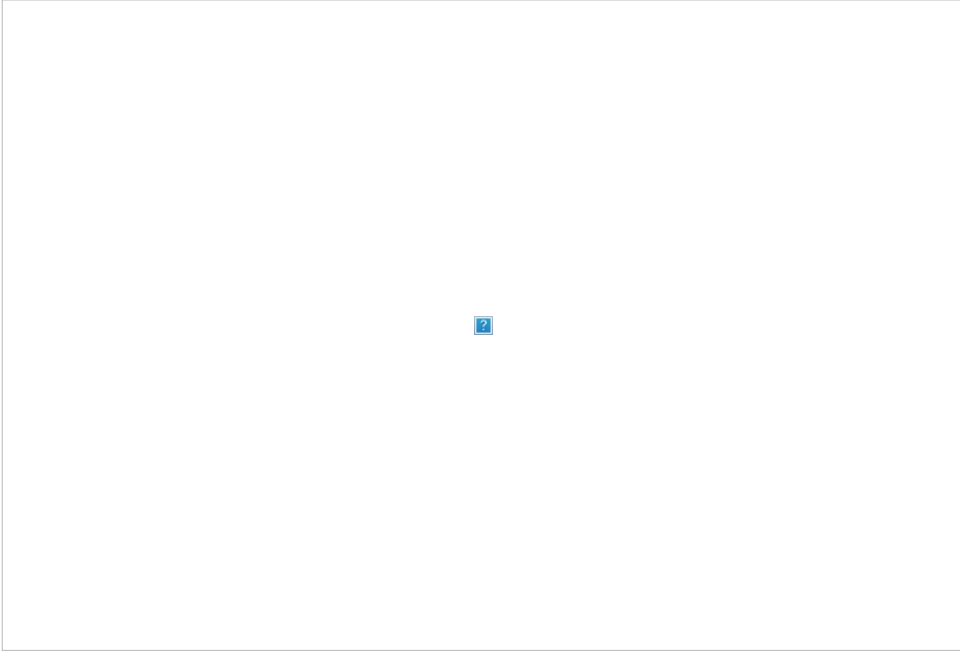


Figure 11-40 shows a plan and isometric view of density composites in relation to the mineralized domains, indicating relatively widespread coverage but with some significant gaps where mineralized bodies are lacking informing density samples, although the largest of these are located outside of the Mineral Resource shell and Mineral Reserve pit design.





Figure 11-40: San Gerardo Density Composites





Of the 25 main domains, 23 have density values, totalling 282 density samples. Table 11-35 shows the statistics for the density values for the 23 domains. Density values do not exhibit significant variance across different domains, having means between 2.6 g/cm³ and 2.95 g/cm³.

Table 11-35: San Gerardo Open Pit Density Statistics

Orebody	Count	Mean (g/cm ³)	StdDev (g/cm ³)	CV	Minimum (g/cm ³)	Maximum (g/cm ³)
asu8	26	2.75	0.12	0.04	2.54	3.07
che1	7	2.71	0.08	0.03	2.62	2.86
che10	14	2.9	0.2	0.07	2.68	3.41
che14	14	2.77	0.24	0.09	2.49	3.55
che15	9	2.64	0.12	0.05	2.46	2.83
che16	16	2.66	0.17	0.06	2.44	3.03
che2	6	2.8	0.29	0.1	2.59	3.42
che22	13	2.77	0.06	0.02	2.68	2.84
che24	3	2.72	0.04	0.01	2.69	2.78
che27	4	2.67	0.04	0.01	2.63	2.73
che3	5	2.75	0.08	0.03	2.65	2.87
che4	1	2.67	0	0	2.67	2.67
che6	11	2.8	0.11	0.04	2.68	3.06
che7	10	2.68	0.07	0.03	2.48	2.76
cpo16	5	2.71	1.09	0.4	1.41	4
cpo2	15	2.82	0.21	0.07	2.53	3.24
cpo5	3	2.72	0.09	0.03	2.62	2.83
n1	6	2.71	0.13	0.05	2.61	2.95
n12	17	2.98	0.11	0.04	2.78	3.17
n2	40	2.81	0.18	0.07	2.51	3.4
n22	18	2.75	0.22	0.08	2.58	3.33
n3	31	2.94	0.57	0.19	2.48	4.65
n9	8	2.76	0.09	0.03	2.64	2.94

Similar mineralization domains were grouped (previously shown in Figure 11-27) and an average density value calculated for each group (Table 11-36). To assign density values to the block model, a local ID³ estimation method was used with a search neighbourhood radii equivalent to that applied to the Indicated Mineral Resources. For blocks situated beyond these radii or within domains lacking samples, the grouped domain's average density value was assigned.





Table 11-36: San Gerardo Grouped Density Statistics

Group	Mean (g/cm ³)	CV	Minimum (g/cm ³)	Maximum (g/cm ³)
10	134	5.07	2.84	2.41
ASUNCION	190	3.29	2.74	2.29
CHERCHER	278	4.55	2.72	1.41
VETA1	185	3.38	2.78	2.25
ZOE	53	4.19	2.66	2.2
GLOBAL	1086	5.58	2.77	1.41
VETASN	118	4.78	2.86	2.48
VETASV	94	5.58	2.76	2.4
CLAUDIA	6	3.09	2.79	2.69
RUBI	18	3.17	2.81	2.55
MA	10	3.59	2.89	2.6

Although the QP recommends the acquisition of additional density data to provide improved coverage and enable a more robust spatial estimate, the approach used by Nexa site team is considered acceptable for estimating Mineral Resources.

11.5.9 Block Models

A sub-blocked model was generated with parent blocks size of 4 m x 4 m x 6 m and a minimum sub-cell size of 0.5 m x 0.5 m x 0.5 m. Sub-blocking took place at mineralization domain wireframe boundaries (Table 11-37).

The sub-blocked model was re-blocked for the reporting of Mineral Resource, with block sizes equal to the parent blocks (Table 11-38). The re-blocked grades were assigned based on tonnage weighting the original block grades, and the geology and other codes were assigned based on majority rules.

Table 11-37: San Gerardo Open Pit Sub-Blocked Model Definition

	X	Y	Z
Base Point	366,461.5	8,829,676	4,390
Boundary Size (m)	1,328	1,036	390
Parent Block (m)	4	4	6
Minimum Sub-Block (m)	0.5	0.5	0.5





Table 11-38: San Gerado Open Pit Re-Blocked Model Definition

	X	Y	Z
Base Point	366,400	8,829,400	4,408
Boundary Size (m)	1,600	1,500	408
Parent Block (m)	4	4	6

11.5.10Net Smelter Return and Cut-off Value

An NSR value was calculated using the Mineral Resource metal prices, metallurgical recovery rates, transportation, treatment, and refining costs. Metal prices applied to Mineral Resources are 15% greater than Mineral Reserves, which are derived from consensus long-term forecasts obtained from financial institutions, banks, and other reliable sources. The NSR value is denominated in US\$/t and is computed for Mineral Resources to enable a meaningful comparison with production costs, helping to ascertain the economic viability of mining the mineralized material.

Currently, the mine yields Zn concentrate containing Zn and Ag, and Pb concentrate containing Pb, Ag, and Au as saleable products. The payable metals in these concentrates include transportation costs, refining charges, deductions, and penalty elements, as outlined in sales agreements established between the mine and smelters or traders.

The NSR factors are determined based on the smelter terms and metal prices, detailed in Table 11-39.





Table 11-39: San Gerardo NSR Cut-off Value Parameters

Item	Unit	Value
Plant Metallurgical Recovery*		
Zn	%	70.44
Pb	%	83.97
Ag	%	75.76
Au	%	65.46
Zn Concentrate Payable %		
Zn	%	85
Ag	%	70
Pb Concentrate Payable %		
Pb	%	95
Ag	%	95
Au	%	95
Metal Prices		
Zn	US\$/t	3,218.90
Pb	US\$/t	2,300.33
Cu	US\$/t	8,820.05
Ag	US\$/oz	24.35
Au	US\$/oz	1,875.57
Open Pit Costs		
Mine cost	US\$/t ore	6.23
	US\$/t waste	2.27
Plant costs	US\$/t	10.65
G&A	US\$/t	5.56
Cut-off Value	US\$/t	22.44

* Based on LOM average metal grades.

11.5.11Classification

Definitions for resource categories used in this TRS are those defined by the SEC in S-K 1300. Mineral Resources are classified into Measured, Indicated, and Inferred categories.

The following factors were considered when classifying the Mineral Resources:

- Confidence in modelling of mineralization domains.
- Reliability of sampling data, including database integrity and lack of significant bias observed in QA/QC analysis results.





- Confidence in estimation of block grades for the various metals.
- Variogram model parameters.
- Visual assessments of the geometries of mineralized domains in relation to drill hole spacing.
- Production experience in the deposit.

Two classification groups were defined based on geology and grade continuity. Blocks were classified as Measured, Indicated, and Inferred according to the number of holes and distances to holes determined by variogram ranges. Separate classification interpolation passes were run to flag the resource categories for each group:

Major Continuity Zones:

- Measured Mineral Resource: Composites from a minimum of three holes within a 25 m by 25 m by 12 m radii search.
- Indicated Mineral Resource: Composites from a minimum of three holes within a 50 m by 50 m by 25 m radii search.
- Inferred Mineral Resource: Composites from a minimum of two holes within a 100 m by 100 m by 50 m radii search.

Minor Continuity Zones:

- Measured Mineral Resource: Composites from a minimum of three holes within a 20 m by 20 m by 10 m radii search.
- Indicated Mineral Resource: Composites from a minimum of three holes within a 40 m by 40 m by 20 m radii search.
- Inferred Mineral Resource: Composites from a minimum of two holes within a 80 m by 80 m by 40 m radii search.

A post-processing, clean-up script was applied to the classification model to reduce a "spotted dog" effect and to demonstrate continuity between samples. Figure 11-41 shows histogram validations of the classification based on the distance of each block to its closest sample for the major, medium, and minimum continuity domains, respectively. The figure shows the number of samples and search passes used to estimate blocks by resource category. The data exhibits the expected trend, where Measured blocks are estimated using more samples within a shorter distance, with the opposite effect happening for Inferred category. However, overlaps occur for all categories, for example Measured blocks are estimated on the third pass and/or with five samples or less.

Figure 11-42 shows a vertical and plan view of the Mineral Resource classification applied at San Gerardo.

During review, SLR observed artifacts such as isolated drill holes used to support classification, resulting in a "spotted dog" effect in some areas. In addition, it was observed that drilling and channel samples completed along strike of the mineralization had been used to support the Mineral Resource classification, which SLR recommends should be discontinued. The QP concurs with this recommendation.

The QP considers the Mineral Resource classification applied to the San Gerardo deposit to be acceptable, however, recommends that the approach be improved in future Mineral Resource estimates to remove artifacts.





Figure 11-41: San Gerado Histogram of Number of Samples and Search Pass by Class

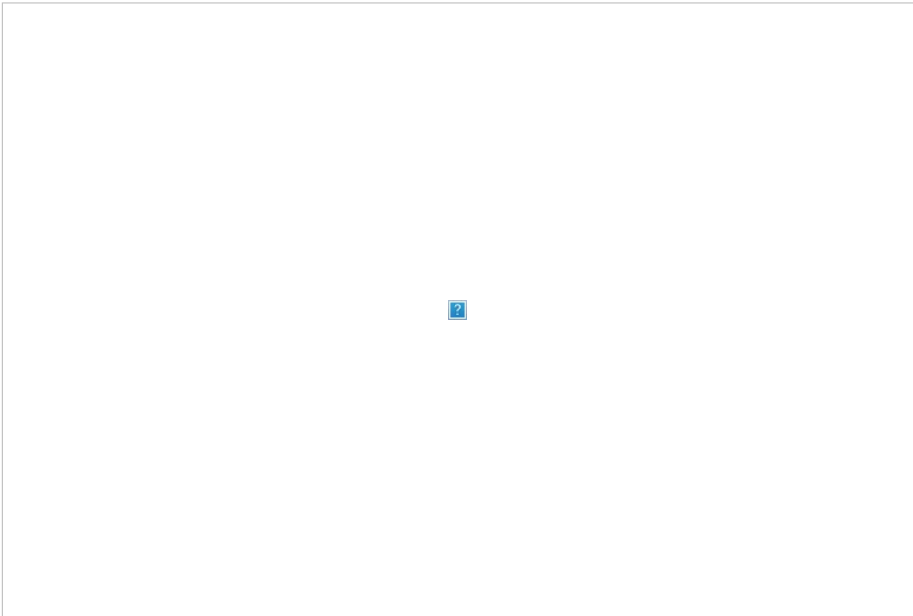


11-114





Figure 11-42: Plan and Longitudinal View of the Reported San Gerardo Classification within Mineral Resources Exclusive of Mineral Reserves





11.5.12Block Model Validation

Nexa staff and the QP perform several validations of the geological modelling and block model estimation, including grade shell volume comparison against the previous version, visual inspections of the dynamic anisotropy angles, estimation statistics by search volume, global statistics, visual validations, and swath plots. These aim to confirm the consistency of the estimation process and the results.

SLR reviewed the files provided by Nexa staff, such as validation tables and figures, and performed extensive independent validations, including statistical correlations, visual validations, statistic validations, and swath plot analysis. The main checks are discussed in the following sections.

11.5.12.1GlobalStatistics

Global statistics of the interpolated OK, ID³ grades were compared with those of the NN estimation, which serves as a reference, assessing performance of the different estimators and confirming the estimate's reproduction of the samples used for the estimation. Global statistics also help to identify inconsistencies in the estimation process.

Statistics for the main variables within the 25 main domains are shown in Table 11-40.





Table 11-40: San Gerardo Statistical Comparison Between OK, ID³, NN, and the Capped Composites

Domain	Au (g/t) - OK				Au (g/t) - ID ³				Au (g/t) - NN			
	Mean	CV	Min	Max	Mean	CV	Min	Max	Mean	CV	Min	Max
asu8	0.2	0.89	0.03	1.52	0.2	1.09	0.02	2.58	0.19	1.37	0.01	2.05
che1	0.2	0.72	0.01	0.78	0.2	0.88	0.01	1.02	0.19	1.14	0.01	1
che10	0.23	1.09	0.01	1.7	0.23	1.19	0.01	2.15	0.24	1.46	0.01	2.59
che14	0.33	1.03	0.01	2.53	0.3	1.31	0.01	3.93	0.29	1.67	0.01	2.72
che15	0.22	0.75	0.02	1.37	0.25	1.16	0.02	2.13	0.26	1.26	0.01	2.14
che16	0.34	1.11	0.01	3.45	0.33	1.33	0.01	4.53	0.32	1.66	0.01	3.88
che2	0.46	1.29	0.01	4.7	0.44	1.71	0.01	8.57	0.44	2.18	0.01	6.07
che22	0.24	0.95	0.01	1.3	0.22	1.08	0.01	1.87	0.23	1.36	0.01	3.5
che24	0.36	0.95	0.03	2.59	0.35	1.15	0.02	3.59	0.33	1.75	0.01	6.73
che27	0.39	0.48	0.06	1.27	0.37	0.66	0.02	1.4	0.37	1.01	0.01	1.86
che3	0.23	1.06	0.01	1.63	0.23	1.21	0.01	2.51	0.23	1.44	0.01	2.94
che4	0.18	0.8	0.01	0.8	0.19	0.9	0.01	0.95	0.19	1.12	0.01	0.96
che6	0.22	1.13	0.01	1.68	0.23	1.26	0.01	2.51	0.23	1.73	0.01	2.63
che7	0.33	1	0.01	2.8	0.35	1.23	0.01	4.99	0.33	1.81	0.01	5.72
cpo15	0.12	1.52	0.01	1.02	0.09	1.66	0.01	1.29	0.09	1.79	0.01	1.11
cpo16	0.15	1.45	0.01	2.31	0.15	1.63	0.01	3.43	0.15	1.95	0.01	2.78
cpo2	0.24	1.22	0.01	2.51	0.24	1.39	0.01	3.74	0.24	1.7	0.01	2.89
cpo5	0.22	0.96	0.01	2	0.25	1.08	0.01	2.76	0.25	1.26	0.01	2.41
cpo7	0.24	1.23	0.01	1.75	0.28	1.33	0.01	2.18	0.31	1.55	0.01	2.39
n1	0.43	0.74	0.06	2.58	0.43	1.21	0.02	4.92	0.43	1.61	0.01	5
n12	0.03	0.83	0	0.15	0.03	1.11	0	0.2	0.02	1.57	0	0.2





Domain	Au (g/t) - OK				Au (g/t) - ID ³				Au (g/t) - NN			
	Mean	CV	Min	Max	Mean	CV	Min	Max	Mean	CV	Min	Max
n2	0.01	0.64	0	0.14	0.01	1.1	0	0.22	0.01	1.26	0	0.13
n22	0.04	1.03	0	0.2	0.04	1.21	0	0.22	0.04	1.32	0	0.22
n3	0.04	0.94	0	0.31	0.04	1.41	0	0.44	0.04	1.64	0	0.39
n9	0.03	0.75	0	0.12	0.02	0.79	0	0.13	0.03	1.46	0	0.2
Domain	Zn (%) - OK				Zn (%) - ID ³				Zn (%) - NN			
	Mean	CV	Min	Max	Mean	CV	Min	Max	Mean	CV	Min	Max
asu8	1.18	0.53	0.11	4.45	1.1	0.78	0.03	6.93	1.17	1.19	0.01	7.17
che1	1.64	0.64	0.05	7.28	1.57	0.79	0.03	7.67	1.57	1.17	0	7.42
che10	1.54	0.87	0.02	8.58	1.57	1.03	0.01	11.64	1.4	1.42	0	13.18
che14	2.04	0.77	0.03	9.6	2.01	0.89	0.01	10.82	1.98	1.16	0	13.12
che15	0.66	0.85	0.04	3.69	0.75	1.09	0.02	4.64	0.7	1.38	0	4.66
che16	1.3	0.7	0.04	5.33	1.35	0.86	0.01	6.9	1.36	1.14	0	7
che2	1.51	1	0.01	9.36	1.46	1.04	0.01	11.77	1.51	1.28	0	12.6
che22	1.4	0.93	0.02	9.21	1.34	1.04	0.01	10.02	1.4	1.38	0	12.62
che24	0.85	0.58	0.06	2.75	0.81	0.71	0.05	3.64	0.87	1.09	0	4.21
che27	1.31	0.82	0.1	7.37	1.47	1.16	0.05	10.16	1.5	1.43	0.01	8.49
che3	2.14	0.85	0.1	11.81	2.23	0.82	0.02	14.71	2.15	1.25	0	17.01
che4	1.16	0.79	0.1	6.09	1.16	1.15	0.03	7.88	1.1	1.71	0	8
che6	1.28	0.67	0.04	6.96	1.27	0.85	0.01	9.13	1.24	1.17	0	9.2
che7	2.34	0.97	0.04	16.15	2.36	1.17	0.01	23.15	2.54	1.79	0	25.34
cpo15	1.27	0.56	0.08	5.72	1.37	0.62	0.02	7.23	1.33	0.97	0.02	7.47
cpo16	0.79	0.91	0.01	5.75	0.82	0.97	0	6.88	0.81	1.23	0	6.5
cpo2	1.02	0.78	0.05	6.63	1.01	0.89	0.02	7.85	0.98	1.29	0	9.56





Domain	Zn (%) - OK				Zn (%) - ID ³				Zn (%) - NN			
	Mean	CV	Min	Max	Mean	CV	Min	Max	Mean	CV	Min	Max
cpo5	1.5	0.7	0.05	7.34	1.44	0.76	0.06	8.07	1.38	1.13	0.01	10.13
cpo7	3.27	0.47	0.79	13.92	3.28	0.54	0.28	15.77	3.39	0.7	0.33	13.23
n1	1.22	0.5	0.19	4.05	1.45	0.81	0.03	6.44	1.48	1.02	0.02	5.38
n12	0.84	0.73	0.03	4.59	0.92	1.07	0.02	6	0.98	1.21	0.01	4.9
n2	0.89	0.45	0.11	2.93	0.95	0.76	0.01	4.61	1.1	1.03	0.01	4.64
n22	0.89	0.54	0.07	2.61	0.93	0.66	0.02	3.24	0.84	0.97	0	3.02
n3	1.39	0.78	0.07	8.81	1.6	1.23	0.01	11.43	1.8	1.4	0	11.39
n9	1.38	0.88	0.17	8.72	1.19	0.91	0.01	9.91	1.72	1.88	0	15

Domain	Pb (%) - OK				Pb (%) - ID ³				Pb (%) - NN			
	Mean	CV	Min	Max	Mean	CV	Min	Max	Mean	CV	Min	Max
asu8	1.17	0.59	0.09	5.84	1.08	0.84	0.03	7.52	1.18	1.23	0.01	7.12
che1	1	0.9	0.01	5.03	1.02	0.97	0	5.96	0.99	1.15	0	6.08
che10	0.71	0.77	0.01	4.3	0.71	0.92	0	6.24	0.7	1.26	0	6.66
che14	1.16	0.88	0.01	7.5	1.1	0.9	0	9.22	1.2	1.52	0	9.63
che15	0.92	0.64	0.09	3.78	1	0.78	0.04	5.17	0.9	1.11	0	5.26
che16	1.57	0.88	0.03	7.61	1.61	1.04	0	9.55	1.68	1.23	0	10.03
che2	0.6	0.92	0.01	4.3	0.58	1.04	0.01	5.88	0.61	1.26	0.01	4.99
che22	0.64	0.79	0.01	3.27	0.62	0.84	0	3.56	0.64	1.12	0	6.3
che24	1.24	0.74	0.03	6.99	1.23	0.8	0.06	8.24	1.14	1.09	0.02	7.22
che27	1.53	0.71	0.06	4.73	1.57	0.86	0.06	5.68	1.65	1.08	0.01	5.85
che3	0.76	1.17	0.02	7.69	0.72	1.23	0.02	9.11	0.79	1.61	0	9.3
che4	0.91	0.75	0.12	3.77	0.88	0.86	0.01	4.77	0.97	1.17	0	5.08
che6	1.11	0.8	0	6.81	1.11	0.91	0	8.77	1.09	1.23	0	9.03





Domain	Pb (%) - OK				Pb (%) - ID ³				Pb (%) - NN			
	Mean	CV	Min	Max	Mean	CV	Min	Max	Mean	CV	Min	Max
che7	1.49	0.93	0.01	8.59	1.5	1.03	0	9.84	1.4	1.39	0	16
cpo15	1.23	0.92	0.01	8.28	1.28	1.08	0.01	10.38	1.29	1.31	0.01	10.66
cpo16	1.5	0.78	0.03	8.86	1.5	0.89	0.03	10.51	1.44	1.35	0.01	10.98
cpo2	0.91	1.08	0.01	10.38	0.92	1.26	0	12.53	0.9	1.64	0	16.97
cpo5	1.16	0.56	0.09	4.96	1.13	0.65	0.04	5.64	1.09	0.96	0.01	8.21
cpo7	0.54	1.82	0.02	5.42	0.64	2.14	0.02	7.21	0.65	2.26	0.01	4.97
n1	1.17	0.34	0.1	3.13	1.24	0.68	0.02	5.36	1.27	0.88	0.03	4.28
n12	1.15	0.59	0.08	6.49	1.15	0.84	0.05	8.36	0.99	1.31	0.01	9.79
n2	0.85	0.46	0.12	3.65	0.82	0.74	0	6.24	0.88	0.97	0	4.7
n22	1.13	0.58	0.24	3.68	1.21	0.73	0.05	4.51	1.24	0.94	0.01	3.37
n3	2.04	0.76	0.13	11.67	2.34	1.14	0.02	16.3	2.23	1.44	0	16.24
n9	1.06	0.52	0.22	4.22	0.94	0.61	0.01	5.01	1.19	1.38	0	7.68

Domain	Ag (g/t) - OK				Ag (g/t) - ID ³				Ag (g/t) - NN			
	Mean	CV	Min	Max	Mean	CV	Min	Max	Mean	CV	Min	Max
asu8	32.57	0.62	3.95	232.11	31.02	0.84	1.28	392.75	32.16	1.19	1	508.34
che1	31.26	0.72	1.21	114.39	31	0.86	1.01	135.44	30.35	0.99	1	133.25
che10	26.64	0.74	2.46	98.72	26.44	0.91	1.09	154.97	26.02	1.22	1	165.46
che14	35.16	0.61	1.35	177.42	34.44	0.78	1.02	254.18	33.67	1.21	1	304.76
che15	33.99	0.63	2.89	113.41	36.67	0.69	1.77	150.37	35.03	0.95	1	140.84
che16	48.62	0.79	1	245.28	50.87	0.89	1	349.41	51.05	1.12	1	335.99
che2	24.47	0.55	4.92	125.01	23.96	0.76	2.02	203.7	24.61	1.01	1	145.68
che22	21.58	0.56	2.16	127.41	20.66	0.68	2.1	146.56	21.22	1	1	270
che24	37.67	0.59	6.49	132.77	37.94	0.66	4.1	204.24	35.85	1.03	1	236.24





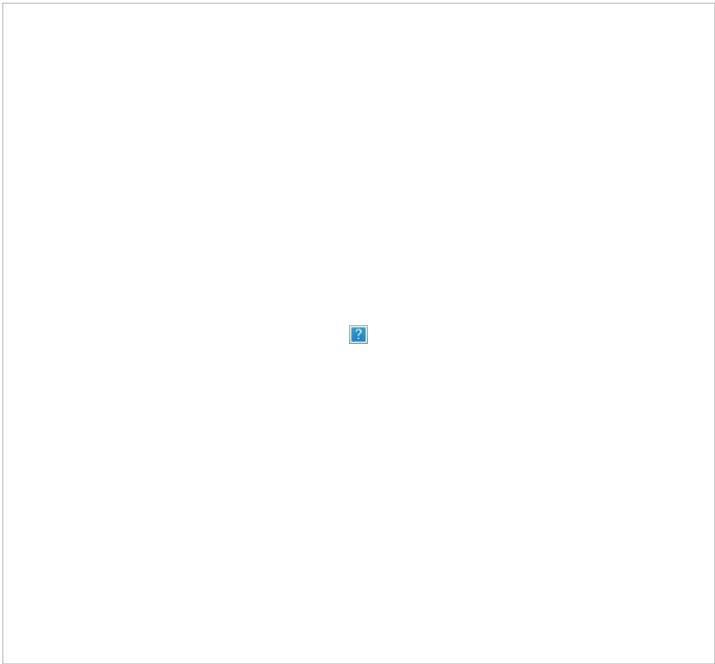
Domain	Ag (g/t) - OK				Ag (g/t) - ID ³				Ag (g/t) - NN			
	Mean	CV	Min	Max	Mean	CV	Min	Max	Mean	CV	Min	Max
che27	43.31	0.5	7.92	101.05	42.58	0.63	5.37	121.5	44.78	0.82	1	126.34
che3	20.24	0.86	1.78	140.15	20.03	0.87	1.51	162.13	20.43	1.23	1	165
che4	26.16	0.46	7.3	77.33	26.62	0.65	1.91	103.15	26.75	0.87	1	109.05
che6	34.47	0.75	1	182.35	34.22	0.86	1	248.08	34.72	1.07	1	232.69
che7	42.83	0.87	1.18	314.63	42.3	1.11	1	390.09	39.87	1.52	1	521.76
cpo15	36.04	0.79	1.93	170.84	37.14	0.88	1.93	196.31	38.97	1.08	1.9	212.82
cpo16	61.42	0.56	4.73	231.33	61.62	0.62	2.35	279.3	55.18	0.89	2.02	318.64
cpo2	31.08	0.92	1.32	274.48	30.95	1.01	1	299.14	29.65	1.24	1	316.17
cpo5	37.84	0.51	3.37	155.32	36.47	0.6	2.02	200.54	35.33	0.91	2.02	220
cpo7	23.15	1.38	2.02	203.98	26.72	1.71	2.02	244.96	26.87	1.82	2.02	167.17
n1	33.48	0.28	9.02	69.1	35.73	0.56	2.23	108.77	38.23	0.73	2.02	109.03
n12	33.29	0.59	5.16	141.04	34.3	0.85	4.36	178.11	29.01	1.3	1	202.28
n2	23.73	0.44	5.98	86.07	25.07	0.6	1.02	141.63	25.74	0.73	1	115.88
n22	52.74	0.76	9.33	238.11	56.33	1.18	2.84	376.02	67.29	1.46	1	380
n3	58.17	0.92	6.64	371.22	66.7	1.19	1.24	502.56	60.54	1.42	1	458.49
n9	33.75	0.39	8.65	88.75	31.24	0.63	3.73	121.15	37.34	1.06	6.79	155.21





Figure 11-43 illustrates the comparison between final grades estimated in the block model and the capped and composited samples. In general, the estimated grades and composites show good agreement, while the differences observed do not suggest any consistent bias or errors of great magnitude.

Figure 11-43: San Gerardo Final Grade Variables and Capped and Composited Samples Comparison



11.5.12.2VisualValidation

SLR conducted random checks across various estimation domains, comparing the samples utilized for estimation with the block model. Particular emphasis was placed on the main domains owing to their significance for Mineral Resources and Mineral Reserves.

A visual comparison on longitudinal section along two veins found good overall correlations between the blocks and composite grades. Example longitudinal sections for the fault-controlled





“che16” domain and breccia “cpo15” domain are shown in Figure 11-44 and Figure 11-45, respectively. These demonstrate that block grades generally reflect the surrounding sample data, with good local reproduction of sample grades in both types of mineralization. Fault-controlled domains are more prone to exhibit visual artifacts in estimated grades due to their thin, tabular, and occasionally folded shape. However, the breccia-type mineralization is more massive and greater in volume than the fault-controlled veins, and therefore accounts for most of the Mineral Resource tonnage.





Figure 11-44: San Gerardo Longitudinal View of the Faulting-Controlled “che16” Domain (Orebody=316) - Zn Estimation

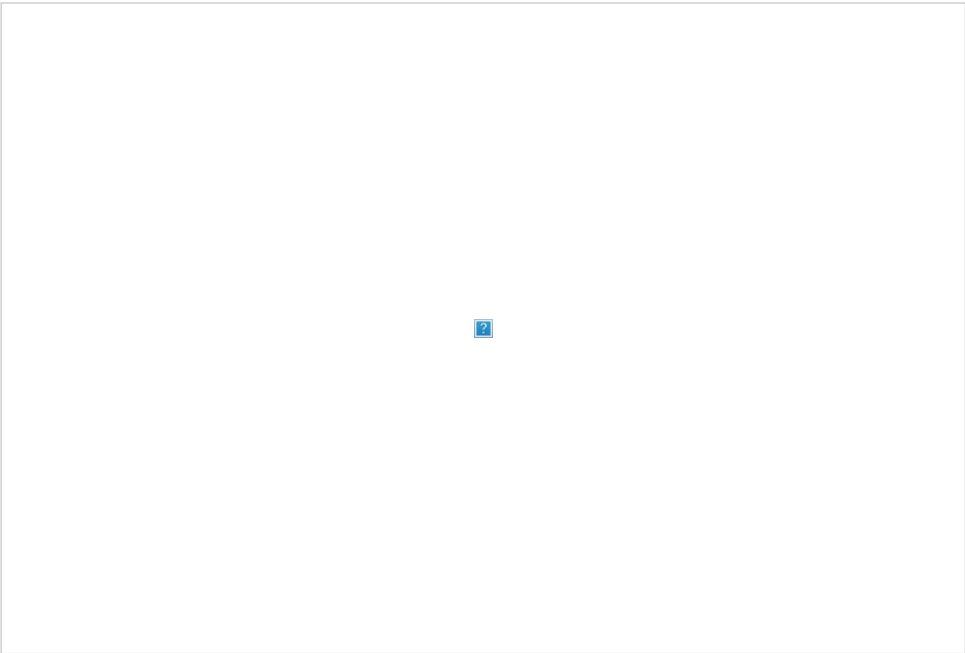
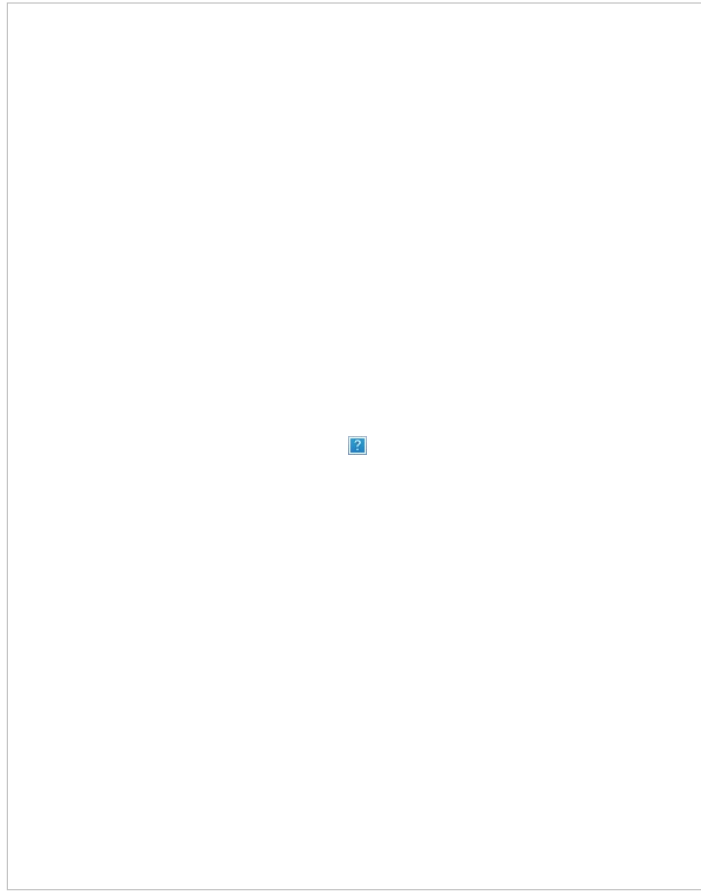




Figure 11-45: San Gerardo Section View of the Breccia-Controlled “cpo15” Domain (Orebody=2015) - Zn Estimation



11-125



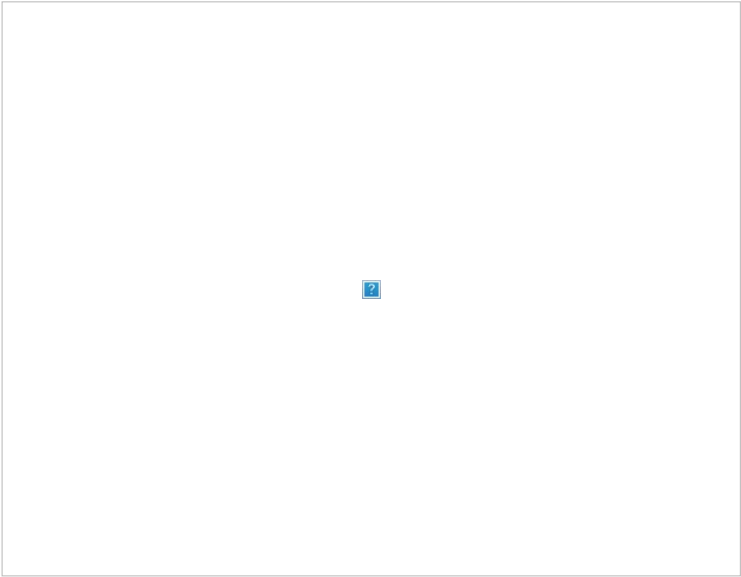


11.5.12.3Swath Plots

Swath plots were generated for the entire block model to evaluate global grade trends within the mineral deposit. Figure 11-46 illustrates swath plots for Zn and Pb in the X, Y, and Z directions.

In general, the estimated OK and ID³ block grades show good agreement with the NN block grades and composite grades. The largest divergences are often observed in regions of the model with few blocks and contributing little tonnage to the Mineral Resource.

Figure 11-46: San Gerardo Swath Plots for Zn and Pb



11.5.13Mineral Resource Reporting

Mineral Resources have been classified in accordance with the definitions for Mineral Resources in S-K 1300, which are consistent with CIM (2014) definitions. Figure 11-47 shows an example west-east section through the San Gerardo Mineral Resource and Mineral Reserve, while Figure 11-48 illustrates NSR values of the San Gerardo Mineral Resource inclusive of Mineral Reserve.





Figure 11-47: Longitudinal W-E Section of the Reported San Gerardo Mineral Resources and Mineral Reserves

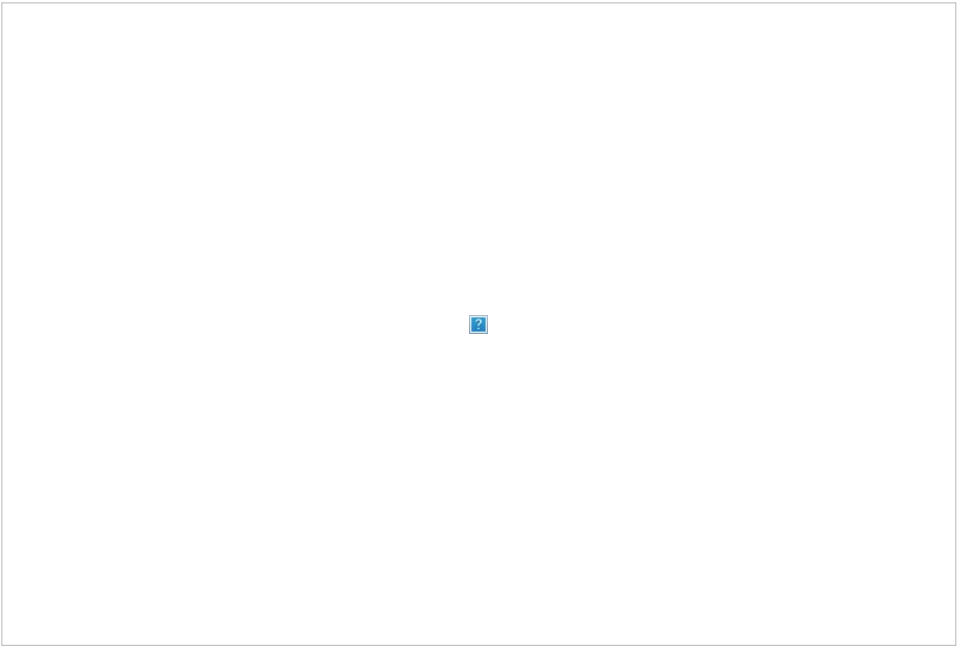
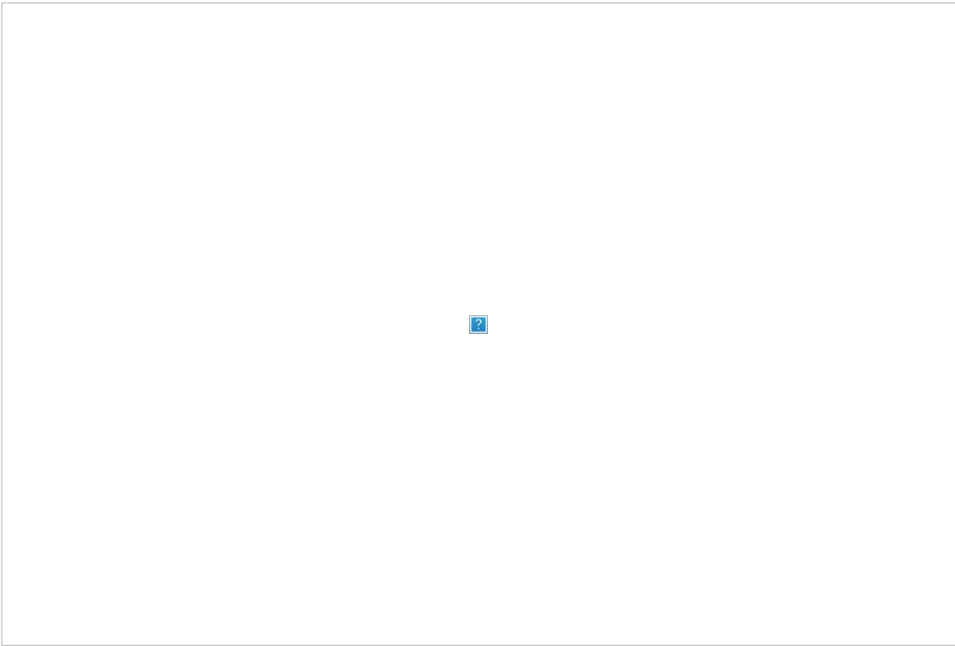




Figure 11-48: San Gerardo Plan and Longitudinal Views of the NSR Values Above Cut-Off for Mineral Resources Inclusive of Reserves





In the QP’s opinion, the assumptions, parameters, and methodology used for the San Gerardo Mineral Resource estimate are appropriate for the style of mineralization and mining methods.

The QP is not aware of any environmental, permitting, legal, title, taxation, socio-economic, political, or other relevant factors that could significantly affect the San Gerardo Mineral Resource.

The QP is of the opinion that with consideration of the recommendations summarized in Sections 1 and 23 of this TRS, any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.

Mineral Resources with an effective date of December 31, 2023 for San Gerardo are summarized in Table 11-41 on a 75.96% Nexa attributable ownership basis and Table 11-42 on a 100% ownership basis.

Table 11-41: San Gerardo Open Pit Mine: Summary of Mineral Resources (75.96% Nexa Attributable Ownership Basis) - December 31, 2023

Category	Tonnage (Mt)	Grade				Contained Metal			
		Zn (%)	Ag (g/t)	Pb (%)	Au (g/t)	Zn (kt)	Ag (koz)	Pb (kt)	Au (koz)
Measured	1.37	1.28	31.4	0.87	0.19	17.5	1,381	11.9	8.4
Indicated	2.95	1.05	29.0	0.90	0.24	30.9	2,747	26.5	22.7
Total Measured + Indicated	4.31	1.12	29.8	0.89	0.22	48.4	4,128	38.4	31.1
Inferred	1.29	1.27	32.7	1.15	0.22	16.4	1,358	14.9	9.1

Notes:

1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources which are consistent with CIM (2014) definitions.
2. The NSR cut-off value is calculated based on the LOM costs: US\$22.44/t.
3. Mineral Resources are estimated using average long-term metal prices of Zn: US\$3,218.90/t (US\$1.46/lb), Pb: US\$2,300.33/t (US\$1.04/lb), Cu: US\$8,820.05/t (US\$4.00/lb), Ag: US\$24.35/oz, and Au: US\$1,875.57.
4. Metallurgical recoveries are based on historical processing data: Zn (70.4%), Pb (84.0%), Ag (75.8%), and Au (65.5%).
5. Bulk density was assigned based on rock type and averages 2.76 t/m³.
6. Mineral Resources were depleted according to actual production as of September 30, 2023, and forecast production to the effective date of December 31, 2023.
7. The minimum height for resource reporting is 6.0 m.
8. Mineral Resources are exclusive of Mineral Reserves.
9. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
10. Mineral Resources are constrained within an optimized reporting pit shell.
11. Numbers may not add due to rounding.





Table 11-42: San Gerardo Open Pit Mine: Summary of Mineral Resources (100% Ownership Basis) - December 31, 2023

Category	Tonnage (Mt)	Grade				Contained Metal			
		Zn (%)	Ag (g/t)	Pb (%)	Au (g/t)	Zn (kt)	Ag (koz)	Pb (kt)	Au (koz)
Measured	1.80	1.28	31.4	0.87	0.19	23.0	1,818	15.7	11.00
Indicated	3.88	1.05	29.0	0.90	0.24	40.7	3,616	34.9	29.9
Total Measured + Indicated	5.68	1.12	29.8	0.89	0.22	63.8	5,434	50.6	40.9
Inferred	1.70	1.27	32.7	1.15	0.22	21.6	1,787	19.6	12.0

Notes:

- 1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources which are consistent with CIM (2014) definitions.
- 2. The NSR cut-off is calculated based on the LOM costs: US\$22.44/t.
- 3. Mineral Resources are estimated using average long-term metal prices of Zn: US\$3,218.90/t (US\$1.46/lb), Pb: US\$2,300.33/t (US\$1.04/lb), Cu: US\$8,820.05/t (US\$4.00/lb), Ag: US\$24.35/oz, and Au: US\$1,875.57.
- 4. Metallurgical recoveries are based on historical processing data: Zn (70.4%), Pb (84.0%), Ag (75.8%), and Au (65.5%).
- 5. Bulk density was assigned based on rock type and averages 2.76 t/m³.
- 6. Mineral Resources were depleted according to actual production as of September 30, 2023, and forecast production to the effective date of December 31, 2023.
- 7. Mineral Resources are exclusive of Mineral Reserves.
- 8. The minimum height for resource reporting is 6.0 m.
- 9. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
- 10. Mineral Resources are constrained within an optimized reporting pit shell.
- 11. Numbers may not add due to rounding.



11.6 Atacocha Underground

11.6.1 Resource Database

Although the San Gerardo and Atacocha UG Mineral Resources were estimated separately, a combined resource database was used. The database is discussed in Section 11.5.1.

While a small quantity of exploration work has been completed at Atacocha after the January 31, 2023 resource database closure date, the additional data is limited to the San Gerardo open pit area and does not affect Atacocha UG.

11.6.2 Geological Interpretation

The Atacocha UG Mineral Resource estimate is based on assay and geological interpretation for each individual mineralized domain. Geological models were built by Atacocha geologists using the drilling and channel sampling assay results, as well as the structural and lithological controls observed in underground workings and drill core logging data. Geological model for lithological domains and the mineralization model were built using Leapfrog Geo software with some adjustments performed in Datamine software.

Eight lithological domains were modelled for Atacocha UG: skarn, intrusive, siliceous breccia, massive silica, marble, sandstone, limestone, and basalt. Three other domains were modelled which contain potentially economic mineralization: skarn, siliceous/massive breccia, and limestone replacement.

The mineralization wireframes were originally built based on information from mineralized zones and mapping within the underground levels and extrapolated. No minimum mining thickness was used. Once these solids were created, explicit modelling techniques were used to adjust the boundaries of the initial mineralization wireframes. The final mineralization wireframes were verified with drilling information on level plan views every 20 m. A total of 239 mineralization wireframes were modelled using a US\$15/t NSR cut-off value to determine whether any given sample intersection would be considered for inclusion in a mineralized domain. Nexa calculated an NSR value for all assay intervals that takes into account all four economic metals (Zn, Pb, Cu, and Ag).

During the modelling process, three styles of mineralization were identified at the Atacocha deposit:

- **Skarn:** mineralized zones of irregular to structurally controlled geometry, primarily contained within the Pucará Group, comprising garnet with associated metallic mineralization of galena, sphalerite, chalcopryrite, and Ag-bearing sulphosalts (i.e., tetrahedrite).
- **Replacement:** lenses to irregular geometry contacts within the Pucará Group, comprising metallic mineralization of galena, sphalerite, chalcopryrite, and Ag-bearing sulphosalts (i.e., tetrahedrite).
- **Structurally controlled zones** (i.e., veins): mineralization comprising galena, sphalerite, and Ag-bearing sulphosalts (i.e., tetrahedrite) with quartz, rhodochrosite, and pyrite that forms structurally controlled shoots with lengths of up to 150 m and vertical extents of up to 350 m.

Mineralized domain wireframes were constructed based upon the geologists' interpretation of the mineralization observed in the underground workings and extrapolated approximately 40 m

from the last mineralized drill hole intercept. SLR reviewed the mineralized domains and noted that some domains were extended further, however, extrapolation was generally considered reasonable and the degree of extrapolation was considered during classification of Mineral Resources. SLR also identified that some very small OB wireframes had been constructed, with volumes less than 1,000 m³.

Drill holes lacking assays were not treated as barren and veins were allowed to pass through the modelled mineralization domains. The rationale behind the absence of assays in these instances remains unclear, whether due to the absence of identified mineralization or other factors such as time constraints. Following estimation, regions around the non-assayed holes were removed from the final block model by an NN approach to delineate the influence area, however, SLR observed that this produced unusually shaped final domains in the block models. While this was not deemed to significantly impact the estimated Mineral Resources, SLR recommends that veins be set to pinch out upon non-assayed samples, to refine the grade estimate in future Mineral Resource updates. The QP agrees with this recommendation.

Figure 11-49 shows the lithological control types for each of the 239 modelled mineralization domains. Figure 11-50 highlights the 25 main domain contributors to Mineral Resource tonnage.

Mineralization domains were grouped into 67 groups, which were used for variography, capping, and to determine average density values (Figure 11-51). These were created in consideration of geological zones (Atacocha, San Gerardo, and Santa Bárbara), type of structures (mineralized body or vein), type of emplacements (exoskarn, distal skarn, and endoskarn), type of lithological controls (contact, fault, brecciation, intrusive, contact fault), and the anisotropy and orientation of the mineralization domains.

The nomenclature used in the estimation process considers “OB” as the name of each mineralization domain, “COD_OB” as the numerical code for each mineralization domain, and “C_ESTIM” as the numerical code for grouped domains. Unlike San Gerardo, no high grade/low grade sub-domains were established.

An analysis of snapping discrepancies showed that 96% of intervals assigned to an OB were correctly modelled as such, while 87% of waste intervals were correctly modelled. This is considered acceptable by the QP, especially as many of the discrepancies were located outside of the Mineral Resource constraining reporting shapes. The QP recommends, however, that snapping be improved in future Mineral Resource updates.

Contact analysis completed by SLR on the mineralization domains indicates that they are generally effective in separating mineralized and unmineralized populations (Figure 11-52), although it was identified in some areas that opportunities existed to extend the wireframes to include additional mineralized intercepts. In particular, Cu and Ag consistently display a tail of low grade values outside of the mineralized zones. The populations within the modelled mineralization were approximately lognormal.

The QP considers that the modelled mineralization domains are suitable for the estimation of Mineral Resources.



Figure 11-49: Atacocha Underground Lithological Control Type

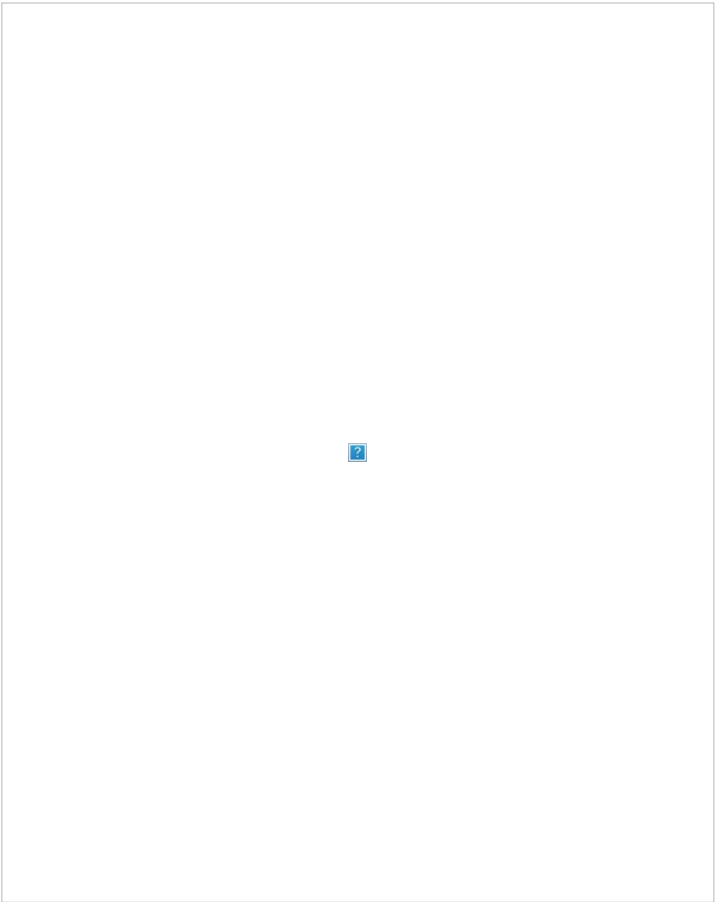




Figure 11-50: Atacocha Underground 25 Main Domains

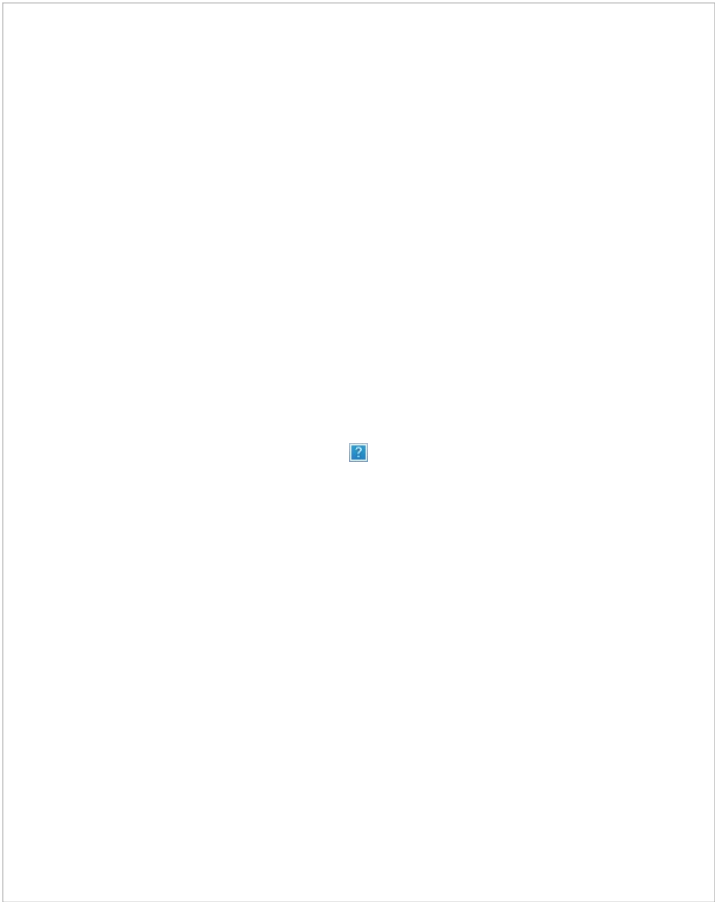




Figure 11-51: Atacocha Underground Grouped Mineralization

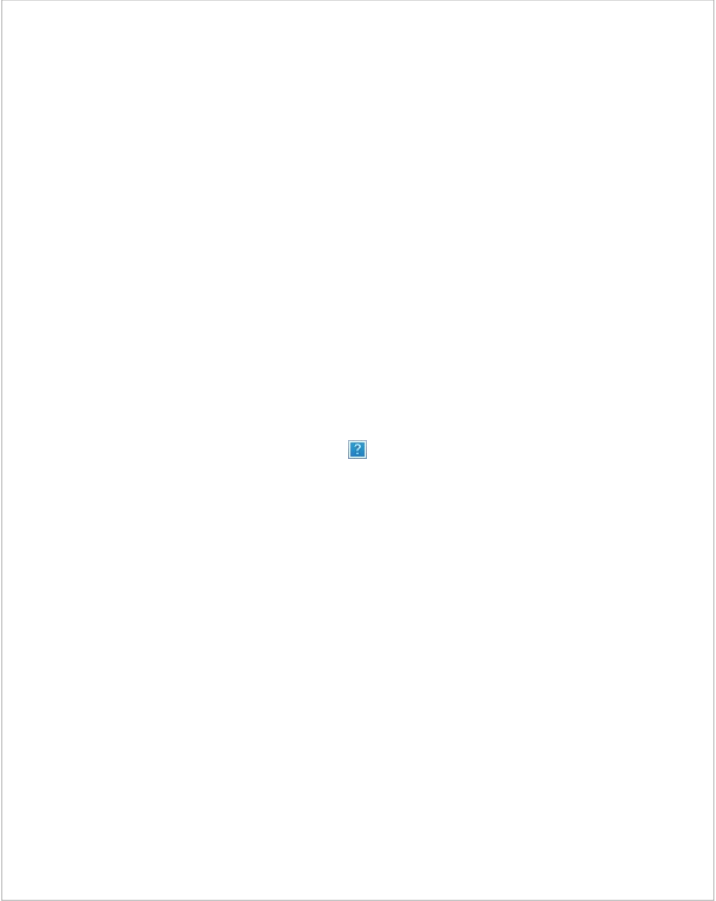




Figure 11-52: Atacocha Underground Mineralization Contact Analysis



11-136





11.6.3 Resource Assays

After completing 3D solid models, Nexa assess the assay data contained inside the solid models to determine whether any additional domaining is required prior to capping. Typically, raw assay data are extracted from each domain and are then assessed using histograms and cumulative probability plots.

For the EDA process, the database is exported from Leapfrog Geo and imported into Datamine Studio software. Non-sampled intervals are substituted with the detection limits of the chemical elements.

For the purpose of this TRS, Zn, Cu, Ag, and Pb, referred to as the main elements, will be detailed in tables and figures, along with the 25 grade shells (main domains) that contribute most significantly to the Mineral Resource and Mineral Reserves, approximately 75% of the volume.

Table 11-43 presents the length-weighted statistics of the drill holes and channels combined.





Table 11-43: Atacocha Underground Assay Statistics (Length Weighted) for the Main Domains

Domain Code	Orebody	Zn (%) - Assay (length weighted)						Cu (%) - Assay (length weighted)					
		Count	Mean	StdDev	CV	Min	Max	Count	Mean	StdDev	CV	Min	Max
13	150	1,638	6.5	8.87	1.36	0.01	52.34	1,638	0.43	0.72	1.69	0	9.66
13b	152	2,276	7.77	9.36	1.21	0.01	48.54	2,276	0.42	0.83	1.97	0.01	17.02
13r8	180	18	6.95	4.4	0.63	0.08	13.09	18	0.36	0.35	0.95	0.03	1.17
13r72	182	71	4.81	5.81	1.21	0.01	20.93	71	0.58	0.88	1.54	0.01	4
13u	186	2,086	6.18	7.25	1.17	0	47.08	2,086	0.45	0.9	1.97	0	19.28
13w	188	33	5.91	8.74	1.48	0.01	36.48	33	0.41	0.53	1.28	0.01	1.92
18	300	165	3.16	4.68	1.48	0.01	34.23	165	0.25	0.33	1.3	0.01	3.1
18b	302	65	2.56	2.49	0.97	0.23	12.83	65	0.23	0.17	0.72	0.03	0.78
18f	306	131	3.14	3.3	1.05	0.09	24.4	131	0.28	0.25	0.9	0.01	1.63
23	350	568	3.32	3.84	1.15	0.02	29.94	568	0.21	0.26	1.24	0.01	3.95
91	400	15	7.98	5.81	0.73	0.3	18.3	15	0.32	0.18	0.56	0.11	0.71
251	450	94	5.45	7.22	1.33	0.01	40.92	94	0.74	1.15	1.56	0.01	6.88
251c	453	61	4.57	5.65	1.24	0.05	28.63	61	0.65	0.72	1.11	0.02	3.68
251d	454	31	7.09	10.25	1.45	0.59	33.84	31	0.97	0.86	0.89	0.08	2.87
ani	500	170	3.51	4.17	1.19	0.05	22.28	170	0.3	0.49	1.6	0.01	3.48
ania	501	146	5.2	6.34	1.22	0.17	54.67	146	0.36	0.51	1.41	0.01	4.15
cher	550	55	9.81	9.58	0.98	0.01	27.15	55	0.83	2.64	3.19	0.01	15.38
cne	600	661	2.93	4.66	1.59	0.02	40.28	661	0.25	0.47	1.9	0.01	5.74
ing	750	159	6.18	7.28	1.18	0.01	37.53	159	0.59	1.3	2.2	0.01	12.2
sb	950	4,207	6.11	6.53	1.07	0.01	42.77	4,207	0.35	0.5	1.42	0.01	8.13
sga	1001	35	11.62	12.79	1.1	0.11	48.54	35	0.24	0.22	0.94	0.01	0.87





Domain Code	Orebody	Zn (%) - Assay (length weighted)						Cu (%) - Assay (length weighted)					
		Count	Mean	StdDev	CV	Min	Max	Count	Mean	StdDev	CV	Min	Max
sge	1005	871	5.79	7.83	1.35	0.01	36.45	871	0.34	0.68	1.98	0.01	7.46
sgf	1006	157	12.59	11.68	0.93	0.01	41.38	157	0.45	0.72	1.6	0.01	5.53
sgg	1007	53	8.06	8.96	1.11	0.04	36.12	53	0.45	0.46	1.02	0.01	2.13
sgq	1017	10	4.98	7.51	1.51	0.04	28.6	10	0.34	0.59	1.75	0.01	2
Domain Code	Orebody	Ag (g/t) - Assay (length weighted)						Pb (%) - Assay (length weighted)					
		Count	Mean	StdDev	CV	Min	Max	Count	Mean	StdDev	CV	Min	Max
13	150	1,638	97.91	134.38	1.37	1	1,461.55	1,638	2.06	4.61	2.23	0.01	63.89
13b	152	2,276	113.55	141.5	1.25	2.02	1,652.84	2,276	2.66	4.67	1.76	0.01	32.02
13r8	180	18	55.8	65.76	1.18	2.02	215.24	18	1.23	2.74	2.22	0.01	8.14
13r72	182	71	58.58	84.53	1.44	2.02	317.26	71	0.67	1.86	2.76	0.01	8.11
13u	186	2,086	130.56	162.87	1.25	0.1	2,235.41	2,086	2.42	4.37	1.8	0	42.65
13w	188	33	64.96	50.85	0.78	2.02	254.74	33	0.28	0.33	1.19	0.02	1.82
18	300	165	115.85	153.08	1.32	2.02	1,065.45	165	2.5	3.53	1.41	0.01	19.49
18b	302	65	144.35	189.45	1.31	1.99	1,304.88	65	2.37	3.1	1.31	0.01	18.29
18f	306	131	125.21	114.91	0.92	2.02	602.79	131	2.38	2.26	0.95	0.01	13.33
23	350	568	103.69	161.3	1.56	1.99	1,711.19	568	2.19	2.97	1.35	0.01	21.02
91	400	15	188.71	169.82	0.9	2.78	646.33	15	1.96	3.57	1.82	0.01	11.57
251	450	94	72.56	80.2	1.11	2.02	390.97	94	0.35	0.75	2.12	0.01	5.15
251c	453	61	73.6	73	0.99	2.02	494.23	61	0.59	1.63	2.74	0.02	10.51
251d	454	31	73.01	45.49	0.62	5.91	175.73	31	0.33	0.61	1.88	0.01	3.5
ani	500	170	37.99	79.02	2.08	2.02	545.21	170	0.95	2.43	2.56	0.01	17.59
ania	501	146	87.26	150.33	1.72	2.02	1,118.85	146	2.49	4.17	1.67	0.02	29.07





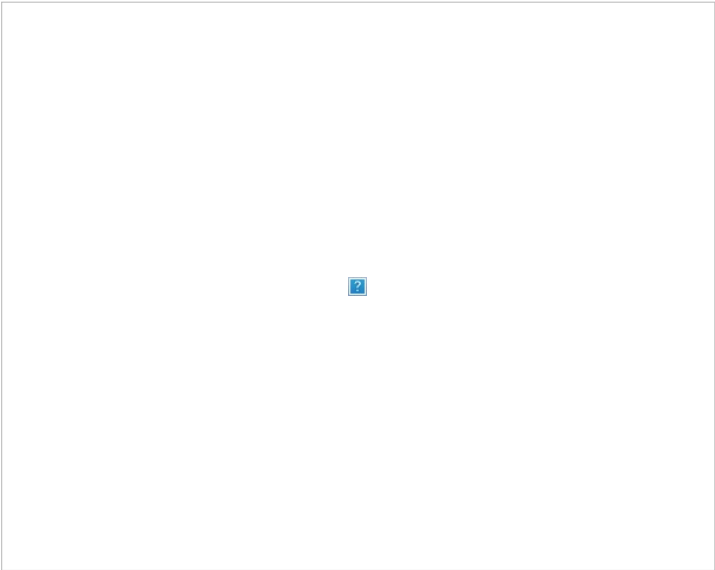
Domain Code	Orebody	Ag (g/t) - Assay (length weighted)						Pb (%) - Assay (length weighted)					
		Count	Mean	StdDev	CV	Min	Max	Count	Mean	StdDev	CV	Min	Max
cher	550	55	135.32	116.45	0.86	1.61	403.72	55	4.99	8.52	1.71	0	38.7
cne	600	661	21.42	29.12	1.36	2.02	246.65	661	0.8	1.68	2.1	0.01	19.77
ing	750	159	60.34	95.59	1.58	2.02	807.45	159	0.51	1.8	3.5	0.01	17.7
sb	950	4,207	166.88	240.3	1.44	1	3,165.09	4,207	4.35	5.87	1.35	0.01	44.18
sga	1001	35	56.47	60.69	1.07	2.02	257.85	35	0.58	1.91	3.27	0.02	11.11
sge	1005	871	112.34	213.11	1.9	0.27	3,800.84	871	2.48	4.38	1.77	0	32.6
sgf	1006	157	108.68	158.55	1.46	1	893.03	157	2.3	5.01	2.18	0.01	21.76
sgg	1007	53	155.81	237.43	1.52	1	1,152.69	53	2.74	3.75	1.37	0.02	18.66
sgq	1017	10	74.39	71.14	0.96	2.02	200.31	10	0.15	0.28	1.82	0.01	1.04





In the Atacocha underground deposit, approximately 80% of the samples are derived from drill holes, which consist of diamond drilling from both surface and underground, while 20% originate from channel samples. Sampling is naturally denser within developed galleries and mined stopes, as it is usually the case for underground mining. Figure 11-53 shows CDFs for the samples, with and without declustering weights. The declustered statistics have a lower mean for most variables, except for Cu, confirming the preferential bias for sampling mineralized areas.

Figure 11-53: Atacocha Underground CDF Main Elements, Comparing Declustered and Original Data.

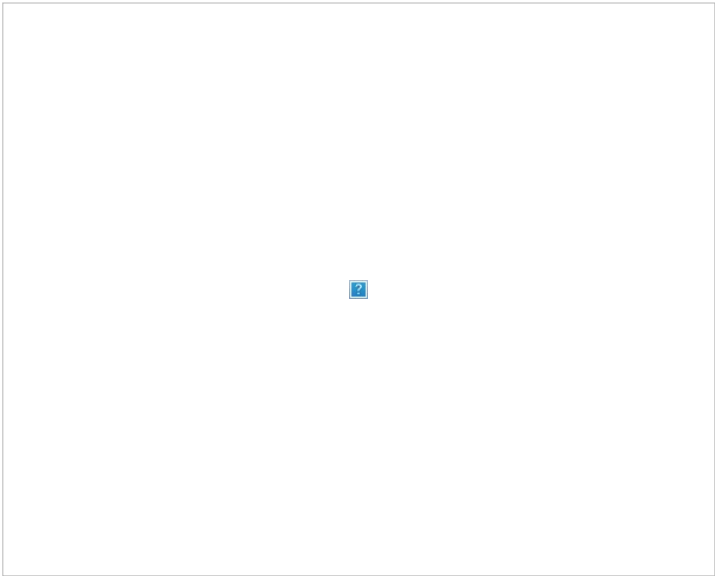


Given the polymetallic nature of the mineralization, a bivariate statistical analysis is conducted to evaluate the relationships between the variables. Figure 11-54 shows scatter plots for the main elements, alongside their correlation coefficients. Generally, intermediate correlations are observed for most elements, apart from Cu, which shows less correlation.





Figure 11-54: Atacocha Underground Scatter Plots



11.6.4 Treatment of High Grade Assays

Where the assay distribution is skewed positively or approaches lognormal, erratic high grade values can have a disproportionate effect on the average grade of a deposit. One method of treating these outliers to reduce their influence on the average grade is to cut or cap them at a specific grade level.

Atacocha staff evaluated the raw grades using log-probability plots to assess the influence of higher grades for each element using estimation domains. The approach, applied by Atacocha staff, for restricting outliers was to identify a pronounced break in the probability curve that occurs above the 95th percentile.

A second capping level for the third interpolation pass in channel composites was applied to restrict the high grade influence.

Table 11-44 lists the capping levels for drill hole ("CAPD"), channel ("CAPC") raw data determined for each estimation domain, and the second capping levels applied to samples used for the third interpolation pass.



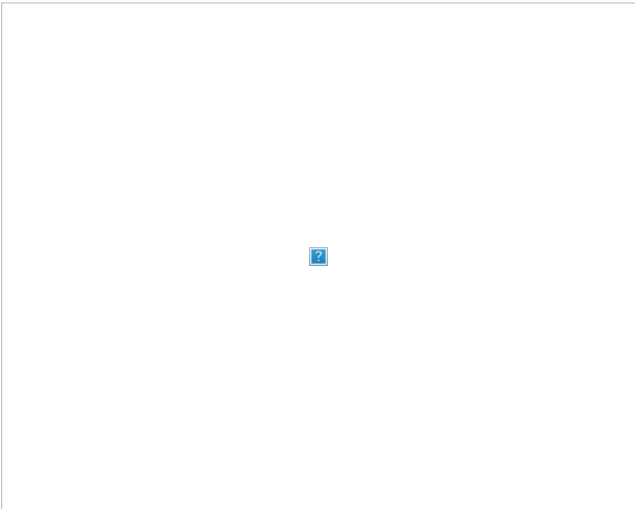
Table 11-44: Atacocha Underground DDH, CHNL, and Second Level Top-Cut Values

Domain	Zn DDH	Zn CHNL	Zn 2 nd Level	Ag DDH	Ag CHNL	Ag CHNL 2 nd Level	Pb DDH	Pb CHNL	Pb CHNL 2 nd Level	Cu DDH	Cu CHNL	Cu CHNL 2 nd Level
13	36	46.2	27.1	620	590	118	10.6	-	1.97	9.4	-	1.33
18	17.9	15.8	13.5	551	637	585.8	14	14	13.91	2.5	1	0.69
23	20.17	18	12.13	710	798	511.6	10.6	15	8.38	-	2.4	1.07
91	-	12.71	12.41	-	215	185.7	-	14	7.49	-	1.07	0.685
251	-	-	-	230.2	-	-	1.788	-	-	4.41	-	-
13b	-	48.5	28.54	-	-	521.1	-	-	5.8	-	18	2.1
13r72	37.2	22	12.1	662	980	254.1	19.8	22.4	5.4	9.4	6	1.7
13r8	31.1	40	19.7	748	1,194	392.3	20.5	24.5	10.5	8.1	13.1	3.2
13u	32.5	41.5	21.9	-	1,232	545.2	20.4	22.2	13.3	5	6	1.5
13w	32.5	41.5	21.9	-	1,232	545.2	20.4	22.2	13.3	5	6	1.5
18b	15.86	10.83	9.6	1,243	1,399	651.8	15.5	15.6	10.06	1.32	-	0.62
18f	17.9	15.8	13.5	551	637	585.8	14	14	13.91	2.5	1	0.69
251c	-	-	-	230.2	-	-	1.788	-	-	4.41	-	-
251d	-	-	-	230.2	-	-	1.788	-	-	4.41	-	-
ani	20.35	18.93	11.46	400	420	88.06	-	18.91	3	9.42	-	0.88
ania	20.35	18.93	11.46	400	420	88.06	-	18.91	3	9.42	-	0.88
cher	5	-	2.5	270	-	175	-	-	4	0.6	-	0.16
cne	16	18	10	115	150	34	3	5	0.77	1.2	0.8	0.49
ing	28	-	-	310	-	-	10	-	-	1.8	-	-
sb	23	30	17	715	700	200	14	23	7	4	4.7	0.99
sga	15	-	-	-	-	-	6.6	-	-	2.5	-	-
sge	26	-	-	570	-	-	12.7	-	8.7	4.3	-	-
sgf	26	-	-	570	-	-	12.7	-	8.7	4.3	-	-
sgg	26	-	-	570	-	-	12.7	-	8.7	4.3	-	-
sgq	12.6	30	15.8	-	-	-	14	18	12	2	2.7	1

Figure 11-55 shows the capping effect on overall distribution of grades for drill holes and channels together within Atacocha UG. The capped distributions show only minor reductions in their means.



Figure 11-55: Atacocha Underground Capping Effect on Drill Hole and Channel Distributions



11.6.5 Compositing

The average length of samples within the mineralized domains is 1.50 m. Capped sample data was composited to two metre lengths, which corresponds to half of the parent block size height for the deposit.

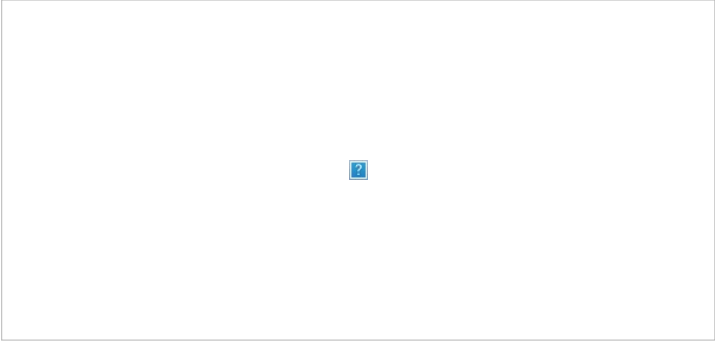
The composite length was selected based on analysis of four composite length levels (1 m, 2 m, 3 m, and 4 m). Figure 11-56 illustrates a comparison of the mean relative error of Zn between length-weighted raw assay mean versus composite mean, by mineralization domain for the different composite lengths.

Atacocha staff generated statistics to compare the distribution of the raw assays and the composites (Figure -11-57). An approximately less than two percent increase in means after compositing was observed.





Figure 11-56: Atacocha Underground Compositing Analysis



Source: Nexa, 2023





Figure 11-11-57: Sample Distributions before and after Compositing to 2 m Length

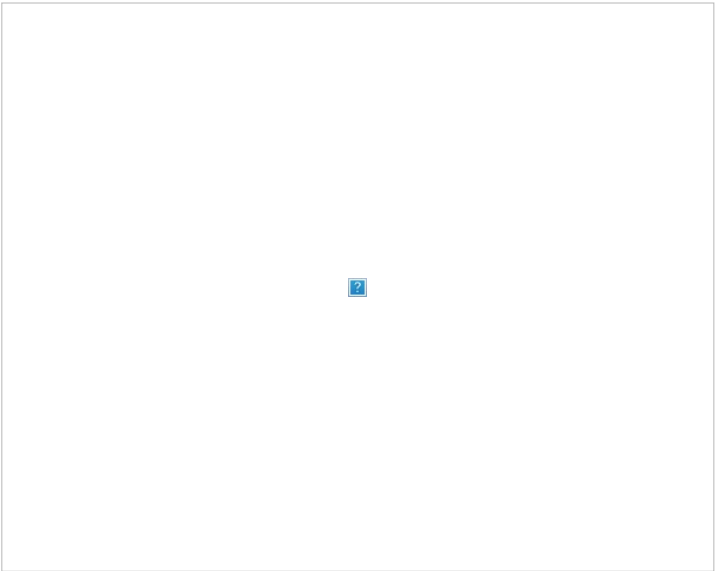


Table 11-45 shows the summary statistics for the 25 largest domain contributors to the Mineral Resource tonnage, before and after compositing.





Table 11-45: Atacocha Underground Compositing Statistics for the 25 Main Domains

Domain	Zn (%) - Assay (2 m composites)						Cu (%) - Assay (2 m composites)					
	Count	Mean	StdDev	CV	Min	Max	Count	Mean	StdDev	CV	Min	Max
13	3,711	4.07	5.94	1.46	0	46.2	3,711	0.44	0.65	1.48	0	7.01
13b	5,960	8.02	8.72	1.09	0	48.5	5,960	0.53	1.32	2.47	0	18
13r72	93	3.27	3.36	1.02	0	22.3	93	0.17	0.24	1.47	0	1.47
13r8	459	4.21	4.73	1.12	0	40	459	0.07	0.11	1.61	0	1.54
13u	4,577	4.76	6.7	1.41	0	41.5	4,577	0.46	0.59	1.3	0	6
13w	1,533	5.41	4.6	0.85	0	34.27	1,533	0.05	0.06	1.12	0	1.04
18	671	2.74	2.94	1.07	0	17.9	671	0.45	0.45	1.01	0	2.5
18b	319	2.09	1.61	0.77	0	7.72	319	0.11	0.06	0.54	0	1.09
18f	100	1.62	1.9	1.17	0	9.3	100	0.22	0.34	1.53	0	1.7
23	823	2.6	3.37	1.29	0	18	823	0.19	0.26	1.4	0	2.38
251	103	5.93	7.77	1.31	0	28.95	103	0.4	0.32	0.8	0	1.23
251c	19	3.63	5.02	1.38	0	25.93	19	0.71	0.74	1.03	0	2.98
251d	12	4.08	4.51	1.1	0.45	16.47	12	1.85	1.41	0.76	0.04	3.58
91	91	1.35	1.06	0.79	0	12.13	91	0.11	0.11	1.07	0	0.97
ani	314	4.36	2.45	0.56	0	20.01	314	0.2	0.17	0.85	0	2.03
ania	1,363	4.25	3.3	0.78	0	20.35	1,363	0.23	0.22	0.96	0	4.9
cher	47	0.61	0.65	1.06	0.02	5	47	0.07	0.03	0.35	0.01	0.47
cne	4,993	3.5	2.95	0.84	0	18	4,993	0.18	0.18	0.98	0	1.2
ing	89	2.66	2.98	1.12	0.04	15.07	89	0.13	0.16	1.2	0.01	0.96
sb	6,448	3.59	4.1	1.14	0	29.99	6,448	0.33	0.39	1.19	0	4.7
sga	61	4.78	4.89	1.02	0	13.79	61	0.51	0.46	0.91	0	2.07





Domain	Zn (%) - Assay (2 m composites)						Cu (%) - Assay (2 m composites)					
	Count	Mean	StdDev	CV	Min	Max	Count	Mean	StdDev	CV	Min	Max
sge	54	6.78	7.13	1.05	0.01	23.7	54	1.1	1	0.91	0.07	4.24
sgf	41	3.01	4.97	1.65	0.03	26	41	0.71	1	1.41	0.03	4.3
sgg	37	7.26	6.12	0.84	0.06	16.69	37	1.49	0.82	0.55	0.01	3.37
sgq	6	7.2	3.87	0.54	2.51	11.82	6	0.53	0.15	0.28	0.02	0.76
Domain	Ag (g/t) - Assay (2 m composites)						Pb (%) - Assay (2 m composites)					
	Count	Mean	StdDev	CV	Min	Max	Count	Mean	StdDev	CV	Min	Max
13	3,711	47.14	64.57	1.37	0	620	3,711	0.57	1.34	2.33	0	12.21
13b	5,960	152.86	182.94	1.2	0	3,800.84	5,960	1.2	2.84	2.37	0	39.7
13r72	93	18.62	33.23	1.78	0	313.99	93	0.3	0.81	2.65	0	12.85
13r8	459	55.13	52.22	0.95	0	979.01	459	1.61	1.82	1.14	0	23.35
13u	4,577	118.56	142.55	1.2	0	1232	4,577	2.3	4.14	1.8	0	22.2
13w	1,533	217.25	202.82	0.93	0	1232	1,533	4.4	4.03	0.92	0	22.2
18	671	68.65	80.75	1.18	0	607.33	671	0.57	1.22	2.12	0	14
18b	319	89.98	74.09	0.82	0	1243	319	1.3	1.1	0.85	0	10.73
18f	100	34.76	47.91	1.38	0	375.18	100	0.5	0.76	1.52	0	5.82
23	823	88.62	117.45	1.33	0	790.51	823	1.26	2.02	1.61	0	15
251	103	19.04	18.09	0.95	0	88.76	103	0.12	0.22	1.77	0	1.17
251c	19	34.23	34.19	1	0	177.99	19	0.07	0.1	1.38	0	0.47
251d	12	83.69	53.53	0.64	4.63	215	12	0.28	0.34	1.22	0.03	1.26
91	91	21.32	11.18	0.52	0	202.4	91	0.98	0.56	0.57	0	11.23
ani	314	40.08	33.43	0.83	0	344.57	314	0.97	0.75	0.77	0	10.63
ania	1,363	23.18	31.87	1.38	0	364.33	1,363	0.77	1.44	1.87	0	16.28
cher	47	39.24	10.11	0.26	2.02	212.46	47	0.77	0.7	0.91	0.01	7.16





Domain	Ag (g/t) - Assay (2 m composites)						Pb (%) - Assay (2 m composites)					
	Count	Mean	StdDev	CV	Min	Max	Count	Mean	StdDev	CV	Min	Max
cne	4,993	10.18	13.34	1.31	0	150	4,993	0.17	0.37	2.18	0	5
ing	89	27.13	33.64	1.24	2.02	218.17	89	0.86	1.28	1.48	0.01	7.79
sb	6,448	27.78	53.84	1.94	0	707.39	6,448	0.78	1.8	2.33	0	23
sga	61	52.09	39.31	0.75	0	1,251.5	61	0.11	0.09	0.8	0	6.6
sge	54	187.19	125.78	0.67	13.7	492.23	54	1.02	1.21	1.19	0.11	7.12
sgf	41	102.7	109.85	1.07	2.42	486.94	41	1.52	1.25	0.82	0.02	9.5
sgg	37	54.22	37.27	0.69	13.07	535	37	0.29	0.53	1.81	0	12.45
sgq	6	7.18	1.59	0.22	1.8	10.98	6	0.01	0	0.37	0.01	0.09





11.6.6 Trend Analysis

11.6.6.1Variography

Atacocha staff generated downhole and directional variograms using the two metre composite values building a variogram for each estimation domain and each element. The variograms were used to support the characterization and quantification of the variance of mineralization within the spatial continuity of the mineralization domains being analyzed.

Variograms were standardized and modelled using two spherical structures in three directions. The variograms were used for OK interpolation and as a guide for selecting search ellipse ranges.

The results for variogram parameters for the 25 largest domain tonnage contributors to the Mineral Resource are tabulated in Table 11-46. An example of downhole and directional variogram models for the three main directions of continuity is shown in Figure 11-58.





Table 11-46: Atacocha Underground Zn Variogram Parameters for Main 25 Domains

Domain	ESTIM	Datamine Rotation V-ANGLE			Nugget	Structure 1				Structure 2			
		1	2	3		ST1PAR1	ST1PAR2	ST1PAR3	C1	ST2PAR1	ST2PAR2	ST2PAR3	C2
13	150	-134.36	-54.47	-53.95	0.17	7	8	13	0.29	33	23	17	0.55
18	300	-100.82	39.82	-96.52	0.10	31	12	4	0.66	33	21	20	0.25
23	350	28.08	65.19	-35.42	0.13	21	13	10	0.37	42	27	13	0.50
91	400	-14.01	-68.91	-135.99	0.20	21	28	10	0.30	32	32	16	0.50
251	450	84.01	68.91	-135.99	0.17	45	44	10	0.46	59	48	16	0.37
13b	152	52.86	47.73	-67.37	0.17	15	24	8	0.25	34	30	10	0.58
13r72	156	79.03	61.10	-122.38	0.14	13	6	6	0.51	31	32	20	0.35
13r8	153	-153.02	74.21	108.68	0.19	11	9	8	0.55	42	50	11	0.25
13u	157	130.00	75.00	180.00	0.16	8	15	4	0.54	50	38	14	0.30
13w	157	130.00	75.00	180.00	0.16	8	15	4	0.54	50	38	14	0.30
18b	301	67.33	-24.90	95.51	0.28	62	12	13	0.24	65	49	20	0.48
18f	300	-100.82	39.82	-96.52	0.10	31	12	4	0.66	33	21	20	0.25
251c	450	84.01	68.91	-135.99	0.17	45	44	10	0.46	59	48	16	0.37
251d	450	84.01	68.91	-135.99	0.17	45	44	10	0.46	59	48	16	0.37
ani	500	148.02	-74.21	-71.32	0.19	11	7	11	0.29	26	23	14	0.52
ania	500	148.02	-74.21	-71.32	0.19	11	7	11	0.29	26	23	14	0.52
cher	550	30.00	-5.00	-90.00	0.22	24	10	5	0.32	41	50	10	0.47
cne	600	10.00	-65.00	-90.00	0.11	13	12	8	0.41	36	22	17	0.48
ing	750	-118.07	41.56	-30.79	0.25	65	45	6	0.27	88	69	10	0.49
sb	950	-90.00	90.00	-90.00	0.12	25	12	14	0.40	63	66	28	0.48
sga	1000	8.52	31.32	-60.35	0.29	48	37	16	0.56	76	63	20	0.16
sge	1003	20.00	-75.00	-90.00	0.17	6	4	3	0.37	33	19	13	0.46



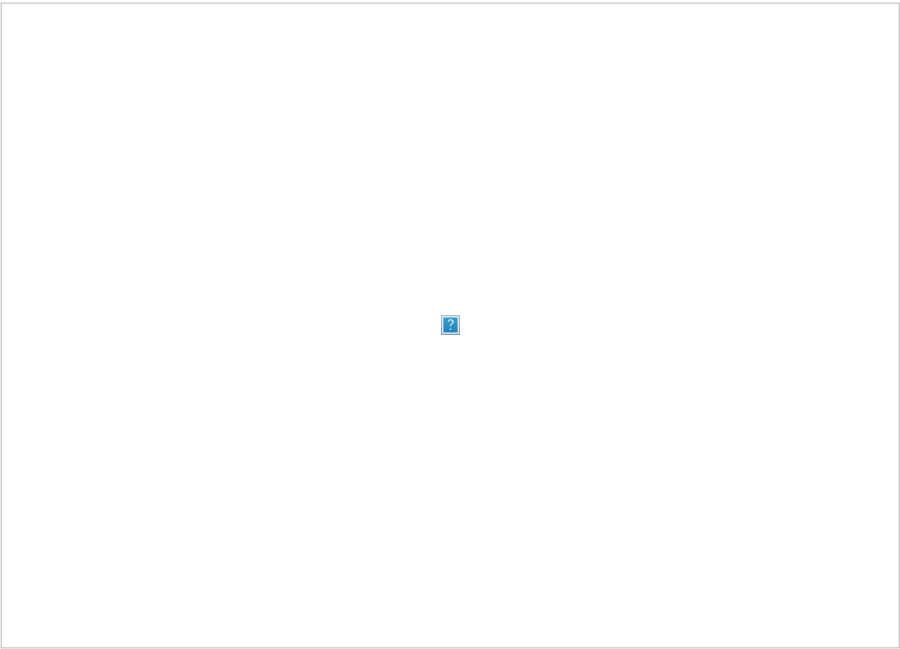


Domain	ESTIM	Datamine Rotation V-ANGLE			Nugget	Structure 1				Structure 2			
		1	2	3		ST1PAR1	ST1PAR2	ST1PAR3	C1	ST2PAR1	ST2PAR2	ST2PAR3	C2
sgf	1003	20.00	-75.00	-90.00	0.17	6	4	3	0.37	33	19	13	0.46
sgg	1003	20.00	-75.00	-90.00	0.17	6	4	3	0.37	33	19	13	0.46
sgq	1005	-59.27	-72.04	147.05	0.10	10	9	5	0.42	44	27	12	0.48





Figure 11-58: Downhole and Directional Zn Experimental Variograms and Models for Estimation Group 1005.





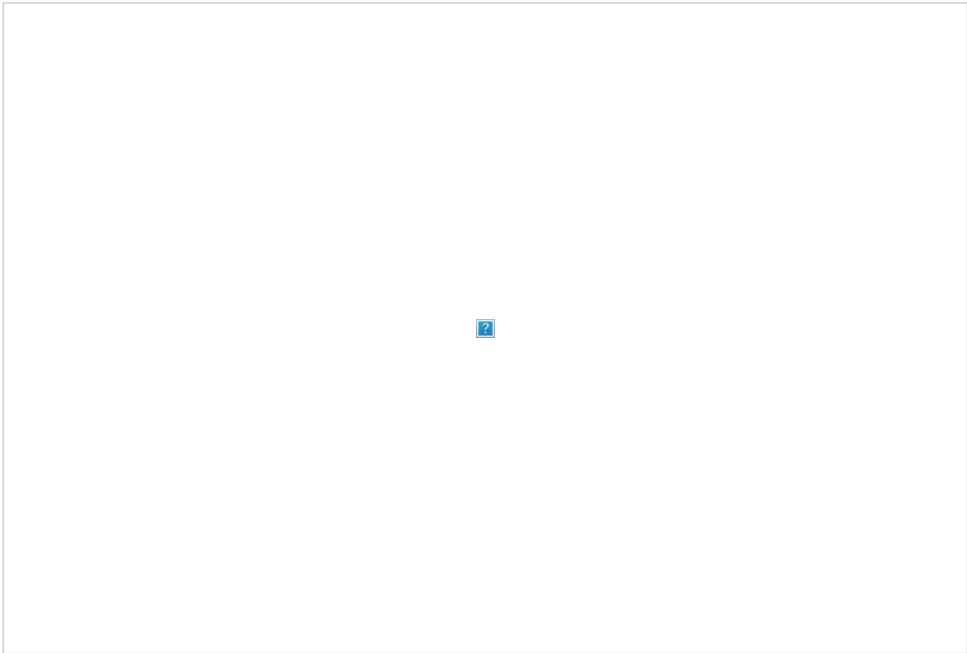
11.6.6.2Grade Contouring

Grade contours play an important role in aiding the initial detection of preferential grade patterns within mineralization domains. A brief assessment was carried out for Zn within the “sgg” and “sge” domains to assess potential grade trends (Figure 11-59). Grades exhibit a strong vertical trend and vertical anisotropy within the “sgg” domain. Grades are concentrated towards the central portion of the “sge” domain, which exhibits a slight vertical anisotropy.





Figure 11-59: Contour Zn Grades for the “sge” Domain (Orebody=1005) (left) and “sgg” Domain (Orebody=1007) (right)





11.6.7 Search Strategy and Grade Interpolation Parameters

Orientation of the search ellipse and search parameters were based on the modelled variograms and the geometry of the modelled mineralization wireframes.

The final estimated values for Zn, Cu, Ag, and Pb grades at Atacocha UG are determined by OK and ID³. Initially, the estimation process incorporates OK, ID³, and NN interpolators, followed by an individual domain analysis to select between OK or ID³ results. This selection is based on domain-specific criteria such as sample quantity, average difference between OK and ID³ compared to NN, and domain size/volume. Variograms are defined based on estimation groups, allowing even domains with limited samples to be estimated via OK for comparison and validation purposes. Grade variables are not density or length-weighted during estimation.

To capture domain trends, dynamic anisotropy angles are calculated in Studio RM using domain wireframes. The estimation process includes three passes: the first pass utilizes search ellipse radii equivalent to variogram ranges for each variable; the second pass increases the radii by a factor of 1.25 to 3; and the third pass employs radii 10 to 100 times larger than the first pass.

The minimum and maximum sample numbers range from two to 25 for the first pass, two to 20 for the second pass, and two to 20 for the third pass, with a maximum of two samples per drill hole. Minor adjustments are made as needed to improve the final estimation result (Table 11-47).





Table 11-47: Atacocha Underground Zn Search Parameters for Main 25 Domains

Mineralization Domain	C_ESTIM	Search Ellipse (m)			Pass 1	No. Composites		Pass 2	No. Composites		Pass 3	No. Composites	
		1	2	3	S-Vol	Min	Max	S-Vol	Min	Max	S-Vol	Min	Max
13	150	23	13	7.5	1	6	16	2	6	16	20	2	8
18	300	25	15.5	10	1	6	16	2	6	16	20	2	8
23	350	17	12.5	6.5	1	6	16	2	6	16	10	2	8
91	400	18	30	8	1	6	16	2	6	16	20	2	8
251	450	30	30	8	1	4	8	2	6	16	20	2	8
13b	152	39.5	34	6	1	6	16	2	4	8	20	2	4
13r72	156	13.5	13	10	1	6	12	2	6	12	20	2	4
13r8	153	21	25	5.5	1	6	16	2	6	16	20	2	8
13u	157	25	19	7	1	6	16	2.5	4	8	10	1	3
13w	157	25	19	7	1	6	16	2	6	16	20	2	8
18b	301	15	10	8	1	10	15	2	6	10	10	4	10
18f	300	20	15	10	1	10	15	2	7	10	20	5	10
251c	450	30	30	8	1	6	16	2	6	16	10	2	8
251d	450	30	30	8	1	6	16	2	6	16	10	2	8
ani	500	25	10	7	1	10	20	2	7	15	10	5	15
ania	500	25	10	7	1	15	20	2	10	15	30	5	15
cher	550	20	25	5	1	6	16	2	4	8	40	1	3
cne	600	32	16	10	1	10	20	2	7	15	10	5	15
ing	750	15	25	10	1	6	16	2	6	16	20	1	8
sb	950	40	48	14	1	6	16	2	8	16	10	2	4
sga	1000	30	20	10	1	6	10	2	4	7	10	2	7





Mineralization Domain	C_ESTIM	Search Ellipse (m)			Pass 1	No. Composites		Pass 2	No. Composites		Pass 3	No. Composites	
		1	2	3	S-Vol	Min	Max	S-Vol	Min	Max	S-Vol	Min	Max
sgc	1003	70	50	30	1	6	15	2	4	10	10	2	7
sgf	1003	70	50	30	1	6	10	2	4	7	10	2	7
sgg	1003	70	50	30	1	6	10	2	4	7	10	2	7
sgq	1005	50	30	20	1	3	10	2	2	7	10	2	7





11.6.8 Bulk Density

A total of 1,083 density measurements were taken within the underground mineralization zones and 2,853 density measurements, within the wall rock.

The density values vary from 1.54 g/cm³ to 5.73 g/cm³, with an approximate global average of 3.46 g/cm³ within the mineralization and 2.89 g/cm³ within the wall rock.

Density values are unevenly distributed across the main domains, and some of the domains either do not have any density measurement or have very few. The QP notes that density distributions per domain have low CV.

In a quantitative analysis, the density values are better correlated with the Zn and Pb grades, as demonstrated in Figure 11-60.

Figure 11-60: Atacocha Underground Correlation Matrix (left) and Scatter Plot between Density and Zn (right)

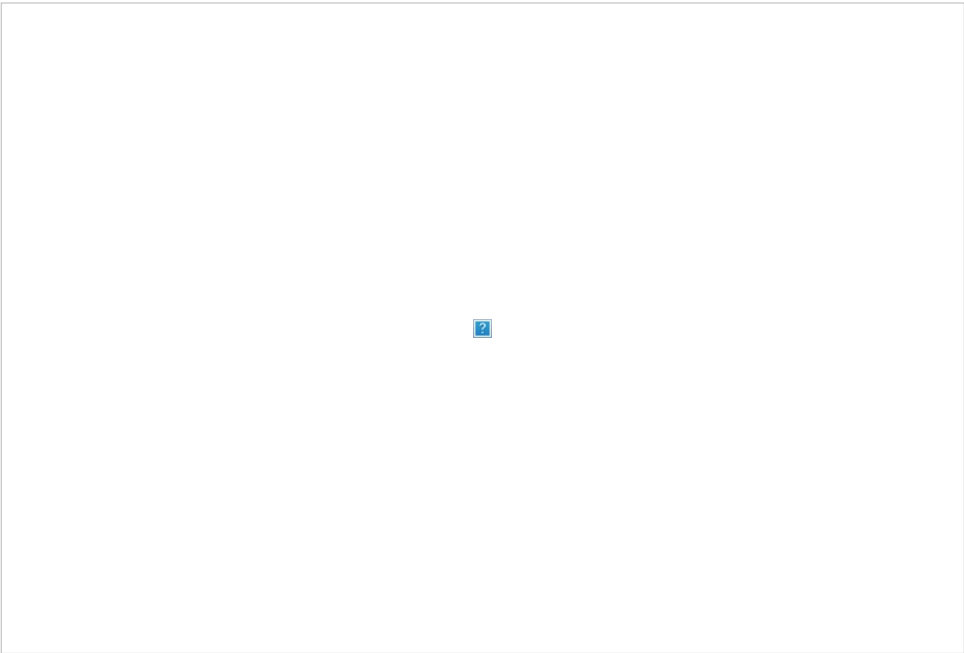


Figure 11-61 shows an isometric view of density composites in relation to the domains.





Figure 11-61: Atacocha Underground Density Composites





Of the 25 main domains, 18 have density values, totalling 655 density samples. Density varies across different domains, having means between 2.91 g/cm³ and 4.03 g/cm³. Table 11-48 summarizes the density sample statistics of the main domains.

Table 11-48: Atacocha Underground Density Statistics of the Main Domains

Domain	Count	Mean	CV	Min	Max
13	95	3.4	0.14	2.37	4.66
13r72	12	3.46	0.05	3.19	3.7
13r8	8	3.53	0.2	2.55	4.31
18	120	3.56	0.14	2.67	4.59
18b	4	3.39	0.1	2.86	3.72
23	59	3.36	0.21	2.48	4.99
91	38	3.14	0.09	2.62	4.14
ani	33	3.54	0.13	2.68	4.37
ania	39	3.48	0.09	2.77	4.48
cne	102	3.71	0.13	1.54	4.8
ing	6	4.03	0.17	2.59	4.68
sb	87	3.69	0.12	2.68	4.51
sga	20	3.36	0.1	2.72	4.25
sge	16	3.37	0.09	2.63	3.87
sgf	7	3.42	0.12	3.03	4.16
sgg	8	2.91	0.08	2.68	3.49
sgq	1	3.98	0	3.98	3.98

Similar mineralization domains were grouped to form “C_ESTIM” domains (previously shown in Figure 11-27) and an average density value calculated for each group (Table 11-49). To assign density values to the block model, a local ID³ estimation method was used with a search neighbourhood radii equivalent to that applied to the Indicated Mineral Resources. For blocks situated beyond these radii or within domains lacking samples, the grouped domain's average density value was assigned.

Table 11-49: Atacocha Underground Grouped Mean Density

C_Estim	Mean (g/cm ³)	C_Estim	Mean (g/cm ³)	C_Estim	Mean (g/cm ³)	C_Estim	Mean (g/cm ³)
100	2.73	253	3.30	505	3.17	1002	3.32
13	3.49	254	3.46	503	3.31	1003	3.27
151	3.60	255	3.51	506	3.39	1004	3.27
152	3.49	300	3.58	550	3.48	1005	3.37





C_Estim	Mean (g/cm ³)	C_Estim	Mean (g/cm ³)	C_Estim	Mean (g/cm ³)	C_Estim	Mean (g/cm ³)
153	3.92	301	3.33	600	3.74	1050	3.48
154	3.62	507	3.02	6050	3.69	1150	3.39
155	3.49	508	3.21	650	3.39	1151	3.06
156	3.44	350	3.37	750	3.49	11680	3.36
150	3.49	351	3.21	850	3.48	1152	3.42
1650	3.44	352	3.53	900	3.70	1153	3.87
1680	3.62	400	3.15	901	3.55	1154	2.90
157	4.04	401	3.36	903	3.72	1300	3.21
200	3.31	450	3.44	902	3.57	1350	3.21
201	3.30	4520	3.44	904	3.79	1401	3.30
250	3.28	500	3.80	950	3.79	1400	3.30
251	3.30	501	3.32	1000	3.32	1500	3.39
252	3.42	502	3.25	1001	3.47		

11.6.9 Block Models

A sub-blocked model was generated with parent blocks size of 2 m x 2 m x 2 m and a minimum sub-cell size of 0.5 m x 0.5 m x 0.5 m. Sub-blocking took place at mineralization domain wireframe boundaries (Table 11-50).

Table 11-50: Atacocha Underground Sub-Blocked Model Definition

	X	Y	Z
Base Point	366,480.5	8,829,157.5	4,378.5
Boundary Size (m)	2,108	1,780	1,932
Parent Block (m)	4	4	4
Minimum Sub-Block (m)	0.5	0.5	0.5

11.6.10Net Smelter Return and Cut-off Value

An NSR value was calculated using the Mineral Resource metal prices, metallurgical recovery rates, transportation, treatment, and refining costs. Metal prices applied to Mineral Resources are 15% greater than Mineral Reserves, which are derived from consensus long-term forecasts obtained from financial institutions, banks, and other reliable sources. The NSR value is denominated in US\$/t and is computed for Mineral Resources to enable a meaningful comparison with production costs, helping to ascertain the economic viability of mining the mineralized material.

Currently, the mine yields Zn concentrate containing Zn and Ag, Cu concentrate containing Cu and Ag, and Pb concentrate containing Pb and Ag as saleable products. The payable metals in





these concentrates include transportation costs, refining charges, deductions, and penalty elements, as outlined in sales agreements established between the mine and smelters or traders.

The NSR factors are determined based on the smelter terms and metal prices, detailed in Table 11-51.

Table 11-51: Atacocha Underground NSR Cut-off Value Parameters

Item	Unit	Value
Plant Metallurgical Recovery		
Zn	%	89.30
Pb	%	80.02
Cu	%	15.73
Ag	%	77.51
Au	%	30.19
Zn Concentrate Payable %		
Zn	%	85
Ag	%	70
Cu Concentrate Payable %		
Cu	%	97
Ag	%	90
Pb Concentrate Payable %		
Pb	%	95
Ag	%	95
Metal Prices		
Zn	US\$/t	3,218.90
Pb	US\$/t	2,300.33
Cu	US\$/t	8,820.05
Ag	US\$/oz	24.35
SLS		
Mine cost	US\$/t	52.20
Development	US\$/t	23.91
Plant costs	US\$/t	10.43
G&A	US\$/t	6.37
Cut-off Value	US\$/t	69.00
CAF		
Mine cost	US\$/t	54.27
Development	US\$/t	23.91
Plant costs	US\$/t	10.43





Item	Unit	Value
G&A	US\$/t	6.37
Cut-off Value	US\$/t	71.07

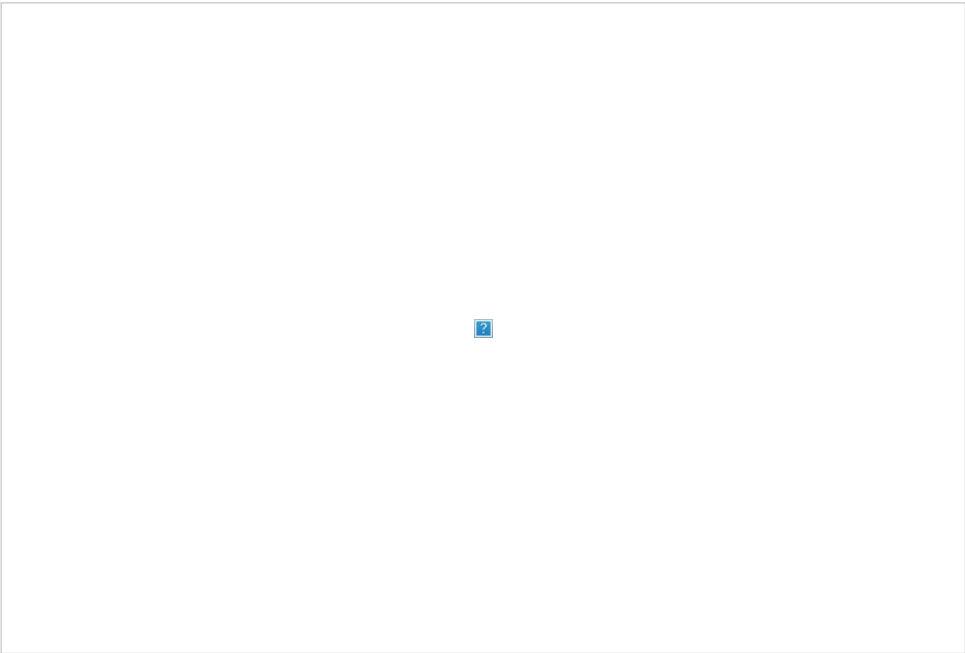
* Based on LOM average metal grades.

Figure 11-62 illustrates the Mineral Resource panels calculated for Atacocha UG, based on the NSR discussed above.





Figure 11-62: View of the Mineral Resource Reporting Panels of Atacocha Underground





11.6.11Classification

Two classification groups were defined based on geology and grade continuity. Blocks were classified as Measured, Indicated, and Inferred according to the number of holes and distances to holes determined by variogram ranges. Separate classification interpolation passes were run to flag the resource categories for each group:

Major Continuity Zones:

- Measured Mineral Resource: Composites from a minimum of three holes within a 26 m by 26 m by 13 m radii search.
- Indicated Mineral Resource: Composites from a minimum of three holes within a 51 m by 51 m by 26 m radii search.
- Inferred Mineral Resource: Composites from a minimum of two holes within a 102 m by 102 m by 51 m radii search.

Minor Continuity Zones:

- Measured Mineral Resource: Composites from a minimum of three holes within a 24 m by 24 m by 12 m radii search.
- Indicated Mineral Resource: Composites from a minimum of three holes within a 45 m by 45 m by 23 m radii search.
- Inferred Mineral Resource: Composites from a minimum of two holes within a 90 m by 90 m by 45 m radii search.

Figure 11-63 shows histogram validations of the classification based on the average number of samples and the search pass used to estimate each block by Mineral Resource category. The number of samples used is on average between five and 15 samples in most scenarios. The resource categories largely reflect the search passes, with most Measured blocks estimated on the first search pass, most Indicated blocks on the second pass, and most Inferred on the third. Despite this, there is a substantial spread of classes within the passes.

Figure 11-63: Atacocha Underground Histogram of Number of Samples and Search Pass by Class



The Mineral Resource classification applied to the Atacocha underground deposit is shown in Figure 11-64.



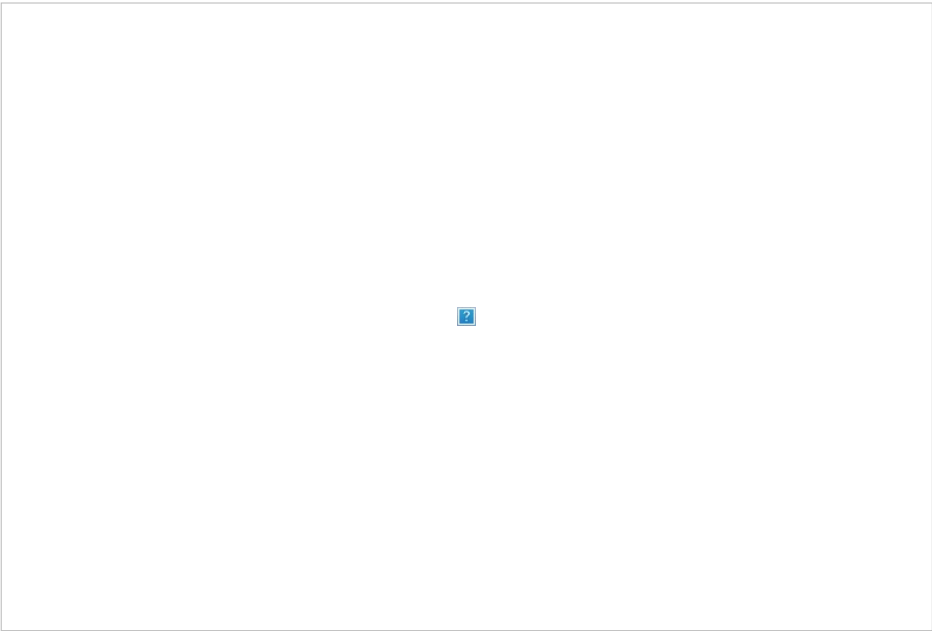


Although the QP considers the classification to be acceptable, the QP recommends that holes drilled parallel to mineralization be filtered out when calculating drill hole spacing for resource classification purposes.





Figure 11-64: Longitudinal View of the Mineral Resource Classification for the Atacocha Underground Resources Exclusive of Reserves





11.6.12Block Model Validation

Nexa staff and the QP perform several validations of the geological modelling and block model estimation, including grade shell volume comparison against the previous version, visual inspections of the dynamic anisotropy angles, estimation statistics by search volume, global statistics, visual validations, swath plots, and others, aiming to certify the consistency of the estimation process and the results.

SLR reviewed the files provided by Nexa staff containing validation tables, and figures, as well as performed independent extensive validations, including statistical correlations, visual validations, statistic validations, and swath plot analysis. The main checks are discussed in the following sections.

11.6.12.1GlobalStatistics

Global statistics of the interpolated OK and ID³ were compared with those of an NN estimation which serves as the reference, assessing performance of the different estimators and confirming the estimate's reproduction of the samples used for the estimation. Global statistics also help to identify inconsistencies in the estimation process.

Statistics for the main variables within the 25 main domains are demonstrated in Table 11-52.





Table 11-52: Atacocha Statistical Comparison Between OK, ID³, NN, and the Capped Composites

Domain	Cu (%) - OK				Cu (%) - ID ³				Cu (%) - NN			
	Mean	CV	Min	Max	Mean	CV	Min	Max	Mean	CV	Min	Max
13	0.39	0.95	0	4.84	0.39	1.11	0	6.4	0.38	1.45	0	5.7
13b	0.43	1.63	0	15.02	0.42	1.63	0	14.23	0.42	2.37	0	18
13r72	0.19	0.78	0	0.73	0.21	1.01	0	0.89	0.21	1.28	0	1.47
13r8	0.05	1.28	0	0.7	0.06	1.65	0	0.68	0.06	2.15	0	1.02
13u	0.5	0.86	0	3.38	0.5	0.88	0	4.03	0.49	1.29	0	6
13w	0.05	0.74	0	0.36	0.05	0.78	0	0.43	0.05	1.3	0	1.04
18	0.44	0.67	0.01	2.13	0.45	0.74	0	2.29	0.47	0.99	0	2.39
18b	0.12	0.68	0.02	0.67	0.12	0.75	0	0.88	0.12	1.03	0	1.04
18f	0.13	0.68	0	0.96	0.13	0.96	0	1.26	0.16	1.48	0	1.38
23	0.2	0.73	0	1.19	0.19	0.85	0	1.33	0.19	1.38	0	2.38
251	0.24	0.75	0	1	0.26	0.9	0	1.14	0.25	1.14	0	1.13
251c	0.94	0.3	0.2	1.91	1.04	0.48	0	2.24	1.04	0.61	0	1.91
251d	1.93	0.23	0.2	3.15	1.97	0.54	0.08	3.47	1.97	0.66	0.2	3.15
91	0.22	0.55	0.02	0.68	0.24	0.69	0	0.91	0.26	1.03	0	0.97
ani	0.33	0.39	0.06	0.89	0.31	0.54	0.03	1.05	0.32	0.8	0	1.33
ania	0.35	0.48	0	3.67	0.36	0.63	0	4.76	0.33	0.95	0	3.15
cher	0.11	0.62	0.01	0.3	0.11	0.67	0.01	0.4	0.11	0.79	0.01	0.27
cne	0.22	0.6	0.02	0.91	0.21	0.68	0	1.17	0.22	0.97	0	1.2
ing	0.19	0.54	0.02	0.71	0.24	0.81	0.01	0.9	0.24	0.92	0.01	0.75
sb	0.34	0.67	0	2.63	0.34	0.72	0	2.89	0.33	1.03	0	4
sga	0.51	0.69	0.02	1.4	0.52	0.74	0	1.79	0.53	0.97	0	1.66





Domain	Cu (%) - OK				Cu (%) - ID ³				Cu (%) - NN			
	Mean	CV	Min	Max	Mean	CV	Min	Max	Mean	CV	Min	Max
sge	1.29	0.59	0.15	3.45	1.28	0.74	0.07	4.02	1.24	0.82	0.07	3.56
sgf	0.85	0.58	0.12	3.35	0.81	0.96	0.07	4.06	0.71	1.22	0.07	3.81
sgg	0.98	0.29	0.19	2.97	0.98	0.55	0.01	3.35	0.97	0.68	0.01	3.12
sgq	0.31	0.26	0.09	0.68	0.33	0.52	0.02	0.7	0.22	1.1	0.02	0.67
Domain	Zn (%) - OK				Zn (%) - ID ³				Zn (%) - NN			
	Mean	CV	Min	Max	Mean	CV	Min	Max	Mean	CV	Min	Max
13	3.61	1	0	31.36	3.48	1.14	0	36.2	3.26	1.54	0	45.53
13b	7.23	0.82	0	37.29	7.41	0.8	0	37.36	7.06	1.19	0	47.2
13r72	2.69	1.11	0	17.68	2.47	1.19	0	21.26	2.38	1.47	0	20.28
13r8	4.68	0.55	0.15	20.98	4.64	0.64	0	21.29	4.46	0.98	0	23.45
13u	5.35	0.95	0	35.24	5.35	1.01	0	34.76	5.04	1.43	0	41.5
13w	5.16	0.71	0.32	20.92	5.06	0.78	0	20.41	4.81	1.03	0	34.27
18	2.6	0.63	0.03	11.53	2.76	0.74	0.01	13.95	2.72	1.01	0	14.51
18b	1.66	0.46	0.15	5.17	1.67	0.54	0.01	6.66	1.55	0.83	0	7.72
18f	1.51	0.44	0.14	5.71	1.49	0.69	0.02	7.24	1.51	1.02	0	8.25
23	2.18	0.71	0	13.79	2.19	0.82	0	15.5	2.18	1.27	0	16.36
251	2.96	1.01	0	25.98	2.77	1.5	0	28.87	3.23	1.71	0	28.9
251c	3.38	0.62	0.46	22.25	4	0.86	0	23.46	4.22	0.97	0	14.33
251d	5.06	0.28	1.61	11.27	5.03	0.53	1.11	14.11	4.96	0.7	1.29	10.26
91	3.59	0.37	0.46	8.55	3.69	0.6	0	10.04	3.73	0.87	0	12.13
ani	3.49	0.41	0.69	14.03	3.65	0.54	0.25	14.83	3.74	0.79	0	18.93
ania	3.36	0.44	0.41	14.51	3.4	0.52	0.02	18.92	3.43	0.78	0	18.93
cher	1.45	0.65	0.05	4.41	1.5	0.69	0.03	5	1.58	0.83	0.02	5



cne	3.11	0.47	0.22	12.92	3.23	0.54	0.02	13.57	3.15	0.79	0	18
ing	3.44	0.34	0.72	9.88	3.18	0.6	0.23	12.66	3.23	0.83	0.33	10.49
sb	3.76	0.71	0	22.39	3.81	0.72	0	22.61	3.71	1.12	0	27.4
sga	3.58	0.56	0.21	10.53	3.55	0.77	0.02	13.65	3.88	1.11	0	13.79
sge	6.09	0.58	0.44	15.14	5.88	0.79	0.01	18.48	5.74	0.92	0.01	17.78
sgf	3.95	0.8	0.16	16.83	3.52	1.32	0.05	24.37	3.04	1.67	0.07	20.19
sgg	4.34	0.33	0.8	10.31	4.27	0.68	0.06	16.68	3.94	1.07	0.06	16.69
sgq	5.47	0.29	2.99	9.95	5.39	0.4	2.51	10.81	4.91	0.46	2.51	9.93
Domain	Zn (%) - OK				Zn (%) - ID ³				Zn (%) - NN			
	Mean	CV	Min	Max	Mean	CV	Min	Max	Mean	CV	Min	Max
13	3.61	1	0	31.36	3.48	1.14	0	36.2	3.26	1.54	0	45.53
13b	7.23	0.82	0	37.29	7.41	0.8	0	37.36	7.06	1.19	0	47.2
13r72	2.69	1.11	0	17.68	2.47	1.19	0	21.26	2.38	1.47	0	20.28
13r8	4.68	0.55	0.15	20.98	4.64	0.64	0	21.29	4.46	0.98	0	23.45
13u	5.35	0.95	0	35.24	5.35	1.01	0	34.76	5.04	1.43	0	41.5
13w	5.16	0.71	0.32	20.92	5.06	0.78	0	20.41	4.81	1.03	0	34.27
18	2.6	0.63	0.03	11.53	2.76	0.74	0.01	13.95	2.72	1.01	0	14.51
18b	1.66	0.46	0.15	5.17	1.67	0.54	0.01	6.66	1.55	0.83	0	7.72
18f	1.51	0.44	0.14	5.71	1.49	0.69	0.02	7.24	1.51	1.02	0	8.25
23	2.18	0.71	0	13.79	2.19	0.82	0	15.5	2.18	1.27	0	16.36
251	2.96	1.01	0	25.98	2.77	1.5	0	28.87	3.23	1.71	0	28.9
251c	3.38	0.62	0.46	22.25	4	0.86	0	23.46	4.22	0.97	0	14.33
251d	5.06	0.28	1.61	11.27	5.03	0.53	1.11	14.11	4.96	0.7	1.29	10.26
91	3.59	0.37	0.46	8.55	3.69	0.6	0	10.04	3.73	0.87	0	12.13
ani	3.49	0.41	0.69	14.03	3.65	0.54	0.25	14.83	3.74	0.79	0	18.93
ania	3.36	0.44	0.41	14.51	3.4	0.52	0.02	18.92	3.43	0.78	0	18.93
cher	1.45	0.65	0.05	4.41	1.5	0.69	0.03	5	1.58	0.83	0.02	5
cne	3.11	0.47	0.22	12.92	3.23	0.54	0.02	13.57	3.15	0.79	0	18



Domain	Zn (%) - OK				Zn (%) - ID ³				Zn (%) - NN			
	Mean	CV	Min	Max	Mean	CV	Min	Max	Mean	CV	Min	Max
ing	3.44	0.34	0.72	9.88	3.18	0.6	0.23	12.66	3.23	0.83	0.33	10.49
sb	3.76	0.71	0	22.39	3.81	0.72	0	22.61	3.71	1.12	0	27.4
sga	3.58	0.56	0.21	10.53	3.55	0.77	0.02	13.65	3.88	1.11	0	13.79
sge	6.09	0.58	0.44	15.14	5.88	0.79	0.01	18.48	5.74	0.92	0.01	17.78
sgf	3.95	0.8	0.16	16.83	3.52	1.32	0.05	24.37	3.04	1.67	0.07	20.19
sgg	4.34	0.33	0.8	10.31	4.27	0.68	0.06	16.68	3.94	1.07	0.06	16.69
sgq	5.47	0.29	2.99	9.95	5.39	0.4	2.51	10.81	4.91	0.46	2.51	9.93
Domain	Ag (g/t) - OK				Ag (g/t) - ID ³				Ag (g/t) - NN			
	Mean	CV	Min	Max	Mean	CV	Min	Max	Mean	CV	Min	Max
13	35.98	0.98	0.25	360.9	35.2	1.19	0.01	477.96	34.13	1.59	0	586.28
13b	138.57	0.78	0	1,446.77	139.89	0.78	0	1,552.39	140.29	1.34	0	3,800.84
13r72	17.28	1.34	0	211.25	15.89	1.27	0	181.12	15.45	1.92	0	199.68
13r8	61.88	0.58	1.28	478.32	61.3	0.6	0.02	372.67	56.84	0.85	0	485.84
13u	117.99	0.81	0	584.04	119.35	0.87	0	648.92	111.52	1.24	0	1232
13w	256.15	0.56	14.84	906.33	251.14	0.64	0.09	1,067.65	240.86	0.95	0	1232
18	68.56	0.78	1.32	437.48	73.49	0.94	0.19	460.22	73.57	1.35	0	551
18b	113.54	0.69	14.06	715.47	105.34	0.79	0.47	1,056.14	92	1.27	0	1243
18f	45.41	0.71	3.78	260.66	58.8	1.18	0.27	374.88	66.13	1.41	0	375.18





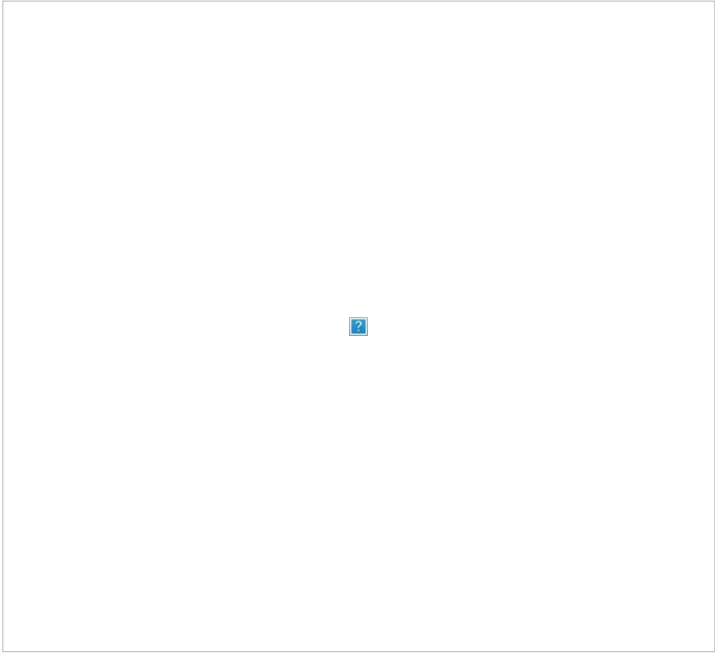
Domain	Ag (g/t) - OK				Ag (g/t) - ID ³				Ag (g/t) - NN			
	Mean	CV	Min	Max	Mean	CV	Min	Max	Mean	CV	Min	Max
23	93.76	0.59	0.48	400.91	94.33	0.71	0.48	501.41	89.89	1.18	0	567.87
251	11.2	0.64	0	66.47	12.18	0.77	0	76.67	12.19	0.94	0	66.64
251c	41.49	0.27	6.68	141.16	45.69	0.43	0	163.61	46.99	0.53	0	110.62
251d	98.36	0.23	10.04	179.72	99.34	0.55	7.6	206.78	98.9	0.66	10.04	176.28
91	54.21	0.44	6	149.84	57.44	0.6	0.05	193.2	60.77	0.93	0	202.4
ani	27.57	0.64	3.9	138.63	28.47	0.86	1.3	188.61	29.71	1.14	0	238.58
ania	26.13	0.92	1.86	232.91	26.82	1.08	0.04	248.98	26.02	1.53	0	312.9
cher	53.16	0.56	9.44	143.14	54.66	0.6	7.69	179.81	54.1	0.76	4.12	119.62
cne	10.43	0.63	0.99	76.05	10.48	0.73	0.12	98.95	10.71	1.09	0	95.39
ing	33.28	0.47	6.84	151.33	33.86	0.72	4.06	192	34.02	0.99	4.04	166.24
sb	29.51	1.22	0	460.37	29.62	1.22	0	439.57	27.77	2	0	700
sga	92.59	0.84	4.19	714.47	79.47	0.92	0.13	1,089.43	81.77	2.01	0	1251.5
sge	147.4	0.33	35.75	338.75	161.19	0.54	13.86	418	163.54	0.66	13.7	362.11
sgf	91.77	0.53	20.64	336.81	90.42	0.81	3.93	389.91	88.33	1.01	5.55	373.73
sgg	101.69	0.44	14.88	376.53	98.65	0.7	13.81	534.21	98.88	1.06	14.1	535
sgq	6.3	0.2	2.68	9.86	6.95	0.37	1.8	10.98	6.13	0.65	1.8	10.98





Figure 11-65 illustrates the comparison between final grades estimated in the block model and the capped and composited samples. In general, the estimated grades and composites show good agreement, while the differences do not suggest any consistent bias.

Figure 11-65: Atacocha Underground Final Block Grades and Capped and Composited Samples Comparison



11.6.12.2VisualValidation

The QP conducted random checks across various estimation domains, comparing the samples utilized for estimation with the block model. Particular emphasis was placed on the main domains owing to their significance for Mineral Resources and Mineral Reserves.

A visual comparison on a longitudinal section along two veins found good overall correlations between the blocks and composite grades. Example longitudinal sections for the “ing_2” domain are shown in Figure 11-66 for Zn grades, demonstrating that block grades generally reflect the surrounding sample data, although some visual artifacts are observed - especially within vein-



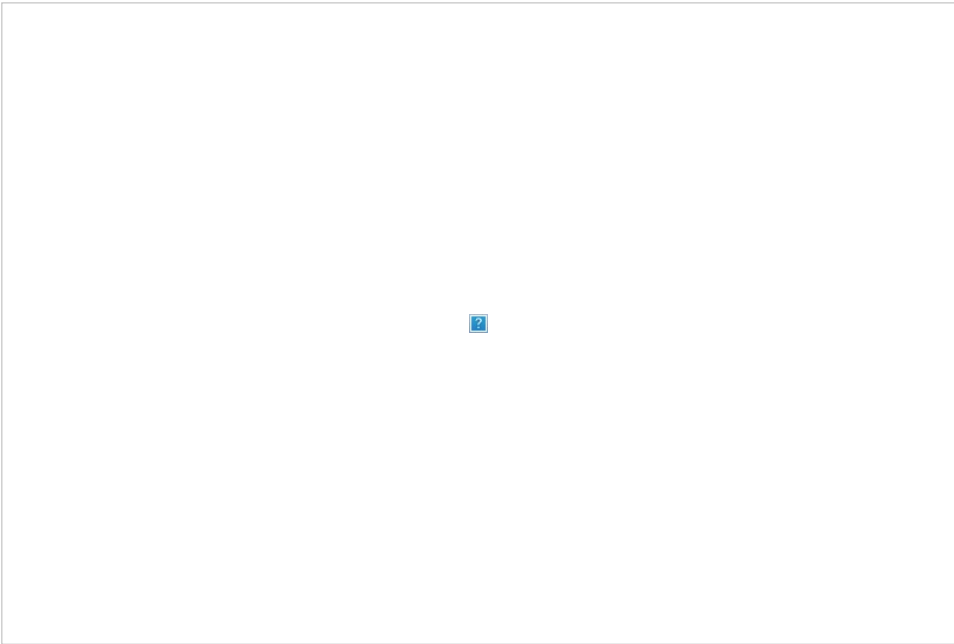


type tabular mineralized zones. The stripes in grade estimations appear more pronounced along the subtle folding of the vein and result from restriction of only two samples per drill hole combined with the short, 2 m length composites, resulting in estimation bias on the borders of domains and in areas with wide sample spacing.





Figure 11-66: Longitudinal View of the “ing_2” Domain (Orebody=750) Estimated Grades for Zn within Atacocha Underground Mine



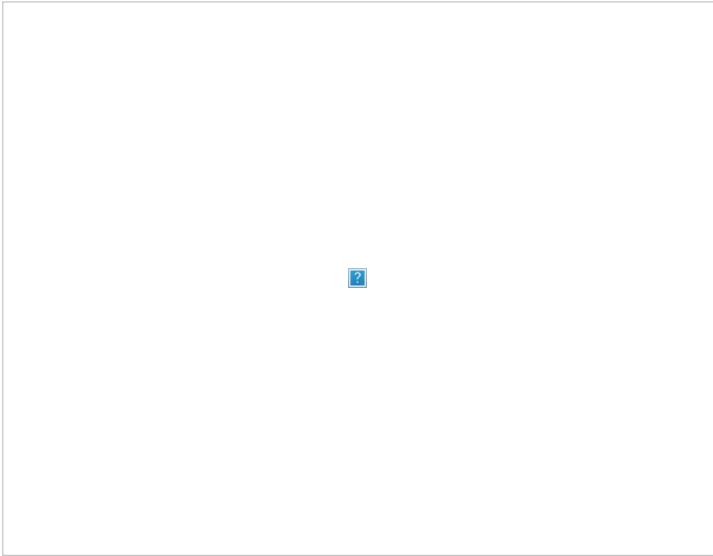


11.6.12.3Swath Plots

Swath plots were generated for the entire block model to evaluate global grade trends within the mineral deposit. Figure 11-67 shows swath plots for Zn and Pb in the X, Y, and Z directions.

In general, the estimated methods OK and ID³ block grades correlate well with the NN block grades and composite grades. The largest divergences are often observed in borders or regions of the model with few blocks or samples, contributing little tonnage to the Mineral Resources.

Figure 11-67: Atacocha Underground Swath Plots for Zn and Pb



11.6.13 Mineral Resource Reporting

The same classification criteria were applied to the Atacocha OP (San Gerardo) and Atacocha UG Mineral Resources, and are discussed in Section 11.5.11.

In the QP's opinion, the assumptions, parameters, and methodology used for the Atacocha Underground Mineral Resource estimate are appropriate for the style of mineralization and mining methods. The QP is not aware of any environmental, permitting, legal, title, taxation, socio-economic, political, or other relevant factors that could significantly affect the Atacocha underground Mineral Resource.

The QP is of the opinion that with consideration of the recommendations summarized in Sections 1 and 23 of this TRS, any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.

Figure 11-68 illustrates the Atacocha underground Mineral Resources exclusive of Mineral Reserves, coloured by NSR.

Mineral Resources with an effective date of December 31, 2023 for Atacocha UG are shown in Table 11-53 on a 75.96% Nexa attributable ownership basis and Table 11-54 on a 100% ownership basis.

Table 11-53: Atacocha Underground Mine: Summary of Mineral Resources (75.96% Nexa Attributable Ownership Basis)- December 31, 2023

Category	Tonnage (Mt)	Grade				Contained Metal			
		Zn (%)	Cu (%)	Ag (g/t)	Pb (%)	Zn (kt)	Cu (kt)	Ag (koz)	Pb (kt)
Measured	0.80	3.47	0.27	55.0	0.98	27.7	2.2	1,411	7.8
Indicated	1.91	3.30	0.36	54.9	0.92	63.2	6.9	3,381	17.6
Total Measured + Indicated	2.71	3.35	0.33	55.0	0.94	90.8	9.0	4,792	25.4
Inferred	6.12	4.09	0.56	77.3	1.21	250.4	34.3	15,214	74.1

Notes:

1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources which are consistent with CIM (2014) definitions.
2. The NSR cut-off is calculated based on the LOM costs: US\$ 69.00/t for SLS and US\$71.07/t for CAF.
3. Mineral Resources are estimated using average long-term metal prices of Zn: US\$ 3,218.90/t (US\$1.46/lb), Pb US\$2,300.33/t (US\$1.04/lb), and Ag US\$ 24.35/oz.
4. Metallurgical recoveries are based on historical processing data: Zn (89.3%), Pb (80.0%), Cu (15.7%), Ag (77.5%), and Au (30.2%).
5. Bulk density was assigned based on rock type and averages 3.53 t/m³.
6. Mineral Resources were depleted according to actual production as of September 30, 2023, and forecast production to the effective date of December 31, 2023.
7. Mineral Resources are exclusive of Mineral Reserves.
8. The minimum thickness for underground resource reporting panels is 4 m for CAF and 3 m for SLS.
9. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
10. Mineral Resources were constrained by optimized underground reporting shapes.
11. Numbers may not add due to rounding.



Table 11-54: Atacocha Underground Mine: Summary of Mineral Resources (100% Ownership Basis)- December 31, 2023

Category	Tonnage (Mt)	Grade				Contained Metal			
		Zn (%)	Cu (%)	Ag (g/t)	Pb (%)	Zn (000 t)	Cu (000 t)	Ag (000 oz)	Pb (000 t)
Measured	1.05	3.47	0.27	55.0	0.98	36.4	2.8	1,858	10.3
Indicated	2.52	3.30	0.36	54.9	0.92	83.2	9.1	4,450	23.2
Total Measured + Indicated	3.57	3.35	0.33	55.0	0.94	119.6	11.9	6,308	33.5
Inferred	8.06	4.09	0.56	77.3	1.21	329.7	45.1	20,029	97.5

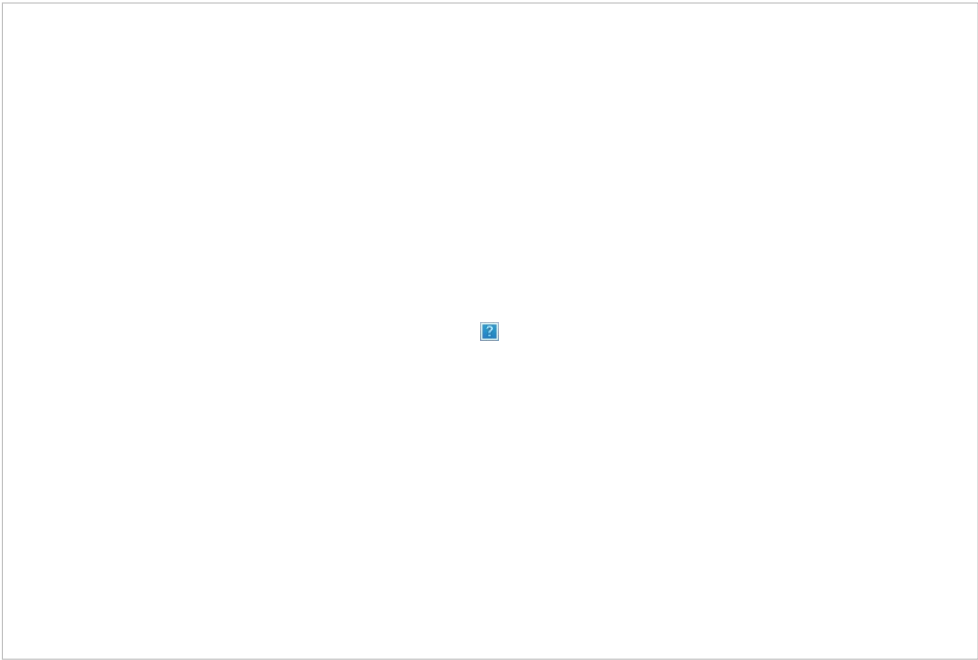
Notes:

1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources which are consistent with CIM (2014) definitions.
2. The NSR cut-off is calculated based on the LOM costs: US\$69.00/t for SLS and US\$71.07/t for CAF.
3. Mineral Resources are estimated using average long-term metal prices of Zn: US\$ 3,218.90/t (US\$1.46/lb), Pb US\$2,300.33/t (US\$1.04/lb), and Ag US\$ 24.35/oz.
4. Metallurgical recoveries are based on historical processing data: Zn (89.3%), Pb (80.0%), Cu (15.7%), Ag (77.5%), and Au (30.2%).
5. Bulk density was assigned based on rock type and averages 3.53 t/m³.
6. Mineral Resources were depleted according to actual production as of September 30, 2023, and forecast production to the effective date of December 31, 2023.
7. Mineral Resources are exclusive of Mineral Reserves.
8. The minimum thickness for underground resource reporting panels is 4 m for CAF and 3 m for SLS.
9. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
10. Mineral Resources were constrained by optimized underground reporting shapes.
11. Numbers may not add due to rounding.





Figure 11-68: Atacocha Underground Mineral Resources Exclusive of Mineral Reserves



11.7 Mineral Resource Uncertainty

The classification of Mineral Resources serves to convey the degree of uncertainty inherent in the geological interpretation and estimation process, which is largely a function of the available data. In addition to the drill hole density and distribution, other factors such as drilling and sampling methodologies, QA/QC procedures, confidence in geological interpretation and grade continuity, metal prices, mining methods, and density measurements impact the levels of uncertainty associated with the Mineral Resource categories, and are considered in Mineral Resource classification.

Standard industry practices were followed for drilling, sampling, sample preparation and assay procedures, ensuring database integrity and representativeness. Analysis of the QC sample results confirm the absence of significant biases. Confidence in geological interpretation, modeling, and grade estimation is largely dependent on the available information such as drilling density and geological mapping. Varied drill hole spacing results in differing confidence levels, influencing variography, geological modeling, grade estimation, and consequently, the confidence in estimated metal grade and tonnage for each block. The uncertainty varies from high to low for the Measured, Indicated, and Inferred categories, reflecting the anticipated sensitivity of the estimate to the addition of new field data.

Adjustments to parameters such as estimation strategy, including the minimum and maximum number of drill holes and samples for estimation, handling of absent values/assays, and choice of estimation interpolator, are made based on geological information available and can be used to improve the reliability of local and global estimation. Nexa adopts a conservative approach by utilizing half of the detection limit for absent values/assays and excluding estimated blocks influenced by these samples, contributing to reduced estimation uncertainty.

Block model validation through comparison of different estimation techniques, swath plots, and visual validation against composites yields acceptable results across all Mineral Resource categories and indicates that the estimated grades are a reasonable representation of the available data. Nexa has systematically taken density measurements, however, there are insufficient samples for the estimation for all domains and for the majority of the blocks, which results in higher levels of uncertainty for the estimated tonnage. Average density is calculated and assigned for grouped mineralization domains, although density is also interpolated locally where data is available.

The metal prices used for Mineral Resource NSR calculation are set 15% higher than Mineral Reserve prices, reflecting consensus long-term forecasts from financial institutions, banks, and other sources, along with supply and demand dynamics for zinc, lead, silver, gold, and copper. The associated uncertainty pertains to commodity risk and reflects current forecasts.

The QP is of the opinion that the uncertainty levels related to geological modelling and estimation are adequately reflected in the Mineral Resource classification categories, providing sufficient support for the Mineral Resource estimate. Any necessary adjustments aimed at improvement are outlined in preceding chapters and should be addressed in future updates.



12.0 Mineral Reserve Estimates

12.1 Summary

The Mineral Reserve estimate for the Cerro Pasco Complex, including the El Porvenir and Atacocha underground and Atacocha (San Gerardo) open pit mines, with an effective date of December 31, 2023, is summarized in Table 12-1 and Table 12-2 on a Nexa attributable ownership basis and 100% ownership basis, respectively.

The SLR QPs are not aware of any risk factors associated with, or changes to, any aspects of the modifying factors such as mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate with the exception of the impacts of faults on the stope stability and equivalent linear overbreak/slough (ELOS) that have not been accounted for in the geotechnical empirical analyses for the underground mines. SLR has estimated the impact of an increase in ELOS/dilution, and has reduced the Mineral Reserve by 2%; see Section 12.3.2 for more detail.





Table 12-1: Summary of Cerro Pasco Complex Mineral Reserve Estimate (Nexa Attributable Basis) - December 31, 2023

Mine	Owner ship (%)	Category	Tonnage (Mt)	Grade					Contained Metal					Recoveries				
				Zn (%)	Cu (%)	Ag (g/t)	Pb (%)	Au (g/t)	Zn (kt)	Cu (kt)	Ag (koz)	Pb (kt)	Au (koz)	Zn (%)	Cu (%)	Ag (%)	Pb (%)	Au (%)
El Porvenir UG	83.48%	Proven	3.27	4.09	0.24	75.2	1.29	---	133.8	7.9	7,907	42.0	---	89.21	14.60	77.51	80.01	---
		Probable	8.96	4.11	0.22	72.1	1.17	---	368.7	20.0	20,759	104.6	---	89.21	14.60	77.51	80.01	---
		Sub-Total	12.23	4.11	0.23	72.9	1.20	---	502.5	28.0	28,666	146.6	---	89.21	14.60	77.51	80.01	---
Atacocha UG	75.96%	Proven	1.30	3.86	0.34	84.9	1.45	---	50.0	4.4	3,535	18.7	-	89.30	15.73	77.51	80.02	---
		Probable	3.01	4.54	0.43	77.7	1.29	---	136.6	12.8	7,509	38.8	-	89.30	15.73	77.51	80.02	---
		Sub-Total	4.30	4.33	0.40	79.8	1.34	---	186.5	17.2	11,044	57.5	-	89.30	15.73	77.51	80.02	---
Atacocha OP	75.96%	Proven	1.45	1.02	---	38.2	1.16	0.25	14.8	-	1,779	16.9	11.5	70.44	-	75.76	83.97	65.46
		Probable	1.88	0.97	---	32.4	1.14	0.29	18.2	-	1,958	21.4	17.4	70.44	-	75.76	83.97	65.46
		Sub-Total	3.33	0.99	---	34.9	1.15	0.27	33.1	-	3,737	38.2	28.9	70.44	-	75.76	83.97	65.46
Total Cerro Pasco		Proven	6.02	3.30	0.20	68.4	1.29	0.06	198.6	12.3	13,221	77.6	11.5	87.83	15.00	77.27	80.87	65.46
		Probable	13.84	3.78	0.24	67.9	1.19	0.04	523.5	32.9	30,226	164.7	17.4	88.58	15.04	77.40	80.53	65.46
		Total	19.86	3.64	0.23	68.0	1.22	0.05	722.1	45.2	43,447	242.4	28.9	88.37	15.03	77.36	80.64	65.46

Notes:

- The definitions for Mineral Reserves in S-K 1300 were followed for Mineral Reserves which are consistent with CIM (2014) definitions.
- Mineral Reserves are reported on an 83.48% and 75.96% Nexa attributable ownership basis for El Porvenir and Atacocha, respectively.
- El Porvenir and Atacocha UG Mineral Reserves are estimated at break-even NSR cut-off values between US\$63.77/t and US\$69.00/t processed for SLS and between US\$65.77/t and US\$71.07/t processed for CAF depending on the mining zone. A number of marginal stopes with marginal NSR cut-off values between US\$39.86/t and US\$45.09/t processed for SLS and between US\$41.86/t and US\$47.16/t processed for CAF are included in the estimate.
- Atacocha OP Mineral Reserves are estimated at an NSR cut-off value of US\$16.21/t.
- Mineral Reserves are estimated using average long term prices of Zn: US\$2,799.04/t (US\$1.27/lb); Cu: US\$7,669.61/t (US\$3.48/lb); Ag: US\$21.17/oz; Pb: US\$2,000.29 /t (US\$0.91/lb); and Au: US\$1,630.93/oz.
- Metallurgical recoveries are accounted for in the NSR calculations based on historical processing data and are variable as a function of head grade.





- o El Porvenir : Zn (89.2%), Pb (80.0%), Cu (14.6%), and Ag (77.5%)
 - o Atacocha UG: Zn (89.3%), Pb (80.0%), Cu (15.7%), Ag (77.5%),
 - o Atacocha OP: Zn (70.4%), Pb (84.0%), Ag (75.8%), and Au (65.5%)
6. A minimum mining width of 4.0 m was used for SLS stopes and 5.0 m for the CAF stopes.
7. A dilution equivalent linear overbreak/slough (ELOS) of 1.0 m is added to CAF stopes and a dilution factor of 10% is added to SLS stopes.
8. Mining recovery factors of 95% and 85% are applied to CAF and SLS stopes respectively.
9. No mining dilution was applied to Atacocha OP and a 100% mining recovery was assumed.
10. There are no Cu grades estimated for Atacocha OP and no Au grades estimated for Atacocha UG and El Porvenir UG. This has reduced the Cu and Au average grades for the total Cerro Pasco tonnes.
11. Numbers may not add due to rounding.

Table 12-2: Summary of Cerro Pasco Complex Mineral Reserve Estimate (100%) - December 31, 2023

Mine	Category	Tonnage (Mt)	Grade					Contained Metal					Recoveries				
			Zn (%)	Cu (%)	Ag (g/t)	Pb (%)	Au (g/t)	Zn (kt)	Cu (kt)	Ag (koz)	Pb (kt)	Au (koz)	Zn (%)	Cu (%)	Ag (%)	Pb (%)	Au (%)
El Porvenir UG	Proven	3.92	4.09	0.24	75.2	1.29	-	160.3	9.5	9,472	50.3	-	89.21	14.6	77.51	80.0	-
	Probable	10.73	4.11	0.22	72.1	1.17	-	441.6	24.0	24,867	125.3	-	89.21	14.6	77.51	80.0	-
	Sub-Total	14.65	4.11	0.23	72.9	1.20	-	601.9	33.5	34,338	175.7	-	89.21	14.6	77.51	80.0	-
Atacocha UG	Proven	1.71	3.86	0.34	84.9	1.45	-	65.8	5.7	4,654	24.6	-	89.3	15.73	77.51	80.0	-
	Probable	3.96	4.54	0.43	77.7	1.29	-	179.8	16.9	9,886	51.1	-	89.3	15.73	77.51	80.0	-
	Sub-Total	5.66	4.33	0.40	79.8	1.34	-	245.6	22.6	14,540	75.7	-	89.3	15.73	77.51	80.0	-
Atacocha OP	Proven	1.91	1.02	-	38.2	1.16	0.25	19.5	-	2,342	22.2	15.2	70.44	-	75.76	84.0	65.46
	Probable	2.47	0.97	-	32.4	1.14	0.29	24.0	-	2,577	28.1	22.9	70.44	-	75.76	84.0	65.46
	Sub-Total	4.38	0.99	-	34.9	1.15	0.27	43.5	-	4,919	50.3	38.1	70.44	-	75.76	84.0	65.46
Total Cerro Pasco	Proven	7.53	3.26	0.20	68.0	1.29	0.06	245.5	15.3	16,468	97.2	15.2	87.7	15.0	77.3	80.9	65.46
	Probable	17.16	3.76	0.24	67.6	1.19	0.04	645.5	40.9	37,330	204.5	22.9	88.5	15.1	77.4	80.6	65.46
	Total	24.70	3.61	0.23	67.8	1.22	0.05	891.0	56.1	53,797	301.7	38.1	88.3	15.1	77.4	80.7	65.46





Notes:

1. The definitions for Mineral Reserves in S-K 1300 were followed for Mineral Reserves which are consistent with CIM (2014) definitions.
2. Mineral Reserves are reported on a 100% Nexa attributable ownership basis. Nexa owns 83.48% of El Porvenir and 75.96% of Atacocha.
3. El Porvenir and Atacocha UG Mineral Reserves are estimated at break-even NSR cut-off values between US\$63.77/t and US\$69.00/t processed for SLS and between US\$65.77/t and US\$71.07/t processed for CAF depending on the mining zone. A number of marginal stopes with marginal NSR cut-off values between US\$39.86/t and US\$45.09/t processed for SLS and between US\$41.86/t and US\$47.16/t processed for CAF are included in the estimate.
4. Atacocha OP Mineral Reserves are estimated at an NSR cut-off value of US\$16.21/t.
5. Mineral Reserves are estimated using average long term prices of Zn: US\$2,799.04/t (US\$1.27/lb); Cu: US\$7,669.61/t (US\$3.48/lb); Ag: US\$21.17/oz; Pb: US\$2,000.29 /t (US\$0.91/lb); and Au: US\$1,630.93/oz.
6. Metallurgical recoveries are accounted for in the NSR calculations based on historical processing data and are variable as a function of head grade.
 - o El Porvenir : Zn (89.2%), Pb (80.0%), Cu (14.6%), and Ag (77.5%)
 - o Atacocha UG: Zn (89.3%), Pb (80.0%), Cu (15.7%), Ag (77.5%),
 - o Atacocha OP: Zn (70.4%), Pb (84.0%), Ag (75.8%), and Au (65.5%)
7. A minimum mining width of 4.0 m was used for SLS stopes and 5.0 m for CAF stopes.
8. A dilution equivalent linear overbreak/slough (ELOS) of 1.0 m is added to CAF stopes and a dilution factor of 10% is added to SLS stopes.
9. Mining recovery factors of 95% and 85% are applied to CAF and SLS stopes, respectively.
10. No mining dilution was applied to Atacocha OP and a 100% mining recovery was assumed.
11. There are no Cu grades estimated for Atacocha OP and no Au grades estimated for Atacocha UG and El Porvenir UG. This has reduced the Cu and Au average grades for the total Cerro Pasco tonnes.
12. Numbers may not add due to rounding.





12.2 Comparison with Previous Estimates

12.2.1 El Porvenir

A comparison of the El Porvenir underground Mineral Reserve estimates between December 31, 2023 and December 31, 2022 is presented in Table 12-3. Since the Atacocha underground mine was placed into care and maintenance in 2020, there were no Mineral Reserves declared in 2022. Mineral Reserves have decreased by approximately 5%. Figure 12-1 shows the additions and reductions contributing to the change in Mineral Reserves.

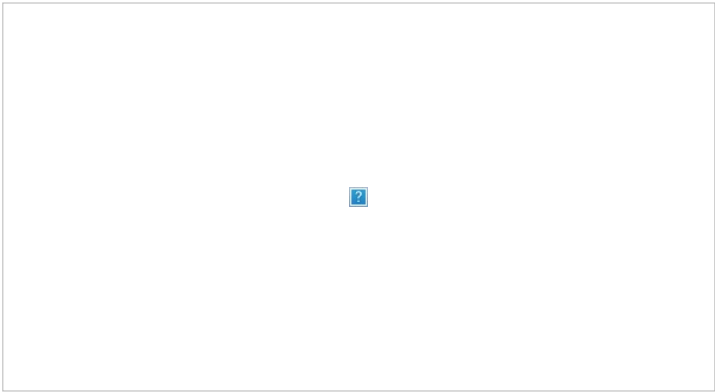
Table 12-3: El Porvenir (100%) Mineral Reserve Estimates Comparison

Category	Tonnage (Mt)	Grade				Contained Metal			
		Zn (%)	Cu (%)	Ag (g/t)	Pb (%)	Zn (kt)	Cu (kt)	Ag (Moz)	Pb (kt)
December 31, 2023									
Proven	3.92	4.09	0.24	75.2	1.29	160.3	9.5	9,472	50.3
Probable	10.73	4.11	0.22	72.1	1.17	441.6	24.0	24,867	125.3
Total	14.65	4.11	0.23	72.9	1.20	601.9	33.5	34,338	175.7
December 31, 2022									
Proven	2.54	3.70	0.21	67.7	1.12	94.0	5.4	5,532	28.3
Probable	12.96	3.58	0.19	65.7	1.06	464.6	25.0	27,362	137.3
Total	15.50	3.60	0.19	66.0	1.07	558.6	30.4	32,894	165.6
Difference 2023 vs 2022									
Proven	1.38	0.39	0.03	7.5	0.17	66.3	4.1	3,940	22.0
Probable	-2.23	0.53	0.03	6.4	0.11	-23.0	-1.0	-2,495	-12.0
Total	-0.85	0.51	0.04	6.9	0.13	43.3	3.1	1,444	10.1
Difference %									
Proven	54.2%	10.6%	15.7%	11.1%	14.8%	70.5%	76.2%	71.2%	77.9%
Probable	-17.2%	14.9%	17.7%	9.7%	10.1%	-4.9%	-4.0%	-9.1%	-8.7%
Total	-5.5%	14.1%	20.4%	10.5%	12.0%	7.8%	10.3%	4.4%	6.1%





Figure 12-1: Waterfall Chart of Change in El Porvenir Mineral Reserves



12.2.2 Atacocha

There was no previously reported Mineral Reserve. The current Mineral Reserve with the 2023 Mineral Reserve shows contained Proven and Probable Mineral Reserves of 43.5 kt of zinc, 50.3 kt of lead, 4.9 Moz of silver, and 38 koz of gold. Changes have occurred as a result of the Cerro Pasco Complex Integration, allowing San Gerardo open pit material to be processed at the Atacocha plant until the Atacocha underground mine is re-opened.

12.3 Atacocha and El Porvenir Underground

12.3.1 Summary

The Atacocha and El Porvenir mines are underground polymetallic mines operated by Nexa in the Pasco mining district in the Central Andes area of Peru. The mines have been in operation for several decades with mining operations starting in 1938 and 1949 for Atacocha and El Porvenir respectively.

The El Porvenir Mine is still in operation and feeds the El Porvenir processing plant which has a maximum milling capacity of 6,400 tpd. The Atacocha Mine was placed in care and maintenance in 2020 in order to focus mining operations at the San Gerardo open pit mine. While in operation, the combined Atacocha underground mine and San Gerardo open mine production fed the Atacocha processing plant with a nominal capacity of 4,500 tpd.

The Atacocha Mine is planned to re-start operations in 2027 at which point the San Gerardo open pit mine will have reached the end of its mine life. Production at Atacocha will then be integrated with El Porvenir operations to feed the El Porvenir processing plant. Both mines are envisaged to be mined using cut and fill (CAF) and sub-level stoping (SLS) mining methods. A summary of the Mineral Reserves for the two mines are presented in Table 12-4 and Table 12-5 on a Nexa attributable ownership basis and 100% ownership basis, respectively.





Table 12-4: Summary Atacocha (75.96%) and El Porvenir (83.48%) Underground Mines Mineral Reserves - December 31, 2023

Category	Tonnage (Mt)	Grade					Contained Metal				
		Zn (%)	Cu (%)	Ag (g/t)	Pb (%)	Au (g/t)	Zn (kt)	Cu (kt)	Ag (Moz)	Pb (kt)	Au (koz)
Proven	4.57	4.02	0.27	78.0	1.33	-	183.7	12.3	11,442	60.7	-
Probable	11.97	4.22	0.27	73.5	1.20	-	505.3	32.9	28,268	143.4	-
Total	16.53	4.17	0.27	74.7	1.23	-	689.0	45.2	39,710	204.1	-

Notes:

1. The definitions for Mineral Reserves in S-K 1300 were followed for Mineral Reserves which are consistent with CIM (2014) definitions.
2. Mineral Reserves are reported on a 75.96% and 80.48% Nexa attributable ownership basis for Atacocha and El Porvenir respectively.
3. Mineral Reserves are estimated at break-even NSR cut-off values between US\$63.77/t and US\$69.00/t processed for SLS and between US\$65.77/t and US\$71.07/t processed for CAF depending on the mining zone. A number of marginal stopes with marginal NSR cut-off values between US\$39.86/t and US\$45.09/t processed for SLS and between US\$41.86/t and US\$47.16/t processed for CAF are included in the estimate.
4. Mineral Reserves are estimated using average long term prices of Zn: US\$2,799.04/t (US\$1.27/lb); Cu: US\$7,669.61/t (US\$3.48/lb); Ag: US\$21.17/oz; and Pb: US\$2,000.29 /t (US\$0.91/lb).
5. Metallurgical recoveries are accounted for in the NSR calculations based on historical processing data and are variable as a function of head grade.
 - o El Porvenir : Zn (89.2%), Pb (80.0%), Cu (14.6%), and Ag (77.5%)
 - o Atacocha UG: Zn (89.3%), Pb (80.0%), Cu (15.7%), Ag (77.5%),
6. A minimum mining width of 4.0 m was used for SLS stopes and 5.0 m for CAF stopes.
7. A dilution ELOS of 1.0 m and a dilution factor of 10% is added to CAF stopes and SLS stopes respectively.
8. A mining recovery factor of 95% and 85% is applied to CAF and SLS stopes respectively.
9. Numbers may not add due to rounding.

Table 12-5: Summary Atacocha (100%) and El Porvenir (100%) Underground Mines Mineral Reserves - December 31, 2023

Category	Tonnage (Mt)	Grade					Contained Metal				
		Zn (%)	Cu (%)	Ag (g/t)	Pb (%)	Au (g/t)	Zn (kt)	Cu (kt)	Ag (Moz)	Pb (kt)	Au (koz)
Proven	5.62	4.02	0.27	78.1	1.33	-	226.0	15.3	14,125	75.0	-
Probable	14.69	4.23	0.28	73.6	1.20	-	621.5	40.9	34,753	176.4	-
Total	20.32	4.17	0.28	74.8	1.24	-	847.5	56.1	48,878	251.4	-

Notes:

1. The definitions for Mineral Reserves in S-K 1300 were followed for Mineral Reserves which are consistent with CIM (2014) definitions.
2. Mineral Reserves are reported on a 100% Nexa attributable ownership basis. Nexa owns 83.48% of El Porvenir and 75.96% of Atacocha.
3. Mineral Reserves are estimated at break-even NSR cut-off values between US\$63.77/t and US\$69.00/t processed for SLS and between US\$65.77/t and US\$71.07/t processed for CAF depending on the mining zone. A number of marginal stopes with marginal NSR cut-off values between US\$39.86/t and US\$45.09/t processed for SLS and between US\$41.86/t and US\$47.16/t processed for CAF are included in the estimate.
4. Mineral Reserves are estimated using average long term prices of Zn: US\$2,799.04/t (US\$1.27/lb); Cu: US\$7,669.61/t (US\$3.48/lb); Ag: US\$21.17/oz; and Pb: US\$2,000.29 /t (US\$0.91/lb).





5. Metallurgical recoveries are accounted for in the NSR calculations based on historical processing data and are variable as a function of head grade.
 - o El Porvenir : Zn (89.2%), Pb (80.0%), Cu (14.6%), and Ag (77.5%)
 - o Atacocha UG: Zn (89.3%), Pb (80.0%), Cu (15.7%), Ag (77.5%),
6. A minimum mining width of 4.0 m was used for SLS stopes and 5.0% for CAF stopes.
7. A dilution ELOS of 1.0 m is added to CAF stopes and a dilution factor of 10% is added to SLS stopes.
8. Mining recovery factors of 95% and 85% are applied to CAF and SLS stopes, respectively.
9. Numbers may not add due to rounding.

12.3.2 Dilution

Dilution at Atacocha and El Porvenir has been applied based on mining methods. CAF and SLS are the two mining methods planned to be used at both mines. CAF has historically been the primary mining method used, however, over the past few years SLS has been used in areas where veins are steeply dipping. Over the LOM, approximately 40% of the total ore will be from SLS stopes and primarily from El Porvenir.

Planned or internal dilution is accounted for within the stope designs which considers minimum mining widths and appropriate stope angles. Unplanned or external dilution is applied by using either a dilution factor or adding a dilution “skin” in the form of an ELOS on the footwall or hanging wall of the stope designs.

Unplanned dilution for CAF stopes is applied as a total ELOS of 1.0 m (0.5 m along the hanging wall and 0.5 m along footwall), while a dilution factor of 10% at zero grade was applied to SLS stopes. CAF stopes have been extensively used at Atacocha and El Porvenir mines and is generally well understood. In SLR’s opinion, the dilution factor applied is within industry standards for this type of mining method.

The SLS stope widths average 5.50 m indicating that a 10% dilution factor would result in an ELOS dilution skin of 0.55 m or approximately 0.28 m for the hanging wall and footwall. SLR has reviewed dilution analysis files provided by Nexa, summarized in Figure 12-2. The analysis compares the volumes between the mineralized structures and the surveyed mined-out stope. The data collected in 2023 shows an average dilution of approximately 20%.

Figure 12-2: Volumetric Comparison of El Porvenir Mineralization and Surveyed Stopes



In SLR’s opinion, based on the volume comparison analysis and SLR’s experience with operations with similar mining methods, and the potential impact from faults, the dilution being applied is low for narrow veins mining using the SLS mining method. Since reconciliation data





between designed stopes and surveyed stopes is not available, SLR recommends using a more conservative dilution ELOS of 1.20 m which is equivalent to approximately 20% dilution. It is recommended to apply this dilution as ELOS during the optimization process instead of a factor so that any dilution grade will be captured. Furthermore, since unconsolidated backfill will be used for CAF and SLS stopes, SLR recommends applying an additional 3% factor to capture backfill dilution.

SLR has investigated the effect of applying the additional SLS and backfill dilution quantities and notes a reduction of approximately 2% in Mineral Reserves. While the effect on the overall Mineral Reserve estimate is not significant, the effect should be reviewed on a stope by stope basis. SLR recommends undertaking reconciliation analysis between planned designed stopes and surveyed stopes and estimating overbreak and underbreak quantities to support dilution and mining recovery factors for future Mineral Reserve estimation work.

12.3.3 Mining Extraction

Mining recovery factors were applied by mining method; 95% and 85% for CAF and SLS respectively. For development in ore, a factor of 100% was applied. In SLR’s opinion, the mining recovery factors are appropriate for the selected mining methods.

12.3.4 Net Smelter Return

An NSR value was calculated for all blocks in the resource model taking into account metal grades, metallurgical recoveries, metal prices, and commercial terms and conditions. The NSR value is expressed as US\$/t and is calculated for Mineral Reserves to make an adequate comparison with production costs in order to determine whether mined material is ore (economically minable) or waste.

The sellable products from the mines are zinc concentrate, lead concentrate with silver content, and copper concentrate with silver content. The payable metals in concentrates include the applicable concentrate treatment, transportation, refining charges, deductions, and penalty elements. The zinc concentrate produced at the Atacocha and El Porvenir mines will be sent to Nexa’s Cajamarquilla smelter. As such a premium, representing the smelter revenue, is added to zinc metal price. Lead and copper concentrates are sold to Traders and will be exported and have market based commercial terms applied.

Costs and other parameters used to calculate the NSR cut-off value are shown in Table 12-6. The metal prices are based on a 10 year average (2024 – 2033) of projected metal prices. Nexa has obtained metal prices from various sources and has internally reviewed them to produce a consensus pricing model to be used across all mining units. SLR verified that Nexa’s selected metal prices for estimating Mineral Reserves are in line with independent forecasts from banks and other lenders.

Table 12-6: Summary of NSR Parameters

Item	Units	Value
Metal Prices		
Zn	US\$/lb	1.27
Pb	US\$/lb	0.91
Cu	US\$/lb	3.48





Item	Units	Value
Ag	US\$/oz	21.17
Zn premium	US\$/lb	0.05
Net Metallurgical Recovery *		
Zn	%	89.2
Pb	%	80.0
Cu	%	15.7
Ag	%	77.5
Zn Concentrate Payable		
Zn - Integrated	%	95.3
Smelter Conversion Cost	US\$/t Zn prod	656
Ag	Minimum of Payable (%) or Deduction (oz/t)	70 or 3.00
Pb Concentrate Payable		
Pb	Minimum of Payable (%) or Deduction (%)	95 or 3
Ag	Minimum of Payable (%) or Deduction (oz/t)	95 or 1.61
Cu Concentrate Payable		
Cu	Minimum of Payable (%) or Deduction (%)	97 or 1.00
Ag	Minimum of Payable (%) or Deduction (oz/t)	90 or 1.00
Logistics		
Zn Concentrate - Integrated	US\$/t conc	46.7
Pb Concentrate	US\$/t conc	44.1
Cu Concentrate **	US\$/t conc	38.1
Refining Cost		
Ag in Pb conc	US\$/oz	1.0
Ag in Cu conc	US\$/oz	0.5
Treatment Cost		
Pb conc	US\$/t conc	177
Cu conc	US\$/t conc	241.0

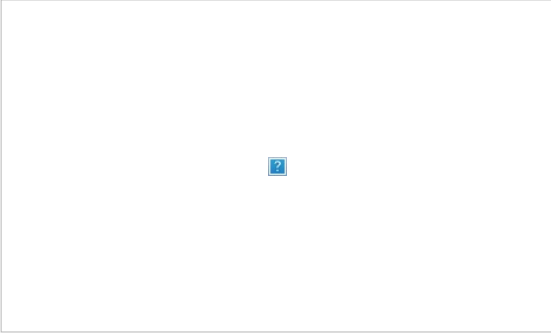
Metallurgical recoveries used for Mineral Reserves vary by head grade and are based on historical data which has been consolidated by Nexa. Ore head grade versus recovery curves are presented in Figure 12-3, Figure 12-4, and Figure 12-5.







Figure 12-5: Copper Recovery Curve



12.3.5 Cut-off Values

Cut-off values were calculated for each mine based on mining method and zone. The mines were divided into four zones based on their elevations. The elevation intervals are presented in Table 12-7. The material movement at the mines involves a combination of trucking, transfer via orepasses and rail cars, and skipping via the Picasso shaft located at El Porvenir. The shaft loading pocket is located on the 2800 Level, therefore ore mined in zones located below that level will have to be trucked via haulage ramps, effectively resulting in higher mining costs. Mining costs have been adjusted for each mining zone to reflect the number of transfers or haulage required for each mining zone.

The Atacocha mining costs include the transfer of ore by trucks to the El Porvenir loading pockets whereas the mining costs at El Porvenir have been defined by zones. Nexa is currently evaluating a similar approach by zones for the Atacocha Mine. For the purposes of the current Mineral Reserve estimates at Atacocha, the average mining costs for El Porvenir were considered to be representative of the Atacocha underground mining costs with the addition of haulage costs. The operating costs were based on 2022 actual costs. The estimated cut-off values (COV) are presented in Table 12-8.

Table 12-7: El Porvenir and Atacocha Mining Zones

Original Name	El Porvenir	Atacocha
Zona Alta	Above 3,700 m	Above 3,700 m
Zona Intermedia	Between 3,400 m and 3,700 m	Between 3,100 m and 3,700 m
Zona Baja	Between 2,900 m and 3,400 m	Between 2,900 m and 3,700 m
Profundizacion	Below 2,900 m	Below 2,900 m





Table 12-8: Cut-off Value Estimates

Item	Units	SLS Costs	C&F Cost
Mining Costs - EP			
Zona Alta	US\$/t	50.24	52.24
Zona Intermedia	US\$/t	47.18	49.45
Zona Baja	US\$/t	46.97	48.97
Profundizacion	US\$/t	48.41	50.41
Mining Costs - AT	US\$/t	52.20	54.27
Development Costs (incl in Mining costs)	US\$/t	23.91	23.91
Processing Costs	US\$/t	10.43	10.43
G&A	US\$/t	6.37	6.37
Break-even COV - EP			
Zona Alta	US\$/t	67.04	69.04
Zona Intermedia	US\$/t	63.98	66.25
Zona Baja	US\$/t	63.77	65.77
Profundizacion	US\$/t	65.21	67.21
Break-even COV - AT	US\$/t	69.00	71.07
Marginal COV - EP			
Zona Alta	US\$/t	43.13	45.13
Zona Intermedia	US\$/t	40.07	42.34
Zona Baja	US\$/t	39.86	41.86
Profundizacion	US\$/t	41.30	43.30
Marginal COV - AT	US\$/t	45.09	47.16

12.3.6 Mineral Reserve Estimation

The Mineral Reserves were estimated by Nexa and reviewed and accepted by SLR. Reserve NSR factors were first added to the resource model. Deswik Stope Optimizer (DSO) was used to generate mining shapes using marginal cut-off values presented in Section 12.3.5. DSO was run separately depending on the orebody's strike direction and dip angles to optimize the results.

The resulting optimized shapes were then depleted against as-built wireframes. Surveyed mined-out stope and development wireframes to the end of September 2023 and forecasted stope and development wireframes to December 31, 2023 were used to deplete the optimized shapes. The depleted shapes were interrogated against the block model and average grades and NSR values were calculated. The shapes were then reviewed and excluded from Mineral Reserve estimates where appropriate.





The retained stopes were used to guide the development designs, and dilution and extraction factors were applied. The development and stope designs were then added to Deswik Scheduler to generate a production schedule. Mineral Reserves are reported as diluted and extracted stope and ore development tonnes and grades. These were fully scheduled in an appropriate LOM plan and applied to a discounted cash flow model. The Mineral Reserve estimate has demonstrated economically viable extraction.

In the SLR QP's opinion, the assumptions, parameters, and estimation methodology used for the Atacocha and El Porvenir underground Mineral Reserve estimates are appropriate for the style of mineralization and mining methods.

The SLR QP is not aware of any environmental, permitting, legal, title, taxation, socio-economic, political, or other relevant factors that could significantly affect the Atacocha and El Porvenir Mineral Reserves.

12.4 Atacocha (San Gerardo) Open Pit

12.4.1 Summary

The open pit Mineral Reserves were developed based on the October, November, and December forecast; end of year was projected using the September 30, 2023 surface. The total Mineral Reserve (100% basis) for San Gerardo open pit is estimated to be 4.4 Mt at an average grade of 0.99% Zn, 1.15%Pb, 1.12 oz/t Ag, and 0.27 g/t Au.

The open pit Mineral Reserve estimates were prepared by Nexa and have been classified in accordance with S-K 1300 and were confirmed by the SLR QP. A summary of the open pit Mineral Reserve estimate is shown in Table 12-9 and Table 12-10 on a Nexa attributable ownership basis and 100% ownership basis, respectively.

Table 12-9: Open Pit Mineral Reserves (75.96% Nexa Attributable Basis)- as of December 31, 2023

Category	Tonnage (000 t)	Grade					Contained Metal				
		Zn (%)	Cu (%)	Ag g/t	Pb (%)	Au (g/t)	Zn (000 t)	Cu (000 t)	Ag (000 oz)	Pb (000 t)	Au (000 oz)
Proven	1,450	1.02	-	38.2	1.16	0.25	14.84	-	1,779	16.86	11.54
Probable	1,876	0.97	-	32.4	1.14	0.29	18.24	-	1,958	21.36	17.41
Total	3,327	0.99	-	34.9	1.15	0.27	33.08	-	3,737	38.22	28.95

Notes:

1. The definitions for Mineral Reserves in S-K 1300 were followed for Mineral Reserves which are consistent with CIM (2014) definitions.
2. Mineral Reserves are reported on a 75.96% Nexa attributable ownership basis.
3. Open pit Mineral Reserves are estimated at an NSR cut-off value of US\$16.21/t.
4. Mineral Reserves are estimated using average long term prices of Zn: US\$2,799.04/t (US\$1.27/lb); Ag: US\$21.17/oz; Pb: US\$2,000.29/t (US\$0.91/lb); and Au: US\$1,631.93/oz with allowances for payable deductions and transport applied to the NSR calculation.
5. The NSR calculations do not include the impact of royalties, severance taxes, or any streaming agreements.
6. NSR calculations are based on historical performance of the concentrator. Metal recoveries are calculated based on grade-recovery relationships.
7. Metallurgical recoveries are accounted for in the NSR calculations based on historical processing data and are variable as a function of head grade. Atacocha OP: Zn (70.4%), Pb (84.0%), Ag (75.8%), and Au (65.5%)





8. The Mineral Reserves were scheduled based on the end of September 2023 surface. Small differences between the Mineral Reserve statement and the production schedule may occur because of the difference between the actual end of December 2023 topography surface and the projected end of year 2023 forecast.
9. Numbers may not add due to rounding.

Table 12-10: Open Pit Mineral Reserves (100% Basis) – as of December 31, 2023

Category	Tonnage (000 t)	Grade					Contained Metal				
		Zn (%)	Cu (%)	Ag (g/t)	Pb (%)	Au (g/t)	Zn (000 t)	Cu (000 t)	Ag (000 oz)	Pb (000 t)	Au (000 oz)
Proven	1,909	1.02	-	38.2	1.16	0.25	65.76	-	4,654	24.64	4.89
Probable	2,470	0.97	-	32.4	1.14	0.29	179.81	-	9,886	51.06	7.61
Total	4,380	0.99	-	34.9	1.15	0.27	245.57	-	14,540	75.70	12.49

Notes:

1. The definitions for Mineral Reserves in S-K 1300 were followed for Mineral Reserves which are consistent with CIM (2014) definitions.
2. Mineral Reserves are reported on a 100% ownership basis.
3. Open pit Mineral Reserves are estimated at an NSR cut-off of US\$16.21/t.
4. Mineral Reserves are estimated using average long term prices of Zn: US\$2,799.04/t (US\$1.27/lb); Ag: US\$21.17/oz; Pb: US\$2,000.29/t (US\$0.91/lb); and Au: US\$1,631.93/oz with allowances for payable deductions and transport applied to the NSR calculation.
5. Metallurgical recoveries are accounted for in the NSR calculations based on historical processing data and are variable as a function of head grade. Atacocha OP: Zn (70.4%), Pb (84.0%), Ag (75.8%), and Au (65.5%)
6. NSR calculations are based on historical performance of the concentrator. Metal recoveries are calculated based on grade-recovery relationships.
7. The Mineral Reserves were scheduled based on the end of September 2023 surface. Small differences between the Mineral Reserve statement and the production schedule may occur because of the difference between the actual end of December 2023 topography surface and the projected end of year 2023 forecast.
8. Numbers may not add due to rounding.

12.4.2 Dilution

No open pit mining dilution was applied to the grade of the cells. Dilution intrinsic to the Mineral Resource model is considered sufficient to represent the stated mining selectivity.

12.4.3 Mining Extraction

Mining extraction was assumed to be 100% of the Measured and Indicated Mineral Resources. Inferred Mineral Resources were considered waste.

12.4.4 Net Smelter Return

NSR block value calculations are based on historical performance of the concentrator and current smelter contracts. NSR values represent the estimated dollar value per tonne of mineralized material after allowance for metallurgical recovery and consideration of smelter terms, including revenue from payable metals, treatment charges, refining charges transportation, and sales charges. The calculations do not include the impact of royalties, severance taxes, or any streaming agreements.

Metal prices used for reserves are based on a long term forecast. The NSR value for the Mineral Reserve estimates is based on a silver price of US\$21.17/oz, gold price of US\$1,630.93/oz, lead price of US\$0.91/lb (US\$2,000.29/t), and zinc price of US\$1.2/lb





(US\$2,799.04/t). There is no copper in the NSR cut-off grade calculations for the San Gerardo open pit.

Table 12-11: NSR Parameters

Parameter	Unit	Input	Note
Gold Price	\$/oz	1,630.93	
Silver Price	\$/oz	21.17	
Lead Price	\$/lb	0.91	(2,000.29 \$/t)
Zinc Price	\$/lb	1.27	(2,799.04 \$/t)
Metallurgical Recovery			
Pb (Pb Concentrate)	%	84.06%	Pb > 1.2912
	%	-4.35xPb ² +11.24xPb+76.81	0.68 < Pb ≤ 1.2912
	%	((Pb-0.12)/0.12) x 100 %	0.12 < Pb ≤ 0.68
		0%	Pb ≤ 0.12
Ag (Pb Concentrate)	%	75.76%	Ag > 0.2
Au (Pb Concentrate)	%	65.46%	Au > 0.12
Zn (Zn Concentrate)	%	70.44%	Zn > 0.62
		((Zn-0.17)/0.17) x 100 %	0.17 < Zn ≤ 0.62
		0%	Zn ≤ 0.17
Ag (Zn Concentrate)	%	3.55%	Ag > 0.2
Au (Zn Concentrate)	%	0%	-
Concentrate Grade			
Pb (Pb Concentrate)	%	53.71%	
Zn (Zn Concentrate)	%	48.98%	
Pb Concentrate Payable %			
Au - Max. Payable %	%	95%	Min Deduct 0.03 oz/t
Ag - Max. Payable %	%	95%	Min Deduct 1.6 oz/t
Pb - Max. Payable %	%	95%	Min Deduct 3.0%
Zn Concentrate Payable %			



Parameter	Unit	Input	Note
Ag – Max Payable	%	70%	Min Deduct 3.0 oz/t
Zn – Max Payable	%	85%	Min Deduct 8.0%
Logistics			
Zn Concentrate	US\$/t conc		
Pb Concentrate	US\$/t conc	\$43	
Refining Cost			
Au in Pb conc	US\$/oz	\$10.00	
Ag in Pb conc	US\$/oz	\$1.00	
Treatment Cost			
Pb conc	US\$/t conc	\$177	
Zn conc	US\$/t conc	\$314	

12.4.5 NSR Cut-off Grade

Calculated block model NSR values were evaluated against the internal break-even value. Blocks classified as Measured or Indicated Mineral Resources with an NSR value above the internal break-even value, are included in the Mineral Reserve.

Block NSR values are expressed in US\$/t and calculated from mineralization grades to make an adequate comparison with production cost in order to determine whether the mined material is categorized as potentially economic mineralization or waste. Blocks with an NSR value greater than or equal to the NSR cut-off value are categorized as mill feed and block value less than the NSR cut-off value is considered waste material. Table 12-12 summarizes the costs included in the NSR cut-off value.

Table 12-12: NSR Cut-off Value Parameters

Parameter	Unit	Input
Process Cost (1)	US\$/t	10.65
General and Administrative Cost (2)	US\$/t	5.56
NSR Cut-off Value (1)+(2)	US\$/t	16.21

12.4.6 Open Pit Optimization

Different nested pits were evaluated by Nexa using the NPV Scheduler software package from Datamine, which employs the Lerchs-Grossmann pit optimization algorithm. A pit shell was selected for the reserve pit design based on a revenue factor of 0.90 of the prices from a set of shells generated using only Measured and Indicated Mineral Resources.



The pit optimization process considered an NSR cut-off values of US\$22.44/t. The Mineral Reserve estimation included the incremental material with values between US\$16.21/t and US\$22.44/t.

Slope angles are based on the updated geotechnical assessment completed in February 2019 by SRK. Table 12-13 shows mine operating costs based on 2023 actual operating data from first six months and last six months of the forecasted budget. Open pit mining operating cost are defined as a constant value. However, there is a variable component associated with haulage distance of the open pit mining cost that requires a yearly truck haulage distance forecast in the LOM plan.

Table 12-13: Open Pit Reserve Pit Optimization Parameters

Parameter	Unit	Input
Open Pit Mining Cost (Mill Feed)	US\$/t	6.23
Open Pit Mining Cost (Waste)	US\$/t	2.27
Process Cost	US\$/t	10.65
General and Administrative Cost	US\$/t	5.56
Block Size	M	4x4x6
Overall Slope Angle	degrees	39/45

SLR received the San Gerardo depleted block model, historical underground mining as-built shapes, open pit design, and production schedule in Deswik format. SLR imported the block model and all wireframes into Vulcan. SLR also evaluated potential pits using the Whittle 4.7.3 software package, employing the Lerchs-Grossmann pit optimization algorithm, and produced optimization results consistent with those provided by Nexa. The open pit design applies design parameters consistent with the optimization parameters, and interrogation of the design yielded Mineral Reserve tonnes and grade consistent with those produced by Nexa using Deswik software.



13.0 Mining Methods

13.1 Atacocha and El Porvenir Underground

The Atacocha and El Porvenir mines are polymetallic underground mines in Peru.

The Atacocha underground mine has been in operation since 1938. Operations at the mine were suspended in 2020 in an effort to reduce costs and improve operational efficiency by shifting all production to the San Gerardo open pit mine. The underground mine is planned to restart production in 2027 at which point the open pit mine will be depleted. Over the planned LOM, Atacocha will be mined to a depth of approximately 1,500 m below surface. CAF will be the primary mining method used at the mine with a few areas mined using SLS. Mined-out stopes are backfilled using unconsolidated backfill and hydraulic fill using tailings.

The El Porvenir Mine is currently in production and is planned to extend 1,600 m below surface over its LOM. The mine currently feeds the El Porvenir processing plant at a nominal rate of 6,500 tpd. Similar to Atacocha, the two mining methods used at Porvenir are CAF and SLS. While CAF has historically been the primary mining method used at the mine, SLS will be increasingly used over the LOM particularly where the veins are steeply dipping. SLS will account for approximately 55% of ore production over the LOM.

13.1.1 Cerro Pasco Complex Integration

The current Atacocha processing plant is being fed by the San Gerardo open pit mine. Once the pit is depleted in 2027, operations at the underground Atacocha mine will be re-started. The underground mine will be integrated with the El Porvenir underground mine, with both mines feeding the El Porvenir processing plant. The Atacocha processing plant and mine site will be shut down and all operations will be transferred to the El Porvenir mine site. This scenario will be more efficient both operationally and economically. The tailings storage facility at Atacocha will still be operational and will accept tailings from the El Porvenir processing plant.

As part of the integration plan, a 1,750 m connection ramp between the two mines is being built on the 2,900 m level. The ramp will connect to a system of ore raises and haulage ramps at Atacocha and to the shaft loading pocket at El Porvenir. Since Atacocha has not been in operation since 2020, the mine will be rehabilitated where required prior to and during mining operations. The mine will contribute approximately 23% of the ore production during the first two years, then ramping up to 45%.

13.1.2 Mine Design

The mine designs for Atacocha and El Porvenir underground mines were prepared by Nexa using Deswik's mining software package. SLR has reviewed and validated the mine designs and Mineral Reserve estimates provided by Nexa.

Veins were initially reviewed to identify areas amenable to SLS mining methods, taking into account vein geometry and dip angles. Stope designs were prepared using a stope optimization tool. The optimization was run on Measured and Indicated Resources only. The NSR value of each block was calculated based on the parameters discussed in Section 12.3.4 and stope optimizations were completed using marginal cut-off values for each mining zone as presented in Table 12-7 and Table 12-8.

The mine design parameters applied to the DSO settings are presented in Table 13-1. The resulting shapes were depleted against mined-out wireframes and reviewed against



development designs for inclusion of marginal stopes, which make up approximately 12% of Mineral Reserves. Stope shapes were further reviewed to remove stopes that were found to be isolated and far from existing development, low grade or uneconomic when reviewed against development requirements, within crown or sill pillars, or within ground with poor stability. Development designs were completed to connect to existing development and provide access to all stopes.

SLR has reviewed the mine designs, mining sequence, and production schedule and is of the opinion that they appropriately reflect current mining operations. The planned mining sequence assumes the use of unconsolidated backfill, therefore mining progresses in a bottom up method. SLR has identified some areas where a sill pillar is required as mining on an upper panel takes place before the lower panel is mined. The areas identified by SLR represent approximately 2% of the total reported Mineral Reserves. The SLR QP recommends reviewing the mining sequences against pillar locations and adjusting the sequence or pillar location accordingly. A longitudinal section of the Atacocha and El Porvenir mine designs are illustrated in Figure 13-1 and Figure 13-2, respectively.

Table 13-1: Mine Design Parameters

Item	Unit	CAF	SLS
Stope Design Parameters			
Min. Mining Width	m	5	4
Max. Mining Width	m	10	8
Length	m	4	10
Height	m	5	20
Development Design			
Main Ramps and Ore access	mH x mW	4.5 x 4.5	
Level development	mH x mW	4.0 x 4.0	
Ventilation Raise	m dia.	3.1	
Ore Pass	m dia.	2.1	





Figure 13-1: Atacocha Mine Design

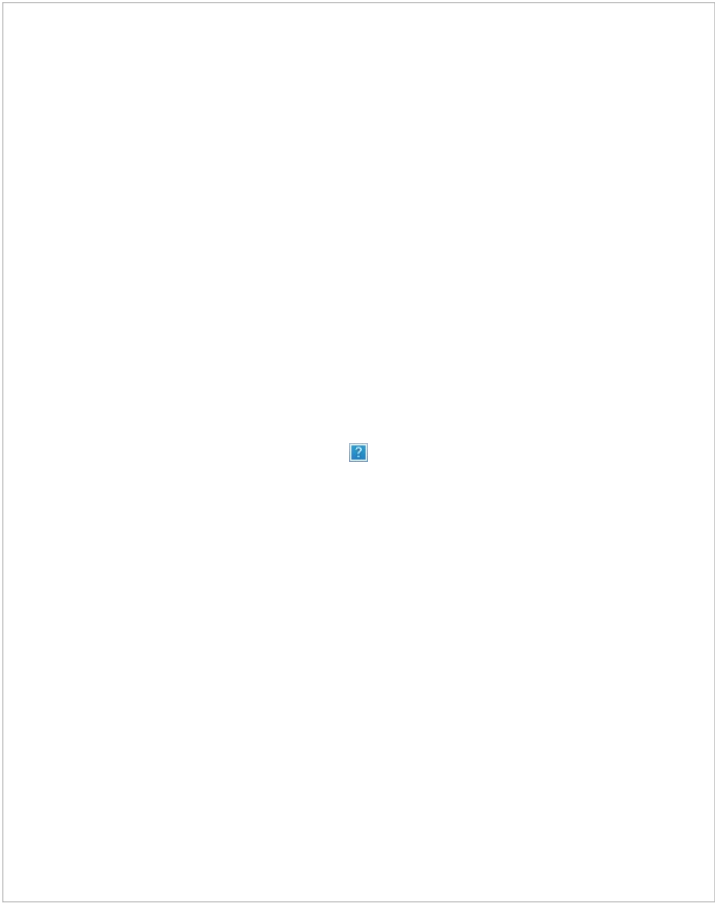
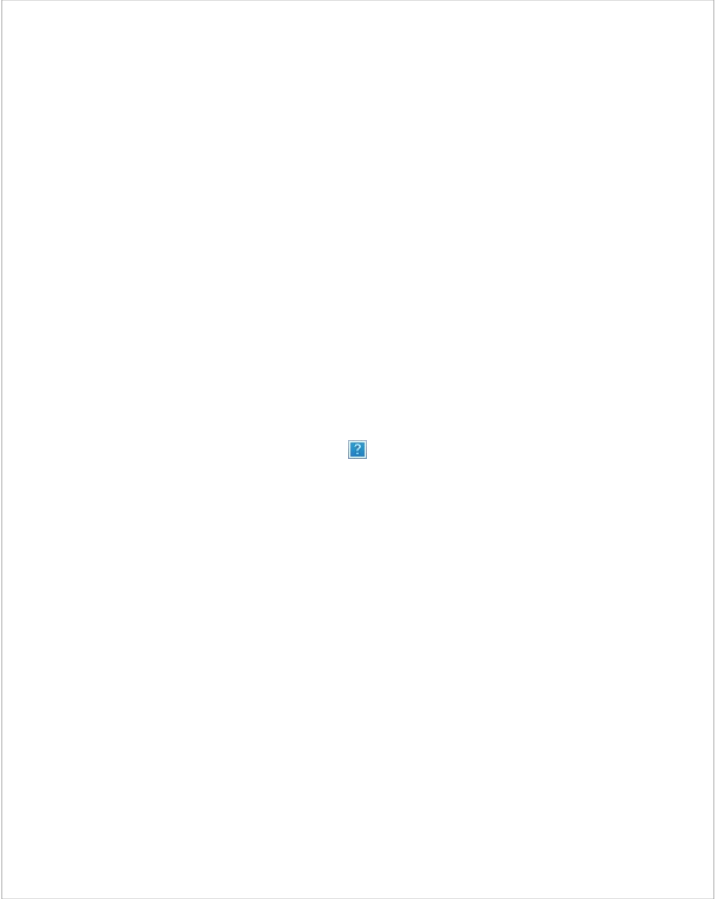




Figure 13-2: El Porvenir Mine Design



13.1.3 Mining Method

Ore from El Porvenir is predominantly mined using overhand CAF mining methods, which accounts for approximately 80% of total production. SLS makes up the remainder of ore production. SLS was introduced to El Porvenir in 2018 and is planned to be used more extensively where the geometry of mineralization is amenable to this mining method. The same mining methods were used at Atacocha before the mine closure in 2020 and will continue to be used over the planned LOM.

The ore produced in the CAF and SLS stopes is transported to and dumped in orepasses by load-haul-dump units (LHDs). These orepasses extend to the 2,900 track haulage level where the ore is pulled from chutes and loaded onto mine cars. The mine cars dump at an orepass grizzly, and the ore is transferred to the shaft's loading pocket on the 2,500 Level. From there, the ore is loaded onto skips and hoisted via the shaft to the ore dump. After being discharged at the dump, the ore is transferred to the underground primary crusher. Crushed ore is transported to the surface and the processing plant via a conveyor in an inclined drift.

13.1.3.1 Overhand Cut and Fill

CAF mining is completed using horizontal cuts following the strike of the orebody. Each mining panel consists of four to five cuts. The first cut will be mined on the lowest level of each panel and subsequent cuts will be mined in an ascending manner. Once a cut is mined, it is backfilled with a combination of unconsolidated backfill from waste development and hydraulic fill using tailings. The cut is backfilled, leaving a one-metre gap between the next cut. The gap provides a free face to allow for efficient blasting for the next cut and also provides a platform on which the next cut can be mined.

The mining panels are accessed via 4.5 m x 4.0 m attack ramps that branch off the main ramp. The first ramp is driven at a gradient of -15% and each subsequent ramps are driven off the first attack ramp at a gradient of 15%. In order to mitigate dilution from backfill, red markers are placed along the walls of each cut, just above the planned backfill height, to provide a visual cue to operators when the cuts are being mined out.

In the SLR QP's opinion, the CAF mining method is well suited for the mines given the irregular and sinusoidal nature of the veins present at both Atacocha and El Porvenir. CAF allows for a greater level of selectivity and ability for operators to reduce dilution. CAF mining method setup is presented in Figure 13-3.

13.1.3.2 Sub-level Stopping

SLS is used only in areas where the veins are steeply dipping and have fairly constant strike directions. Two variations of SLS mining methods called Avoca and modified Avoca are used at the Atacocha and El Porvenir underground mines.

The Avoca method consists of developing ore drives at the bottom and top of the level in operation to provide mucking and drilling accesses. The level is typically accessed in the middle and the drives are developed along the length of the veins. A separate footwall drive is developed at the top of the level to access the end of the vein. This drive will be used for backfilling. Stopes are mined starting from the end of the vein and retreating towards the middle access. As mining progresses in retreat, the mined out stopes can simultaneously be backfilled via the top footwall access. This setup allows for high productivity rates as drilling, mining, and backfilling activities can happen at the same time. However, this method requires more development.



The modified Avoca approach eliminates the use of a top footwall access for backfilling and instead uses the middle access on top of the level. Using this approach, mining activities must stop while the stopes are being backfilled.

Nexa uses the Avoca method for veins with long strike lengths to provide working areas with high productivity rates and uses modified Avoca for veins with short strike lengths to reduce development requirements. The Avoca mining method sequence is presented in Figure 13-4.





Figure 13-3: Cut-and-Fill Mining Method

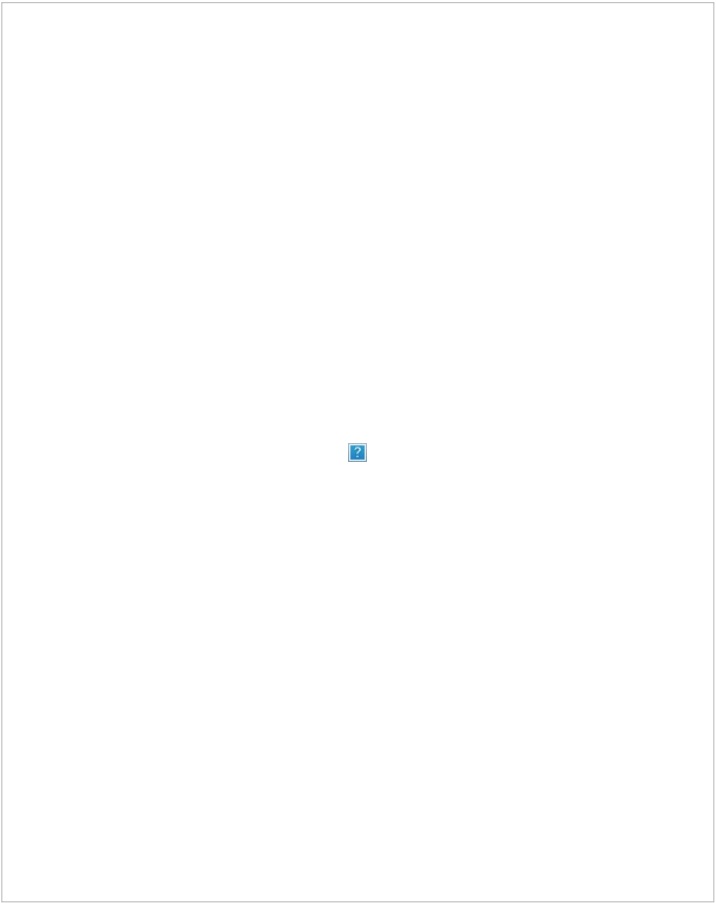
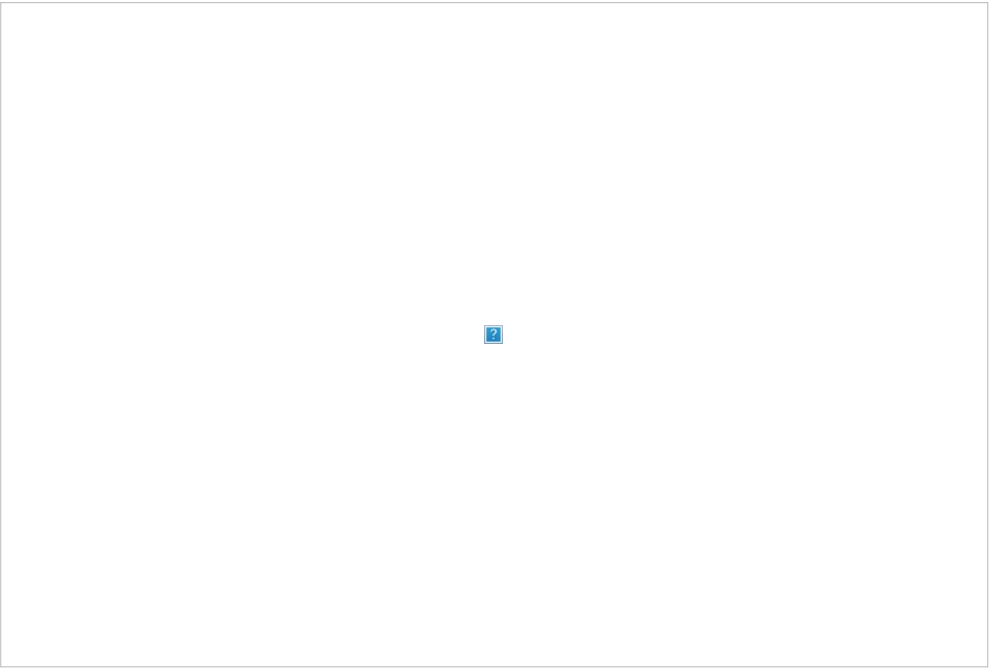




Figure 13-4: SLS Avoca Mining Method





13.1.4 Geotechnical Considerations

The underground mine design for El Porvenir is based upon the geotechnical study described in BISA, 2022, and summarized in this section.

Geotechnical data collection for El Porvenir includes window mapping at 51 locations, 11 line mapping surveys of underground exposures, and relogging of 18 historical drill holes including 1,372 m of core.

The rock mass at El Porvenir has been classified according to Bieniawski’s Rock Mass Rating System (RMR) (Bieniawski, 1989) and converted to Barton’s Q-System (Barton et al., 1974), and the Geological Strength Index (GSI) (Hoek et al., 1995) using established relationships.

Rock mass classification parameters derived from geotechnical mapping and logging for each of the geotechnical domains is presented in Table 13-2.

Table 13-2: El Porvenir Rock Mass Classification

Geotechnical Domain	RMR				Q-System			
	Ave.	Std. Dev.	Min.	Max.	Ave.	Std. Dev.	Min.	Max.
Mineralized Vein	53	3.8	49	57	0.875	0.301	0.574	1.335
Skarn	54	5.7	48	60	1.000	0.469	0.531	1.884
Limestone	54	5.3	48	59	0.946	0.421	0.525	1.705
Intrusive	50	6.2	43	56	0.611	0.304	0.307	1.216
Breccia	28	3.4	25	31	0.056	0.018	0.038	0.081

Geotechnical laboratory testing was completed on representative samples from each of the lithologies including physical density, Uniaxial Compressive Strength (UCS), direct shear testing of discontinuities, Triaxial Compressive Strength (TCS), and elastic properties Young’s modulus and Poisson’s Ratio. Samples for the limestone and ore rocks were collected from rock blocks, approximately 0.3 m x 0.3 m x 0.3 m in size, other samples were collected from diamond drill core.

The strength of the fill material was determined through Consolidated Undrained (CU) triaxial testing, classification according to the Unified Soil Classification System was completed through particle size distribution, and Atterberg limits testing.

The Hoek-Brown strength criterion was used to define the strength of the rock mass, presented in Table 13-3, for geotechnical analysis of the underground excavation. Properties were based upon analysis of the rock mass characterization and laboratory testing data. A disturbance factor, D, has been applied to account for disturbance of the rock mass due to blasting and excavation.

Table 13-3: El Porvenir Geotechnical Parameters

Geomechanical Domian	GSI	UCS (MPa)	Parameter m	Unit Weight (kN/m³)	Disturbance Factor D
Mineralized Vein	56	91	17	34.0	0.8
Skarn	57	82	29	34.2	0.8





Geomechanical Domian	GSI	UCS (MPa)	Parameter mi	Unit Weight (kN/m ³)	Disturbance Factor D
Limestone	57	112	22	26.5	0.8
Intrusive	53	60	28	28.7	0.8
Breccia	31	56	19	23.7	0.8

Induced stresses were assessed using the over-coring method during a study by INGEROC (2017 and 2018) allowing the magnitude and direction of the three principal stress components σ_1 , σ_2 and σ_3 to be resolved through direct measurement with a triaxial strain gauge. A total of seven tests were completed. The results were verified through the use of the drill hole detonation method whereby the pattern of fracturing post detonation is used to estimate the minimum and maximum stress directions.

The stress magnitudes used for the evaluation of underground mine design are presented in Table 13-4.

Table 13-4: El Porvenir Stress Magnitudes Used for Geotechnical Evaluation

Sector	Zone	Level	Depth (m)	σ_3 vertical	σ_1 east-west	σ_2 north-south
Porvenir	Intermediate - High	3440	650	19.04	25.51	21.71
	Low	2995	1095	31.37	42.03	35.76
CN 3	Intermediate - High	3600	650	19.04	25.51	21.71
	Low	2995	1185	33.86	45.37	38.60
Éxito	Intermediate	3600	700	20.43	27.37	23.29
	Low	2995	1305	37.18	49.83	42.39
CN 1-2, Carmen, V5 Cola, V1204	Intermediate	3600	610	17.93	24.03	20.44

Numerical modelling of the behaviour of the rock mass at different stages of excavation was completed using Rocscience RS2 (2-dimensional) and RS3 (3-dimensional) finite element analysis software. This allows the stability of the excavation to be understood, and the Strength Reduction Factor (SRF) to be calculated, which can be considered to be equivalent to the Factor of Safety (FOS). The results of modelling indicate SRF values of less than 1 in the stope backs and advance ends due to high stresses and the stope walls due to tensile stress.

The stope dimensions were reviewed using the empirical charts developed by Potvin (1988), Potvin and Milne (1992), and Nickson (1992) following the work initiated by Mathews et al. (1981). Based on the analysis results BISA recommends the stope dimensions presented in Table 13-5.





Table 13-5: El Porvenir Recommended Slope Dimensions (from BISA, 2022)

Sector	Domain	Level	Maximum Longitudinal Span (m) for Height of:		Maximum Longitudinal Span (m) for Slope Width of:	
			20 m	23 m	5 m	6 m
CN 03	Limestone	3760	-	27	No Restriction	54
Éxito	Limestone	3650	-	27.4	No Restriction	54
Éxito	Limestone - Intrusive	3690	-	23.8	No Restriction	174
Porvenir 09	Limestone	2995	23	-	120	24
CN 03	Limestone	3120	20	-	120	24

Cablebolt spacing and lengths for slope support have been determined according to the method by Hutchinson and Diederichs (1996) using the charts developed by Nickson (1992). Recommendations for cablebolt support provided by BISA are presented in Table 13-6.

Table 13-6: El Porvenir Cablebolt Support Recommendations (From BISA, 2022)

Zone	Level	Domain	Description	N'	S (m)	N'/S	Cablebolt / m ²	Mesh (m)	Length (m)
Porvenir 09	2995	Limestone	Roof	0.3	2.25	0.13	0.27 - 0.32	1.80 - 1.90	3.4
			Hangingwall	2.81	4.8	0.59	0.20 - 0.25	2.0 - 2.2	7.2
			Footwall	2.81	4.8	0.59	0.20 - 0.25	2.0 - 2.2	7.2
CN 03	3120	Limestone - Intrusive	Roof	0.3	2.1	0.14	0.27 - 0.32	1.80 -1.90	3.2
			Hangingwall	4.11	5.4	0.76	0.20 - 0.25	2.10 - 2.25	8.1
			Footwall	0.67	3.15	0.21	0.21 - 0.27	1.90 - 2.10	4.7
		Limestone	Roof	0.3	2.1	0.14	0.27 - 0.32	1.80 -1.90	3.2
			Hangingwall	4.11	5.6	0.73	0.18 - 0.25	2.0 - 2.25	8.4
			Footwall	2.41	4.8	0.50	0.21 - 0.26	2.0 -2.2	7.2
	3760	Limestone	Roof	0.39	2.6	0.15	0.24 - 0.28	1.95 - 2.10	3.9
			Hangingwall	9.01	5.6	1.61	0.18 - 0.25	2.0 -2.2	8.4
			Footwall	4.47	5	0.89	0.20 - 0.25	2. -2.25	7.5
	3790	Intrusive	Roof	0.3	2.3	0.13	2.24 - 2.28	1.90 - 2.10	4.1
			Hangingwall	2.08	4.2	0.50	0.20 - 0.26	2.0 - 2.20	6.3
			Footwall	1.22	3.5	0.35	0.22- 0.28	2.0 - 2.2	5.3





Zone	Level	Domain	Description	N'	S (m)	N'/S	Cablebolt / m ²	Mesh (m)	Length (m)
Éxito	2995	Intrusive	Roof	0.7	2.7	0.26	0.24 - 0.28	1.90-2.10	4.1
			Hangingwall	2.55	5	0.51	0.18 0.25	2.0 - 2.25	7.5
			Footwall	1.68	4.15	0.40	0.20-0.26	2.05 - 2.20	6.2
	3650	Limestone - Intrusive	Roof	0.64	2.9	0.22	0.22 -0.258	1.95 - 2.15	4.4
			Hangingwall	5.89	5.6	1.05	0.18 - 0.25	2.0 - 2.2	8.4
			Footwall	3.9	5.1	0.76	0.20 -0.25	2.0 -2.2	7.7
	3690	Limestone	Roof	0.64	2.9	0.22	0.22 -0.258	1.95 - 2.15	4.4
			Hangingwall	7.91	5.2	1.52	0.18 - 0.25	2.0 - 2.2	7.8
			Footwall	1.29	4	0.32	0.22 - 0.27	2.0- 2.15	6.0

Figure 13-5: El Porvenir Installation of Cablebolts for Veins Dipping Greater Than 80°

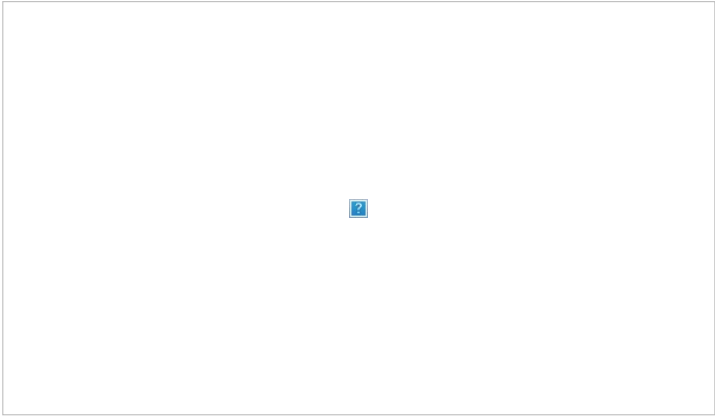
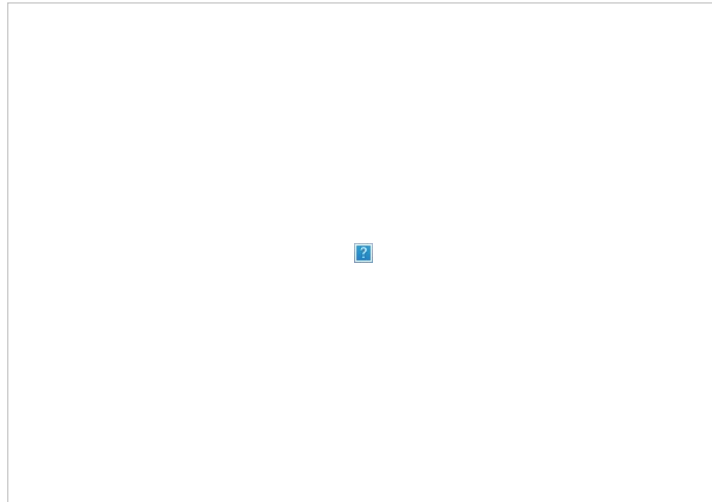




Figure 13-6: El Porvenir Installation of Cablebolts for Veins Dipping Less Than 80°



To determine the sill pillar thickness required for CAF mining, a sensitivity analysis was completed through numerical modelling using Rocscience RS2 finite element software for excavations backfilled with 25 m, 50 m, and 100 m of fill. The database of historic seismic events has also been interrogated to correlate the concentration of events with stopes that have already been mined and backfilled. As a result of this assessment, BISA recommends a filled column height of no greater than 100 m with a sill pillar thickness of 10 m between filled stopes.

In some areas, the mineralized structures bifurcate, which would require parallel mining with a waste rock pillar remaining between stopes. To account for this, the bench and fill variant of the bottom up cut and fill mining was assessed through numerical analysis based upon the following:

- Mining to comply with the excavation dimensions recommended using the Matthews stability chart
- Pillar width dimension to be a minimum of two times the stope width
- Mine the bottom panel first
- Mine the central panel after filling the lower panel
- Mine the top panel after the middle panel is filled

Development support requirements were determined from Q-System rock mass classification and the use of the Grimstad and Barton (1993) design charts. The developments must be assessed by a geotechnical engineer to define the rock class and degree of support required





using Table 13-7 for permanent openings and Table 13-8 for temporary openings. Supports for intersections are presented in Table 13-9.

Table 13-7: El Porvenir Development Support for Permanent Openings

RMR Classification	Q-System Classification	GSI Index			Support
81 – 100	61 – 503	LF/B	-	-	Spot Anchor Bolts
61 – 80	6.61 – 54.6	LF/R	F/B	-	Systematic anchor bolts. 1.5m x 1.5m + electrowelded mesh
51 – 60	2.18 – 5.92	LF/P	F/R	MF/B	Systematic anchor bolts. 1.2m x 1.2m + electrowelded mesh
41 – 50	0.72 – 1.95	F/P	IF/B	MF/R	Shotcrete 2” + Systematic Anchor Bolts 1.5 m x 1.5 m
31 – 40	0.24 – 0.64	F/MP	IF/R	MF/P	Shotcrete 2” + Systematic Anchor Bolts 1.2 m x 1.2 m
21 – 30	0.08 – 0.21	IF/P	MF/MP	-	3” Shotcrete + Systematic Anchor Bolts 1.0 m x 1.0 m
0 – 20	0.01 – 0.07	IF/MP	-	-	2” shotcrete + falsework (spaced 1 to 1.2m apart)

Table 13-8: El Porvenir Development Support for Temporary Openings

RMR Classification	Q-System Classification	GSI Index			Support
81 – 100	61 – 503	LF/B	-	-	Spot Anchor Bolts
61 – 80	6.61 – 54.6	LF/R	F/B	-	Systematic anchor bolts. 1.5m x 1.5m + electrowelded mesh
51 – 60	2.18 – 5.92	LF/P	F/R	MF/B	Systematic anchor bolts. 1.2m x 1.2m + electrowelded mesh
41 – 50	0.72 – 1.95	F/P	IF/B	MF/R	Systematic anchor bolts. 1.1m x 1.1m + electrowelded mesh
31 – 40	0.24 – 0.64	F/MP	IF/R	MF/P	Shotcrete 2” + Systematic Anchor Bolts 1.2m x 1.2m
21 – 30	0.08 – 0.21	IF/P	MF/MP	-	3” Shotcrete + Systematic Anchor Bolts 1.0m x 1.0m
0 – 20	0.01 – 0.07	IF/MP	-	-	2” shotcrete + falsework (spaced 1 to 1.2m apart)





Table 13-9: El Porvenir Support for Intersections (Permanent Limestone and Temporary Ore Openings)

Geotechnical Domain	Q	Correction Factor	Q fixed for Intersections	Anchor Bolts (2.10m)	Shotcrete Thickness (in.)
Limestone	0.946	0.33	0.315	1 x 1 m	3
Mineralized	0.875	0.33	0.292	1 x 1 m	3

The following conclusions are drawn from the underground geotechnical analyses:

- Geomechanical domains have been delineated using lithological and structural wireframes.
- Rock mass characterization and structural data has been collected from mapping of underground openings and logging of historical drill core.
- Geomechanical testing has been completed to provide intact rock strength properties and joint strengths.
- Seismic hazard has been considered in underground mine for a 475-year return period earthquake.
- In situ stress has been estimated using the over-coring method and verified using the drill hole detonation method.
- Stope dimensions and cablebolt support have been defined using the Matthews stability chart method and verified using numerical modelling with Rocscience RS2 and RS3 software.
- Maximum filled stope height and sill pillar width requirements have been determined from numerical modelling using Rocscience RS2 and RS3 software.
- A mining methodology has been developed for mining of parallel stopes where the orebody bifurcates.
- Support requirements of permanent and temporary development has been provided using the Grimstad and Barton (1993) support chart.

13.1.5 Underground LOM Production

The underground LOM production plan for El Porvenir and Atacocha was prepared using Deswik software. The underground Mineral Reserve estimates support a LOM production plan of approximately 10 years. The LOM plan assumes that the Atacocha underground mine will be operational starting in 2027 and will ramp up from 0.5 Mtpa in 2027 to 1.0 Mtpa in 2029. The El Porvenir Mine will operate at current production rates until the Atacocha underground mine is operational. A lower production rate of 1.8 Mtpa is planned for 2026 due to a major upgrade scheduled for the El Porvenir processing plant.

The LOM plan assumes stope mining rates of 1,500 tpd and 267 tpd and backfill rates of 860 tpd and 667 tpd for SLS and CAF stopes, respectively. Table 13-10 and Figure 13-7 show the LOM production plan for the Atacocha and El Porvenir underground mines.



Table 13-10: Atacocha and El Porvenir Underground Mines LOM Plan

	Units	Total	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
El Porvenir												
Total Ore	kt	14,651	2,250	2,200	1,858	1,700	1,700	1,200	1,200	1,200	1,192	151
CAF	kt	5,550	1,043	932	1,265	630	458	387	300	351	142	42
SLS	kt	6,973	769	1,000	383	682	941	739	786	670	895	108
Ore Dev	kt	2,127	437	269	210	388	301	74	113	180	155	-
Avg Zn	%	4.11	3.71	3.84	3.37	3.92	4.22	4.28	4.43	4.18	6.03	4.24
Avg Pb	%	1.2	1.55	1.5	2	0.95	1.03	1.06	0.8	0.95	0.21	0.37
Avg Cu	%	0.23	0.21	0.22	0.12	0.22	0.22	0.2	0.26	0.25	0.45	0.31
Avg Ag	g/t	72.9	88.7	78.5	115.1	68.6	63.2	63.4	59.8	64.5	23.4	33.50
Atacocha												
Total Ore	kt	5,665	-	-	-	500	500	1,000	1,000	1,000	1,000	665
CAF	kt	4,386	-	-	-	453	244	808	942	707	846	387
SLS	kt	930	-	-	-	-	224	130	11	226	86	254
Ore Dev	kt	349	-	-	-	47	32	62	48	68	68	24
Avg Zn	%	4.33	-	-	-	3.26	3.28	4.06	4.05	4.27	4.82	6.16
Avg Pb	%	1.34	-	-	-	1.93	1.09	1.36	1.54	1.28	1.29	0.90
Avg Cu	%	0.4	-	-	-	0.17	0.32	0.43	0.39	0.39	0.52	0.42
Avg Ag	g/t	79.8	-	-	-	111.9	85.3	78.1	92.7	69.8	78.3	52.26
Total												
Total Ore	kt	20,316	2,250	2,200	1,858	2,200	2,200	2,200	2,200	2,200	2,192	816
CAF	kt	9,936	1,043	932	1,265	1,083	702	1,195	1,242	1,057	988	429
SLS	kt	7,903	769	1,000	383	682	1,165	869	797	895	981	362

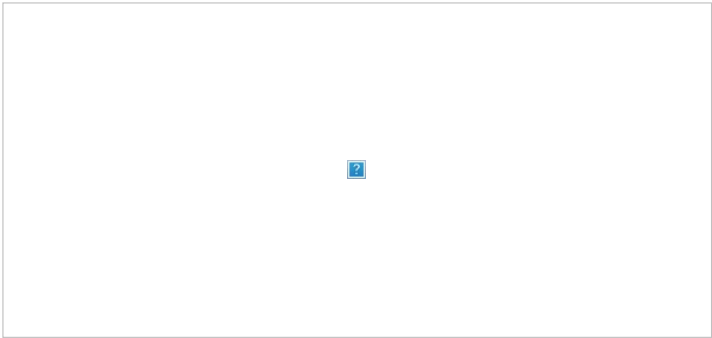


	Units	Total	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Ore Dev	kt	2,476	437	269	210	435	333	136	161	248	223	24
Avg Zn	%	4.17	3.71	3.84	3.37	3.77	4.01	4.18	4.26	4.22	5.48	5.80
Avg Pb	%	1.24	1.55	1.5	2	1.18	1.05	1.2	1.13	1.1	0.7	0.80
Avg Cu	%	0.28	0.21	0.22	0.12	0.21	0.24	0.3	0.32	0.32	0.48	0.40
Avg Ag	g/t	74.83	88.69	78.48	115.06	78.4	68.2	70.09	74.76	66.91	48.41	48.79
Development												
El Porvenir												
Capital Dev	m	59,611	4,950	9,438	11,622	7,429	7,119	7,647	8,308	2,886	213	-
Operating Dev	m	83,380	16,993	12,363	10,174	10,772	11,081	8,553	4,309	5,754	3,206	176
Total	m	142,992	21,943	21,801	21,795	18,201	18,200	16,200	12,616	8,640	3,418	176
Atacocha												
Capital Dev	m	48,086	-	-	2,660	6,513	6,704	8,017	11,986	9,880	1,797	530
Operating Dev	m	7,488	-	-	502	1,207	1,016	1,702	964	657	1,062	377
Total	m	55,574	-	-	3,162	7,720	7,720	9,720	12,950	10,537	2,859	907





Figure 13-7: Cerro Pasco Complex Integration LOM Production Plan



13.1.6 Infrastructure

13.1.6.1Ventilation

Atacocha’s and El Porvenir’s ventilation systems together circulate approximately 50,000 m³/min of airflow through the mines. The two mines are currently connected on two levels and part of the ventilation circuits are shared between them. Table 13-11 shows the fresh air intake and air exhaust locations and respective air flows at each of the monitoring points.

Table 13-11: Ventilation Balance

Air Intake Locations	Flow (m ³ /min)	Air Exhaust Locations	Flow (m ³ /min)
El Porvenir Mine			
Mine Entrance San Carlos 4070 level	2,225	Vent Raise 4120 level	592
Phase 1 Adit 4070 level	663	Vent Raise 4120 level	3,278
Main Drift 4170 level	3,465	Vent Raise 4240 level	2,900
Main drift 4120 level	1,754	Vent Raise 3970 level	5,412
Mine Entrance 4020 level	4,583	Vent Raise 4150 level	6,470
Porvenir II Ramp 3990 level	745	Tunnel n.º 1 sur - 1, 3100 level	665
Main Drift 4150 level	5,641	Tunnel n.º 1 sur - 2 2900 level	974
La Quiñua Tunnel 3620 level	4,751	Tunnel n.º 2 sur 3630 level	654
Connecting Drift to Atacocha 4070m level	1,628	Tunnel n.º 4 norte 3630 level	1,979
Connecting Drift to Atacocha 3370m level	4,290	Tunnel n.º 5 norte 3630 level	1,657
Don Ernesto Raise 4050 level	1,637	Alimak 2 4150 level	7,423





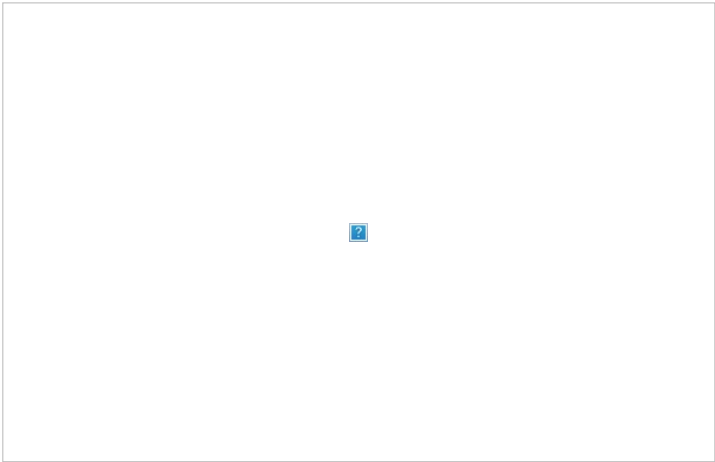
Air Intake Locations	Flow (m ³ /min)	Air Exhaust Locations	Flow (m ³ /min)
Mine Portal 4090 level	577	Alimak Don Ernesto 4250 level	2,228
El Porvenir Intake	31,959	El Porvenir Exhaust	34,232
Atacocha Mine			
Mine Portal 3900 level/Main Ramp	2,966	Mine Portal 4000 Level - San Ramon	1,101
Mine Portal 3600 Level - Portaro	1,240	Mine Portal 4020 level	3,926
Mine Portal 3600 Level - Don Paco	1,778	Alimak 392	1,599
Vent Raise 77	459	Mine Portal 4103 level	881
3620 Level	3,431	RB OP-1	3,396
Mine Portal 3950 Level	310	Tunnel 3300 level to El Porvenir	2,006
Mine Portal 3570 level	2,765	Tunnel 4050 level to El Porvenir	1,436
Mine Portal 4050 level	2,853	Mine Portal 4226 level OP-2	2,355
Mine Portal 4154 level	1,757	RB 140	1,547
Mine Portal 4218 level	1,099		
Atacocha Intake	18,658	Atacocha Exhaust	18,247
Total Intake	50,617	Total Exhaust	52,479

JCI Ingenieria & Servicios Ambientales (JCI) has completed a review of the ventilation in September 2023 and analyzed the planned demand based on future production. The analysis considered the number of people working in the mines, utilization ratios of diesel equipment, and requirements for maintaining an adequate temperature level in working areas. The results are presented in Figure 13-8. The air flow requirements are expected to reach a maximum of 1.50 million cubic feet per minute (Mcfm) which is equivalent to approximately 42,500 m³/min. The current ventilation system is able to cover 117% of the maximum demand, however, JCI estimates that additional auxiliary fans will have to be added to the current ventilation network to supply all of the working areas.





Figure 13-8: Planned Ventilation Requirements



Source: Nexa, 2023

13.1.6.2Mine Water Drainage

The pumping system at Atacocha is carried out in two areas: Atacocha and Santa Bárbara. Mine and surface water from San Gerardo drains into the Atacocha underground mine, where it is collected in settling sumps and subsequently reports by gravity to the Don Paco tunnel at the 3,600 m elevation. Water collected in the Atacocha area is pumped through five pumping stations from the 2940 Level to 3600 Level, while water from the Santa Bárbara area is pumped through one station from the 3420 Level to 3600 Level, wherefrom it is sent to the Atacocha processing plant for filtration. The mine dewatering system has a design capacity of 120 L/s.

El Porvenir's dewatering system discharges water via the La Quinoa tunnel. Mine water occurring above the tunnel's elevation drains to it by gravity via drain holes. Water occurring in the levels below the tunnel is pumped to it by the mine's pumping system. The water occurring in the stopes, sub-levels, and work headings flows by gravity or is pumped to the auxiliary sumps present on each sub-level. The water is then conducted via drain holes and ditches to one of the main sumps and pumping stations.

Each pumping station has three stationary, multi stage pumps with a pumping capacity between 70 m³/h and 90 m³/h. Two pumps work alternatively, with one pump on standby. The pumping system uses 10" diameter Schedule 80 steel pipes.





13.1.7 Mine Equipment

The current mine equipment list is presented in Table 13-12. Since only the El Porvenir Mine is currently in operation, most of the active equipment is located at El Porvenir. Nexa has included in its capital expenditure budget the purchase of additional equipment to support the re-opening and operation of the Atacocha underground mine. Contractors are responsible for providing and maintaining their respective equipment.

Table 13-12: Mine Equipment List

Type	Make	Model	Nexa	Contractors						
				Ferreyros	Seprocal	Iesa	Miro Vidal	Unicon	Orica	Others
LHD	Caterpillar	R1300		1						
LHD	Caterpillar	R1600		9	4	6	1			
Jumbo	Sandvik	DD321	3							
Jumbo	Sandvik	DD421	2							
Jumbo	Sandvik	DD411	1							
Jumbo	EPIROC	Boomer S1D			4	5				
Scaler	BTI		5							
Scaler	Resemin					2				
Scaler	Paus				4	3				
Bolter	MacLean	MEM-946 & 975	3							
Bolter	Sandvik	DS 411, 421 & 312	3							
Bolter	Resemin	Bolter 99			3	5				
ANFO Loader	Normet	SF 505							5	
Forklift	Caterpillar						3			
Dump Trucks	VOLVO	FM500 6X4R				3	16			
Dump Trucks	EPIROC	MT2010				1	1			
Dump Trucks	EPIROC	MT2200				1				
Dump Trucks	Atlas Copco	MT-2010/2011			3					
Shotcrete Sprayer	Putzmeister	Wetcret SPM 4210						5		
Shotcrete Mixer	Putzmeister	Mixkret4						11		
Utility Trucks	Toyota	Hilux	4	2	12	16	8	6	6	36
Utility Trucks	Isuzu				3	4	1	1	2	3
Grader	Caterpillar						2			
Manitou					3	4	3			2

13.1.8 Personnel

The mine personnel will be a combination of Nexa workforce and contractors. A list of the mine personnel is shown in Table 13-13.





Table 13-13: Mine Personnel

Company	Area	Number
Nexa	Mine Geology	23
	Underground Mine	219
	Technical Services	32
	Maintenance	128
	Supervision	23
Explomin	Infill Drilling	50
Exsa	Explosives nd Blasting	67
IESA	General Mine Services	363
Miro Vidal	Ramp Maintenance	38
	Auxiliary Services	193
	Ore and Waste Transport	82
Seprocal	Stope Mining	260
Tumi	Raise bore	15
Unicon	Shotcrete	128
Total		1,621





13.2 Atacocha Open Pit (San Gerardo)

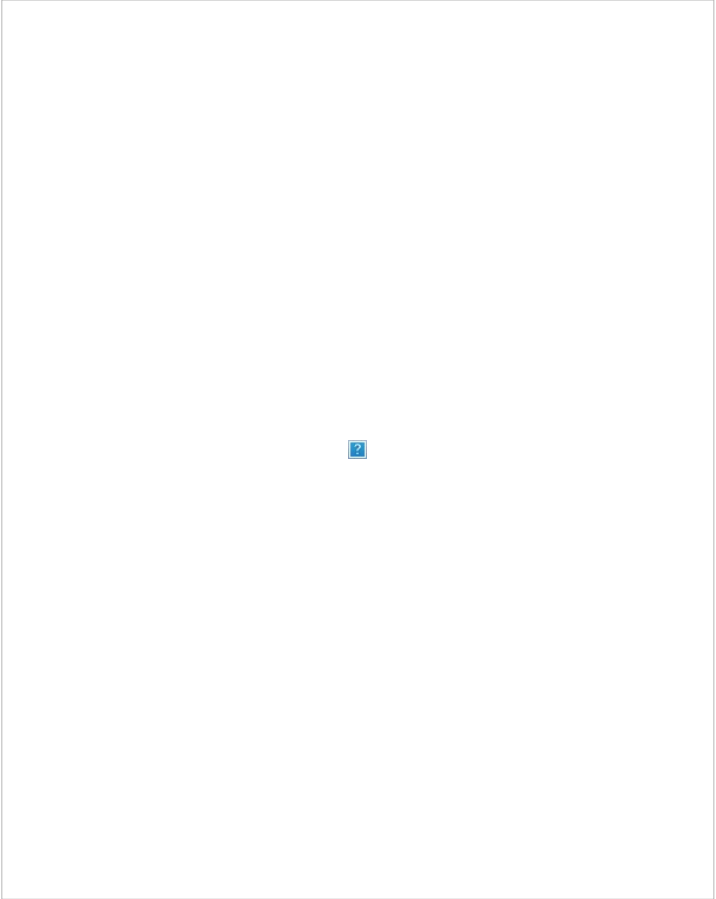
San Gerardo is a conventional open pit drill and blast operation using excavators and trucks operating on bench heights of six metres. The open pit is operated by a contractor, that provides operators, equipment, and ancillary facilities required for the mining operation.

Mill feed material produced by San Gerardo is hauled to the orepass at the east of the pit that reports to the 3600 Level of Atacocha UG, where it is trammed by locomotive and rail car to the Atacocha plant. Waste is hauled to the San Gerardo waste dump, which is adjacent to the Atacocha TSF dam. Average single direction haul distances for ore and waste are approximately 1.0 km and 4.7 km, respectively. Figure 13-9 presents open pit location and waste dump location.





Figure 13-9: San Gerardo Open Pit Layout





13.2.1 Open Pit Design

A pit design was created based on the NPV Scheduler output shell using Deswik mine planning software in four phases. The final pit outline with topography and phases is presented in Figure 13-10.

The San Gerardo pit is excavated with variable pit floor elevations and an ultimate pit bottom at 4,114 MASL. Ramps are 12 m wide at a 10% gradient that allow bi-directional haul truck travel. The mine is designed with a six-metre bench height, utilizing 127 mm vertical drill holes on 4.8 m x 5.8 m drill pattern with 0.5 m of sub-drilling.

13.2.2 Geotechnical Considerations

A geotechnical study was completed by SRK in February 2019. The analyses utilized data including diamond drill core inspections, mapping of exposed pit walls and the surrounding area, and laboratory testing of rock properties. Slope and bench design parameters were updated by Nexa in 2023 for each geotechnical domain, which are summarized in Table 13-14 with geotechnical domain sectors illustrated in Figure 13-11. Pit slope design outside of the domain sectors was assumed to be 45 degrees for design and this assumption is considered low risk based on the wall height of the north and west satellite pits.

Table 13-14: Pit Slope Domain Sectors Parameters

Pit Slope Domain Sectors	Overall Slope Design Parameters		Inter-ramp Design Parameters		Bench Design Parameters		
	Overall Slope (°)	Max Slope Height (m)	Slope (°)	Max Slope Height (m)	Bench Height (m)	Bech Face Angle (°)	Berm Width (m)
SD-01	40	250.0	45	60	6.0	65°	4.0
SD-02	43	165.0	47	60	6.0	65°	3.2
SD-03	42	110.0	46	60	6.0	65°	3.6
SD-04	45	80.0	46	60	6.0	65°	3.6
SD-05	39	170.0	45	60	6.0	65°	4.0
SD-06	39	150.0	45	60	6.0	65°	4.0
SD-07	45	70.0	45	60	6.0	65°	4.0
SD-08	40	270.0	45	60	6.0	65°	4.0





Figure 13-10: Final Pit Design and Phases Location

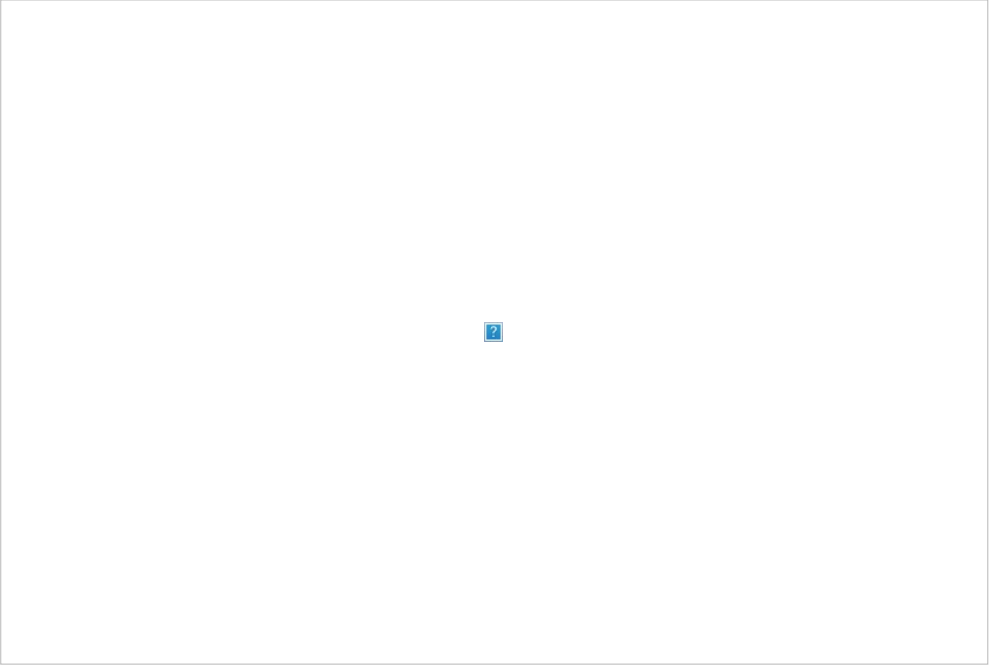
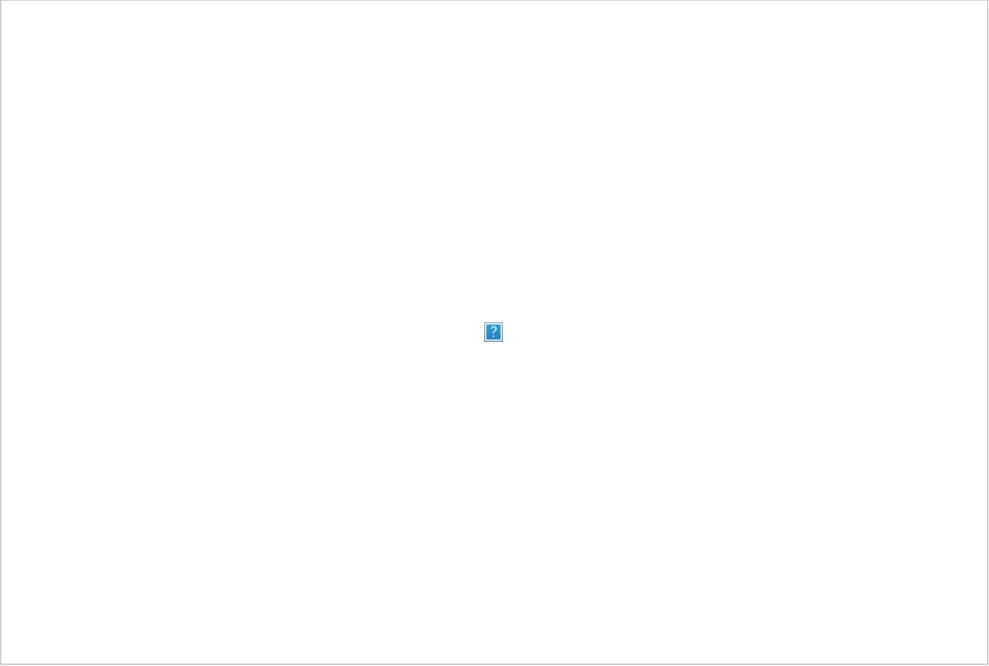




Figure 13-11: Open Pit Geotechnical Domain Sectors





13.2.3 Open Pit LOM Production Schedule

Nexa has prepared the open pit production schedules. Table 13-15 shows open pit mine production including tonnages and grades for each metal contained on a 100% basis. Copper grade was included as part of the open pit LOM production report, however, the NSR calculation does not include copper recovery.

The production schedules are based on Proven and Probable Mineral Reserves only. No Inferred Mineral Resources were used in the production schedules.

The open pit LOM production for San Gerardo was prepared using Deswik software. The open pit Mineral Reserve estimate supports an open pit LOM production plan of approximately four years before the underground mine starts production in 2027. Total material mined does not exceed 10 Mtpa (approximately 27 ktpd).

Open pit mining operating costs are defined as constant values for pit optimization. However, for the cash flow, there is a variable component associated with the haulage distance of the open pit mining costs that requires a truck haulage distance forecast in the LOM plan. The LOM plan should include a truck haulage distance forecast.

Table 13-15: Open Pit Life of Mine Production Schedule

Atacocha	Units	Total	2024	2025	2026	2027
San Gerardo						
Mill Feed	t	4,379,705	1,240,719	1,305,750	1,108,584	724,652
Zn	%	0.99	0.86	0.81	1.18	1.26
Pb	%	1.15	0.98	1.09	1.23	1.40
Cu	%	0.03	0.03	0.02	0.04	0.05
Ag	g/t	34.94	32.91	31.04	36.03	43.75
Au	g/t	0.27	0.36	0.36	0.19	0.09
Waste	t	21,323,607	8,771,261	6,802,299	4,500,000	1,250,048
Total		25,703,312	10,011,980	8,108,048	5,608,584	1,974,700
W/O Ratio		4.9	7.1	5.2	4.1	1.7

13.2.4 Infrastructure

Open pit truck shop and contractor facilities are located to the west of the current pit at approximately 4,300 MASL. Relocation of these facilities will be required to mine phase 4 to reach the final pit design.

Mine rock disposal is downstream of the existing Atacocha TSF dam. The access road from the open pit to the waste rock storage facility is operational. The Atacocha TSF dam study has been prepared by Ausenco (Ausenco, 2018a), including roads to raise the dam to the elevation of 4,180 MASL.

An orepass is connecting the open pit to the 3600 Level of Atacocha UG, wherefrom mill feed material is trammed by locomotive and rail car to the Atacocha plant.





13.2.5 Mine Equipment

San Gerardo surface mining is carried out by contractor (PEVOEX Contratistas Sac.), including drilling, blasting, loading, hauling, and support.

Loading is with excavators ranging from 3.4 m³ to 6 m³ and haulage of ore and waste is by 24 m³ and 26 m³ trucks respectively. Table 13-16 presents a summary of the contractor equipment list.

Table 13-16: Open Pit Mine Equipment List

Manufacturer	Model Type	Equipment Type	Quantity
Caterpillar	395JC	6 m ³ Excavator	1
Caterpillar	374FL	4.2 m ³ Excavator	1
Caterpillar	349D	3.4 m ³ Excavator	1
Sandvik	DP 1500i	Production Drill 4"-6"	2
Volvo	FMX8x4R	26 m ³ Haul Truck	8
Mercedes	AROCS 4151K	24 m ³ Haul Truck	7

13.2.6 Personnel

The Atacocha open pit personerel is made up of the mine owner employees and a significant number of contract employees as presented in Table 13-17.

Table 13-17: Open Pit Mine Personnel

Company	Area	Number
NEXA	Open Pit Mine Administration	2
NEXA	Mine Geology	14
Contractors		
PEVOEX CONTRATISTA S.A.	Open Pit Mining Contractor	194
FAMESA	Explosives Loading and Transport	7
SINCO	Waste Dump Construction Supervision	3
Total		220

13.3 Consolidated Life of Mine Plan

Nexa prepared production schedules for the two underground mines, El Porvenir and Atacocha UG, and a production schedule for the San Gerardo open pit mine. The Mineral Reserves will be processed in two different plants. San Gerardo open pit material is processed at the Atacocha processing plant ending in 2027. Ore from the current El Porvenir underground mine is processed at the El Porvenir plant and the Atacocha underground ore will be processed at the El Porvenir processing plant starting in 2027.





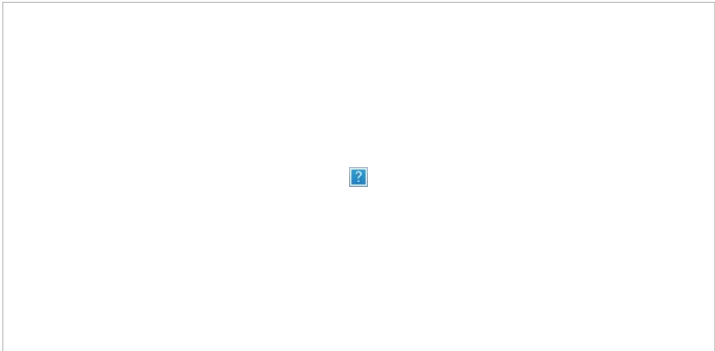
13.3.1 Scheduling Assumptions

The production schedules are based on Proven and Probable Mineral Reserves only. No Inferred Mineral Resources were used in the production schedules. The input assumptions for the Mineral Reserves were adjusted based on current mine and production performances including throughput rates and recoveries. The LOM plan assumes that Atacocha UG will be operational starting in 2027 and will ramp up from 0.5 Mtpa in 2027 to 1.0 Mtpa in 2029. The El Porvenir Mine will operate at current production rates until Atacocha UG is operational. A lower production rate of 1.8 Mtpa is planned for 2026 due to a major maintenance scheduled for the El Porvenir shaft (Pique Picasso). The LOM plan assumes stope mining rates of 1,500 tpd and 267 tpd and backfill rates of 860 tpd and 667 tpd for SLS and CAF stopes, respectively.

13.3.2 Mine Production and Processing Schedule

Figure 13-12 shows total mine production and the tonnages and grades for each mine on a 100% ownership basis.

Figure 13-12: Life of Mine Plan



The Atacocha processing plant will be running until the last year of operation of San Gerardo open pit in 2027. The El Porvenir plant will operate at a production rate of 1.8 Mtpa during 2026 due to a major upgrade scheduled for the processing plant. Based on the current Mineral Reserves, El Porvenir plant will finish processing underground ore in 2033. A combined processing schedule will be limited to 2.2 Mtpa from 2028, after the San Gerardo open pit and Atacocha plant final year of the operation. Figure 13-13 shows the El Porvenir and Atacocha plant production schedules and mill feed annual rates.





Figure 13-13: Plant Production Schedule

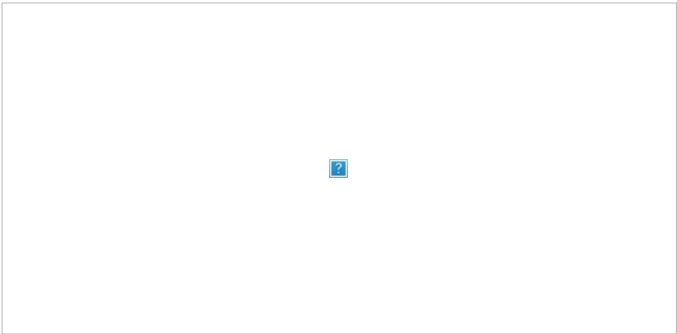


Table 13-18 presents a consolidated production schedule including Atacocha and El Porvenir underground mines, to be processed by El Porvenir plant, and Table 13-19 presents a production schedule for the open pit mine, to be processed by Atacocha plant.





Table 13-18: El Porvenir Plant Consolidated Underground Life of Mine Plan (100% Basis)

	Units	Total	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Atacocha & El Porvenir UG Mill Feed - El Porvenir Plant												
Total Ore	kt	20,316	2,250	2,200	1,858	2,200	2,200	2,200	2,200	2,200	2,192	816
Avg Zn	%	4.17	3.71	3.84	3.37	3.77	4.01	4.18	4.26	4.22	5.48	5.80
Avg Pb	%	1.24	1.55	1.50	2.00	1.18	1.05	1.20	1.13	1.10	0.70	0.80
Avg Cu	%	0.28	0.21	0.22	0.12	0.21	0.24	0.30	0.32	0.32	0.48	0.40
Avg Ag	g/t	74.83	88.69	78.48	115.06	78.40	68.20	70.09	74.76	66.91	48.41	48.79

Table 13-19: Atacocha Plant Open Pit Life of Mine Plan (100% Basis)

	Units	Total	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
San Gerardo OP Mill Feed - Atacocha Plant												
Total Ore	kt	4,380	1,241	1,306	1,109	725	-	-	-	-	-	-
Avg Zn	%	0.99	0.86	0.81	1.18	1.26	-	-	-	-	-	-
Avg Pb	%	1.15	0.98	1.09	1.23	1.40	-	-	-	-	-	-
Avg Ag	g/t	34.94	32.91	31.04	36.03	43.75	-	-	-	-	-	-
Avg Au	g/t	0.27	0.36	0.36	0.19	0.09	-	-	-	-	-	-





14.0 Processing and Recovery Methods

14.1 El Porvenir

The concentrator at El Porvenir has an ore processing capacity of approximately 6,500 tpd, or 2.37 Mtpa, and consists of conventional crushing, grinding, and flotation to produce copper, lead, and zinc concentrates. The mineralogy is primarily sphalerite, galena and chalcopyrite, with associated pyrite, pyrrhotite, and limonite. Approximately 35% of the concentrator tailings are used for hydraulic backfill and the remainder is pumped to the TSF. El Porvenir copper and lead concentrates are sold to traders and delivered by road and rail to Callao, which is approximately 270 km by road, for shipping overseas. Zinc concentrate is transported by road and rail to Nexa’s Cajamarquilla zinc refinery near Lima. El Porvenir is approximately 315 km from Lima by road.

14.1.1 Main Facilities

For a treatment of 6,500 tpd ore, the plant has the following unit operations (Table 14-1).

Table 14-1: Concentrator Plant Operation Stages

Stages	Metallurgical Operations	
Liberation of the sulphide minerals from the gangue material	Crushing	Primary Secondary Tertiary
	Milling	Primary Secondary Bulk & Zn Concentrate Regrinding
Concentration and Recovery of Valuable Sulphides	Flotation	Lead Unit Cells SK-240 Lead Flash Cells Bulk Circuit Pb-Cu Separation Circuit Zn Circuit
Concentrate Water Removal	Filtration	Lead Concentrate Copper Concentrate Zinc Concentrate
Product and/or Waste Management	Cyclone Classification	Underflow (35%) sent to Mine Overflow (65%) to TSF

14.1.2 Process Description

A simplified flowsheet for El Porvenir concentrator is provided in Figure 14-1. The concentrator processes on average approximately 6,500 t.





14.1.2.1Primary, Secondary, and Tertiary Crushing

Primary crushing takes place underground at El Porvenir using a Hewitt Robins 30 in. x 42 in. jaw crusher. The product of the primary crusher with a top size of approximately 4.0 in. to 4.5 in. (100 mm to 125 mm) is transported by conveyor to the 30,000 t coarse ore stockpile at surface.

Ore is reclaimed from the coarse ore stockpile by two reciprocating feeders beneath the stockpile and transferred to a conveyor feeding a Metso primary double deck screen. Oversize from the two decks reports to the Sandvik 600 secondary cone crusher while the bottom deck screen undersize (P_{95} 9.5 mm) reports to the two 1,500 t grinding circuit feed bins. Secondary crusher product with a top size of 30 mm is conveyed to a three-way splitter that distributes the material to two Allis Chalmers 6 ft x 16 ft and one Metso 8 ft x 16 ft secondary double deck screens. Oversize material from the secondary screens is fed to two Sandvik CH 660 tertiary crushers, while bottom deck screen undersize (P_{95} 9.5mm) reports to the two grinding circuit feed bins. Tertiary crusher product is returned by conveyor to the distributor feeding the secondary screens, closing the tertiary crushing circuit.

14.1.2.2Grinding

The grinding circuit consists of two Koppers 9.5 ft dia. x 12 ft primary ball mills and five secondary ball mills. Crushed ore with a P_{95} 9.5 mm is fed from the two grinding circuit feed bins to the two primary ball mills.

Primary Mill 1 works with three secondary mills, Secondary Mill 1 is an 8 ft x 4 ft Hardinge mill, Secondary Mill 2 is an 8 ft x 4 ft Comesa mill, and Secondary Mill 3 is a 6 ft x 7 ft Comesa mill. The discharge of Primary Mill 1 flows to two Sub A 1500 unit flotation cells. The lead concentrate produced flows to the final lead concentrate storage tank and the cell tailings flow into the secondary ball mill discharge pump box. Part of the slurry is pumped to a hydro cyclone classifier and the remainder to the high frequency Derrik vibrating screen feed distributor. The cyclone underflow discharges into the Derrick screen distributor along with the secondary ball mill discharge slurry and is fed to the high frequency Derrik screens.

Coarse material from the Derrik screens feeds the secondary ball mills while fine screen undersize material and overflow from the cyclone classifiers is combined in a mixing box, a portion of which is directed to the additional SK1 flash flotation cell. The lead concentrate produced is pumped to the final concentrate. The remainder of the cyclone overflow and the tailings from the SK1 flotation cell report to bulk flotation conditioning.

The secondary ball mill discharge slurry is pumped to the Derrick screens closing the circuit.

Primary Mill 2 works with two secondary mills, one is a Comesa 8 ft x 10 ft mill, which began operation in December 2011, and the other is an 8 ft x 5 ft Hardinge mill. The discharge of Primary Mill 2 goes to two Sub A 1500 unit cells. The lead concentrate reports to final concentrate and the flotation tailings are pumped to a second bank of high frequency Derrick screens for classification. The screen undersize is pumped to the flotation circuit and screen oversize flows to Secondary Mills 4 and 5. The discharge of Secondary Mill 4 goes to an SK-240 cell, the lead concentrate of which reports to final concentrate and the flotation cell tailings are combined in the secondary ball mill discharge sump and pumped to the Derrick screens for classification, closing the grinding circuit.

The addition of Secondary Mills 4 and 5 and optimizations of the milling circuit contributed to the increase in tonnage from 5,800 tpd to 6,500 tpd.





Instrumentation and control systems in the grinding circuit include nuclear density meters, automatic water controls in the mill feed, electronic scales, pulp level sensors, and a PSI-200 particle size analyzer.

Daily ball charge mixture to primary mills is in 2.5 in. (20%) and 3 in. (80%) sizes while secondary milling is with 1.5 in. and 2 in. ball sizes. The steel consumption in the ball mills is 0.380 kg/t. The required product granulometry is 12% +70 mesh (210 µm) and 52% -200 mesh (74 µm).

Among the most significant factors that contributed to the increase in tonnage are:

- The improvement of phase II granulometry.
- The improvement in the load distribution to the two secondary mills and the increase in the discharge density of the primary mills to ranges of 1,950 g/L to 2,050 g/L.
- The sorting density in the screens is in the range of 1,700 g/L on average, allowing for better classification with less return of fines to the secondary mills.
- The repowering of the motors and the increase in the revolutions of the primary pumps 1 A, B (100HP) and 2 A, B (70HP).

14.1.2.3 Bulk Flotation

The bulk flotation circuit consists of bulk rougher, scavenger, and cleaner cells and produces a copper and lead concentrate. Bulk scavenger concentrate is reground before being returned to the roughers. Bulk flotation is followed by copper-lead separation consisting of copper roughers, scavengers, and cleaners, during which copper minerals are floated while lead minerals are depressed to produce separate copper and lead concentrates. Tailings from the bulk flotation circuit feed the zinc flotation circuit.

The first rougher is an FM-100 cell, the second rougher is an OK-30, the third rougher is an OK-50 cell, the first scavenger is made up of two DR-300 cells, the second scavenger of six DR-100 cells, and the third Scavenger of six DR-100 cells.

Zinc sulphate and sodium cyanide are used as depressants of zinc and iron minerals in the bulk flotation circuit.

Xanthate Z-11, Aerphine-3418, and methyl isobutyl carbinol (MIBC) are used as collectors of lead minerals in the unit cells located in the discharges of the primary mills.

Xanthate Z-11 is the main collector and Aerophine-3418 is the secondary collector used in bulk Cu-Pb-Ag flotation. The pH ranges from 7.5 to 11.5.

14.1.2.4 Lead - Copper Separation

The concentrates from the third bulk cleaner circuit enter the lead copper separation circuit. The bulk concentrates pass through five OK-1.5 copper rougher cells. The tailings are the lead concentrate, and the concentrate is the copper concentrate. The copper concentrate passes through two stages of cleaning before the final copper concentrate is produced.

The reagents used for separation are:

- MIBC
- A mixture of carboxymethyl cellulose (CMC), Sodium Silicate and Sodium Bichromate





14.1.2.5 Zinc Flotation

Tailings from the bulk flotation circuit undergo three stages of conditioning prior to zinc flotation. The zinc flotation circuit consists of zinc roughers, scavengers, and three stages of cleaning to produce zinc concentrate and final tails.

Lime is used in zinc flotation as a pH modifier (9.5-11.5), copper sulphate as a reactivator of zinc minerals, xanthate as the main collector, and Flottec-4234 as secondary collectors. The only frother used in both circuits is MIBC.

The circuit consists of two OK-100 cells as the first and second roughers and one OK-50 as the third rougher, and for the first scavenger there is an OK-30. For the medium cleaner circuit, there is an OK-20, five DR-300 cells, eight DR-100 cells as cleaner scavengers, and eight DR-100 cells as second cleaner scavengers. The first cleaner is a column cell that works with the concentrate of the first and second rougher. The second cleaners consist of two OK-10 cells, and the third cleaners have an OK-5 cell and five DR-24 cells.

14.1.2.6 Concentrate Dewatering

Concentrates are dewatered in thickeners (lead and zinc) and a dewatering cone (copper) followed by a filter press for zinc concentrate and disc filters for lead and copper concentrates. The filtered concentrates are stored in covered stockpiles prior to being loaded into trucks using a front-end loader. Water from concentrate dewatering is recycled for use in the process. Lead and zinc concentrate moisture content is approximately 8% to 9%, and copper concentrate moisture content is approximately 11%.

The water obtained from machinery cooling is recovered in the order of 20.5 L/s in the dry season. In addition, a system has been implemented to recover water from the filtration operations as well as water from the wastewater treatment plant, which are used in the hydraulic backfill plant.

14.1.2.7 Concentrate Shipping

The concentrates produced by the processing plant are transported to Callao via the central highway in private trucks and via the central railroad and are sold to national or foreign smelters.

14.1.2.8 Tailings

Tailings at approximately 22% solids are classified in cyclones with coarse material in the underflow at approximately 62% solids sent to the hydraulic backfill plant for use in the mine as backfill. Mine backfill constitutes approximately 50% of tailings produced. Water from tailings dewatering is returned to the process. Overflow from the cyclones containing the fine tailings is deposited in the conventional TSF adjacent to the mine and processing plant. Tailings can be discharged at various points in the TSF by means of valved discharge points on the tailings line. Clarified water discharged from the TSF joins natural water flows used to generate electricity in Nexa's La Candelaria Hydroelectric Plant.

14.1.3 Energy, Water, and Process Materials Requirements

Power requirements for the processing facilities are not anticipated to change significantly in the foreseeable future from the current power requirements.

Make-up water is supplied from various creeks around the TSF, as well as the Carmen Chico River, approximately 3.2 km south of the processing facility. Water consumption is not expected





to change significantly from the recent historical water usage and no supply concerns have been noted.

Key reagents used in the process include lime, sodium cyanide, sodium isopropyl xanthate (SIPX) Z-11, MIBC, copper sulphate, zinc sulphate, and collectors for copper, lead, and zinc.

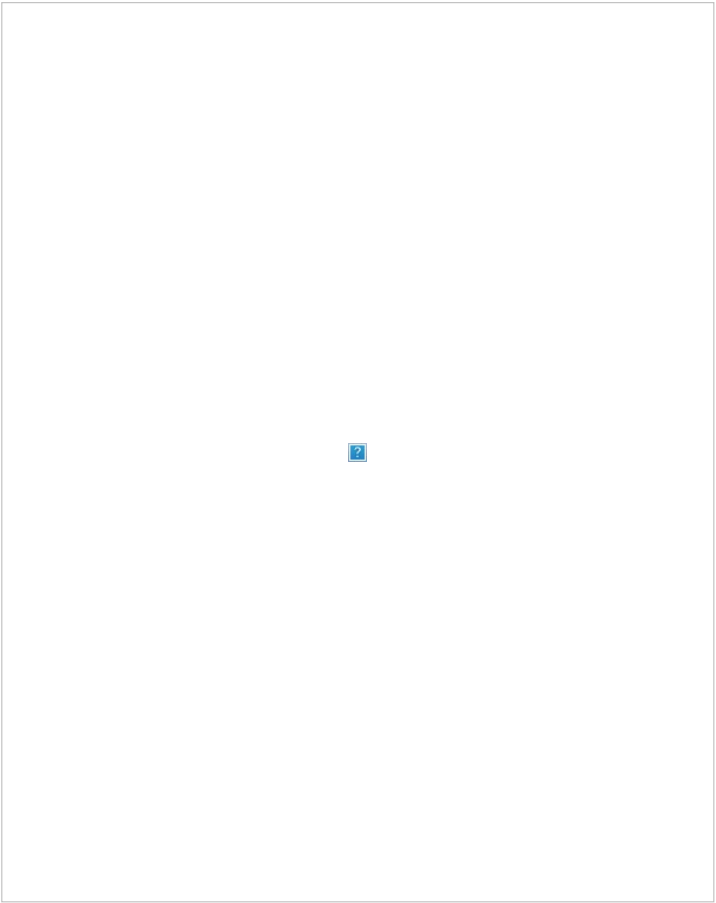
14.1.4 Manpower

The processing plant personnel number 63. Maintenance (124), technical services (28), and projects personnel (9) service the mine and other departments in addition to the processing plant. These numbers are not anticipated to change significantly in the foreseeable future.





Figure 14-1: El Porvenir Process Flowsheet



14.2 Atacocha

14.2.1 History

The Atacocha Mine is located in the Department of Pasco, province of Pasco, district of Yanacancha. The concentrator is located in the Chicrín ravine at kilometre 324 of the Lima-Huánuco central highway on the left bank of the Huallaga River.

Minera Atacocha was founded on February 8, 1936. The first concentrator called No. 1 began operations in 1937 with a treatment capacity of 100 tpd for the beneficiation of lead ores by flotation. Lead-zinc extraction by differential flotation has been done since 1941. Plant No. 1 operated for thirty years, ending operations in 1968 with a capacity of 200 tpd. Plant No. 1 is 90% dismantled and some of the equipment is for sale since it cannot be used in the currently operating Plant No 2. Plant No. 2 began operations in 1950 with an initial capacity of 375 tpd. In 1968, Plant No. 2 was expanded to 1,500 tpd, making it possible to shut down Plant No. 1.

Concentrator No. 2 began gradually increasing its treatment tonnage; in 2007 it processed 3,750 tpd due to process improvements. In November 2008, the SY-STD Short Head tertiary crusher was replaced by a Nordberg HP500, which improved the granulometry of the crushing product, and increased the production rate to 4,380 tpd. By November 2016, the P_{80} of the crushed product was reduced to 5,000 μm and by January 2017, the production rate increased to 4,600 tpd. An additional OK-100 flotation cell was installed in the zinc flotation circuit to maintain the flotation residence time, and an additional two holding tanks were installed for the lead concentrate to provide uniform pulp density and improve filtration efficiency.

Concentrator No. 2 currently treats an average of 4,400 tpd of ore producing two concentrates: lead concentrate (48% to 55% Pb) and zinc concentrate (48% to 55% Zn).

14.2.2 San Gerardo Open Pit Ore Processing

By 2019, Atacocha underground reserves were nearly depleted, and the plant began treating ore from the San Gerardo open pit mine. The amount of San Gerardo ore treated progressively increased through May 2020, after which all ore supplied to the Atacocha plant was from the open pit. The open pit ore characteristics were different than Atacocha underground ore, so the production rate was restricted to 4,100 tpd. In addition, the open pit copper head grades were too low to make saleable concentrate grade, so copper concentrate production was discontinued, leaving only the lead concentrate and zinc concentrate products. The operational process was then optimized to resume the treatment of 4,400 tpd at the end of 2023.

14.2.3 Mineralogy

Mineralization in the Atacocha area consists primarily of veins and bodies of massive galena, black sphalerite and cubic pyrite, emplaced in green garnet skarn zones, breccia marble, and in contact with siliceous breccias. In the Santa Bárbara area, the recurrent mineral is argentiferous galena, with a lower proportion of blond sphalerite and fine pyrite, mainly located in calcareous breccias. Mineralization at San Gerardo consists of narrow veins of massive galena, blond sphalerite, freibergite, and fine pyrite, emplaced in brecciated carbonate rocks and dacitic intrusive rocks.

It is worth mentioning that gold is found as structural impurities in all sulphides, economic and non-economic, including alabandite.

The mineral contribution for the processing is from the Atacocha and San Gerardo areas.

14.2.4 Process Description

The capacity of the Atacocha concentrator is approximately 4,400 tpd, or 1.68 Mtpa, and consists of conventional crushing, grinding, and flotation to produce lead and zinc concentrates.

Simplified process flow diagram for the concentrator is shown in Figure 14-2.

The Atacocha processing plant is divided into sections, which are described below.

14.2.4.1Crushing

The mined ore is stored in four coarse underground hoppers located at the 3600 Level. Hopper No. 1 has a capacity of 1,600 t. Hopper No. 2 has a capacity of 1,900 t. Hopper No. 3 has a capacity of 800 t, and Hopper No. 5 has a capacity of 700 t.

The ore accumulated in the coarse hoppers is fed to the crushing section by conveyor. The new No. 1 and No. 2 coarse hoppers each work with a 42 in. x 12 ft Comesa apron feeder; the No. 3 and No. 5 coarse hopper each work with 60 in. x 16 ft Comesa apron feeders.

The ore is conveyed to a 1,100 mm x 850 mm, Nordberg C110 B primary jaw crusher. The crusher product is conveyed to the primary Simplicity double deck screen. The screen undersize is conveyed to the fine ore storage bins. The upper deck screen oversize feeds the secondary Sandvik CH660 cone crusher. The lower deck screen oversize discharges onto belt No. 4, which is joined with the product of the secondary CH660 crusher and both products are conveyed to the secondary 8 ft x 20 ft double deck banana type screen via belts 5, 6A, and 6B.

The secondary banana screen - 3/8 in. bottom deck screen undersize material reports to the fine ore storage bin and the top and bottom deck screen oversize material feeds the tertiary Nordberg HP-500 cone crusher. The tertiary crusher product is conveyed to the tertiary Simplicity screen via conveyors 8, 5, and 6. The tertiary Simplicity screen undersize reports to the fine ore bins and the screen oversize from both decks feeds the tertiary crusher, closing the tertiary crushing circuit.

Product conveyor No. 9 distributes the ore to each of the six 450 t fine ore bins using a tripper conveyor.

14.2.4.2Grinding

The grinding circuit comprises six ball mills, two Hardinge 8 ft x 5 ft conical mills and four Comesa 8 ft x 10 ft mills as primary mills, and one Hardinge 8 ft x 5 ft conical ball mill used as a secondary mill.

Five of the primary mills operate in closed circuit. The discharge of each mill is fed to an SK-80 flash flotation cell that recovers coarse lead concentrate which is pumped directly to lead concentrate storage. The tailings from these cells are pumped to a 15 in. hydrocyclone classifier. The cyclone underflow feeds the primary ball mill and the hydrocyclone overflow feeds a 10 ft dia. by 12 ft high lead-copper flotation conditioner in the flotation circuit.

The sixth primary mill operates in series with a secondary mill. The primary mill discharge feeds an SK-80 flash flotation cell. The SK-80 tailings are pumped to a 15 in. hydrocyclone. The cyclone underflow feeds the single secondary ball mill, which is closed by a 20 in. hydrocyclone.

Each primary mill is fed by variable speed conveyor belts and tonnage is automatically controlled by Ramsey scales. The following flotation reagents are added to each primary mill: zinc sulphate (depressant), sodium cyanide (depressant), and in each flash flotation cell: xanthate (Z11 or Z14) and MIBC are added.



14.2.4.3 Flotation

The flotation plant consists of three circuits that are controlled by a Courier 6SL inline analyzer that was installed in September 2004 (currently only the multiplexer operates). The bulk rougher circuit produces a bulk copper-lead concentrate that is then separated in the lead circuit to produce the copper and lead concentrates. The zinc circuit processes the tailings from the copper and lead circuits, and including a regrinding stage, produces the zinc concentrate and the final tails.

Bulk Rougher Circuit

The bulk rougher flotation circuit treats the whole ore, obtaining lead concentrates, made up of the concentrates of the grinding circuit SK-80 flash flotation cells plus the OK-8 and OK-20 cleaner concentrates and the OK-30 I and 1st OK-8 scavenger concentrates. To this are added the concentrates of the RCS-30 and 2nd + 3rd OK-8 scavenger cells (may or may not include cleaners); the cleaner tailings are recycled to the bulk rougher feed. The feed to the cleaners is made up of rougher concentrates. The concentrates from the OK-30 I cells are fed to the OK-3 cells (lead cleaning), the concentrate from these cells also forms the lead concentrate and the tailings returns to the rougher feed.

Bulk-Scavenger Flotation Circuit

The tailings from the bulk rougher OK-30 II cells feed the bulk scavenger flotation circuit consisting of an OK-20 cell followed by a bank of six OK-8 cells and one OK-16 cells. The OK-20 scavenger concentrate flows to a bank of five cleaner scavenger OK-8 cells. The bulk scavenger tailings feed the zinc circuit.

Pb/Cu Separation Circuit

Since July 2019, no Pb/Cu separation has been carried out due to a copper head grade of less than 0.10%, ranging from 0.06% to 0.08%. The Pb/Cu separation can be resumed when the copper head grade improves.

Zinc Circuit

The zinc rougher circuit processes the tailings from the bulk lead-copper scavenger circuit with conditioning in two 16 ft dia. x16 ft agitated tanks operated in series. The zinc rougher circuit consists of one OK-100 cell and one OK-50 cell operated in series. The scavenger circuit consists of a bank of three OK-16 cells, a bank of four OK-16 cells and one OK-50 cells, and the cleaning circuit consists of one stage using an OK-10 cell and a bank of five OK-3 cells. The zinc scavenger tailings are final tailings. The first rougher concentrate and the cleaner concentrate are the final zinc concentrates.

The scavenger concentrates return to the second scavenger feed (OK-16) and tailings from the first scavenger are recycled to the second rougher feed.

14.2.4.4 Flotation Reagents

The following reagents are used in the concentrator:

- Main collector: sodium isopropyl xanthate (Z11); 2.2% solution, for rougher - scavenger stages, bulk lead-zinc and zinc stages.
- Frother: MIBC is used for both lead and zinc circuits and is added neat.





- Depressants: sodium cyanide (1% solution), zinc sulphate (3.30% solution) is added in milling.
- Zinc activator: copper sulphate (4.50% solution) is used in the zinc circuit.
- Hydrated lime $\text{Ca}(\text{OH})_2$ powder (65% CaO) is added for pH control in the zinc circuit.

The reagent consumptions are presented in Table 14-2.

Table 14-2: Flotation Reagent Consumptions

Reagent	Consumption, g/t
Nitric acid	17
Hydrated lime, mill	10
Sodium cyanide	22
Methyl isobutyl carbinol, MIBC	45
Copper sulphate pentahydrate	62
Zn sulphate	140
Sodium Isopropyl Xanthate, Z-11	30

14.2.4.5Thickeners and Filters

Lead and zinc flotation concentrate are pumped to two parallel concentrate thickeners for each metal for dewatering. The thickener underflow slurry from the lead and zinc thickener underflows are pumped to the lead and zinc concentrate storage tanks respectively for density control. The slurry is then pumped to a CC-45 ceramic disc filter, which reduces the moisture in each of the concentrates to approximately 8.2% for transportation. Filter aid at 20 g/t is added to improve the filtration process. There are two drum filters that can be used for either lead or copper concentrate dewatering. The filtered concentrates are discharged to the concentrate storage areas for shipping. The concentrates are loaded into trucks by front end loader when being despatched to customers.

14.2.5 Tailings Pumping System

Atacocha's tailings transport system is a high pressure pumping system using Geho positive displacement pumps designed to pump thickened tailings at a density 55%-65% solids to the Atacocha tailings dam. A project is being developed for a treatment rate of 5,000 dry tpd, i.e. 4,500 tpd of tailings.

The concentrator's general tailings are fed to the 125 ft thickener at a density of 1,250 g/L to reduce the total volume of material that must be transported to the Atacocha TSF. The tailings pulp is temporarily stored in the thickener-clarifier. Flocculant is dosed at a rate of 30 L/min at a concentration of 0.025%. The underflow of the thickener is recirculated with HR-200 pumps until it reaches 55% to 65% solids. When the pulp reaches the appropriate density, it is fed into the linear sieve, to store clean pulp of adequate granulometry in the storage tanks, and when the density decreases, the pulp is recirculated to the thickener until it reaches the adequate density again. The overflow with < 50 ppm solids is stored in a tank and then recirculated to the concentrator, and excess water is sent to the settling ponds.

The pumped tailings are disposed of in the basin of the Atacocha TSF.





14.2.6 Water Consumption

The water consumption of the Atacocha processing plant is approximately 2 m³/t of concentrate produced.

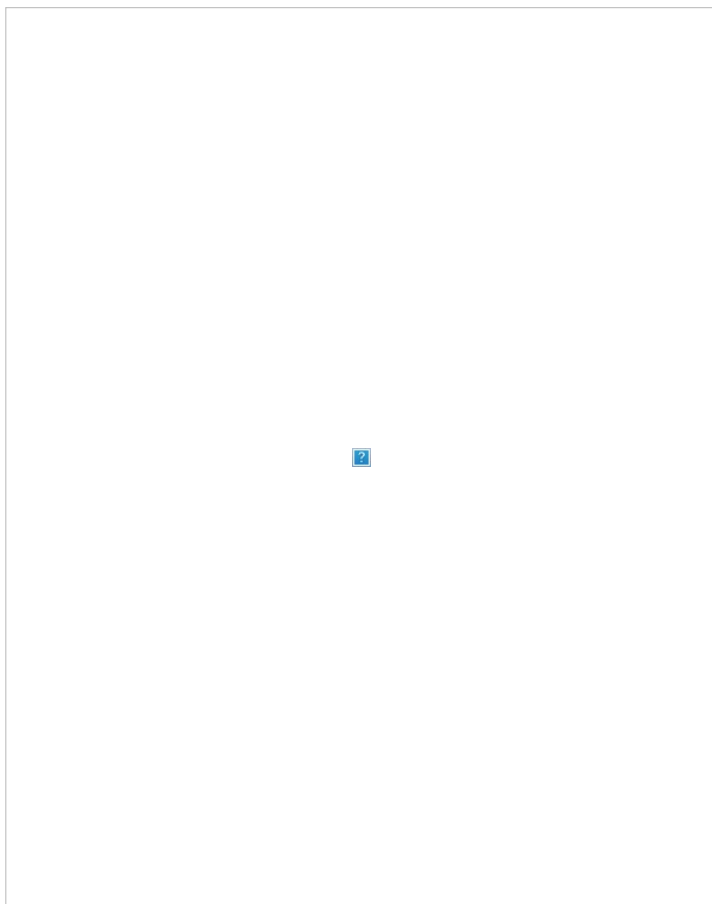
14.2.7 Power Consumption

The power consumption in the plant is 32.5 kWh/t to 33 kWh/t.





Figure 14-2: Atacocha Process Flowsheet





15.0 Infrastructure

The Cerro Pasco Complex Integration project aims to maximize the synergy of the Atacocha and El Porvenir mines.

El Porvenir started in 1950 and is in operation. It is an underground mine, with multiple accesses including a shaft (Picasso shaft) for ore and people transportation.

Atacocha started in 1937. The Atacocha open pit mine (San Gerardo) is in operation, while Atacocha UG has been on care and maintenance since 2020.

Accesses to Atacocha UG are made by multiple tunnels, well preserved despite its production suspension.

Atacocha is currently connected to El Porvenir through two active tunnels: at the 4070 and 3300 levels, with traffic of heavy mine equipment, conventional trucks, and transportation of mining crews (linking Atacocha surface to El Porvenir underground).

The integration plan currently includes:

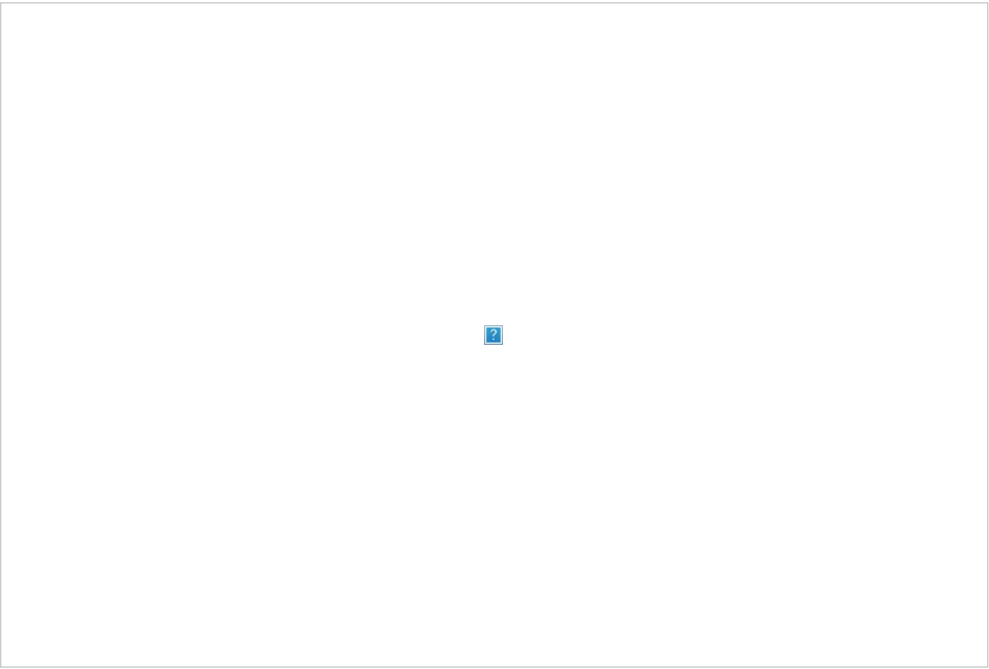
- restarting and rehabilitation of the Atacocha underground mine,
- development of an approximately 2 km long connection tunnel (Tunnel 2900), linking Atacocha underground to the bottom of the Picasso shaft at El Porvenir, allowing the production from both underground mines to be hoisted and to feed El Porvenir processing plant,
- Picasso shaft capacity expansion to support production and extraction at both underground mines,
- closure of the Atacocha processing plant, with the exhaustion of Atacocha open pit reserves, in 2027,
- a new tailing pumping and pipeline system to be built, that will allow tailings from El Porvenir to be sent to the Atacocha dam, bringing a long term solution for tailings, supporting the extension of the combined life of the two mines.

The general location of the mines, processing plants, and tailings dams is provided in Figure 15-1.





Figure 15-1: Cerro Pasco Integration Project



15.1 El Porvenir

A combination of transportation methods, including road access, aircraft via Huánuco, and rail to Cerro de Pasco are used to supply the mine. Off-site infrastructure includes facilities for the transfer of concentrate from truck to rail at Cerro de Pasco to transport concentrate for export by train to the port of Callao. Mine access is via a 13 km dirt road northeast from Cerro de Pasco, and paved road from Lima to Cerro de Pasco (approximately 315 km).

The main road from Lima to Cerro de Pasco is used for personnel transportation, supply of food, reagents, spare parts, mining supplies, and diesel fuel. Huánuco airport can be used for personnel transportation and emergency situations.

The site comprises an underground mine, TSF, waste rock stockpiles, an ore processing facility with associated laboratory and maintenance facilities, and maintenance buildings for underground and surface equipment. Additional facilities and structures include an office building, change house facilities, main shaft, ventilation shaft, backfill plant, explosives storage area, hydroelectric power generating plant, power lines and substation, fuel storage tanks, a warehouse and laydown area, and an accommodation camp.

15.1.1 Power Plant and Distribution

The power supply for both El Porvenir and Atacocha mines mainly comes from the national power grid. The connection via PARAGSHA II substation (138 kV bar) feeds via 138 kV transmission line the main substation located near El Porvenir (MILPO substation).

From MILPO substation (138/50 kV), electricity is distributed to the El Porvenir and Atacocha substations, both with 50 kV/13.8 kV transformation.

All other project loads are fed at 13.8 kV from the El Porvenir and Atacocha substation through overhead power lines. These power lines are used to deliver power to various locations to support activities during operation of the Mines.

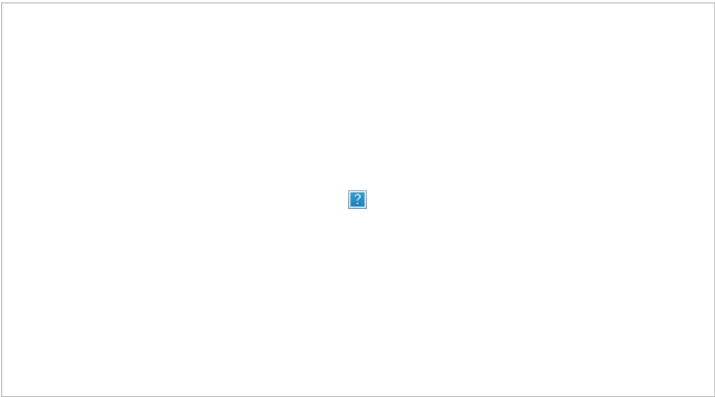
Beyond national grid, the mine complex has three small power plants connected behind the meter.

A simplified electrical single line diagram showing power generation and distribution from the grid and the Candelaria Hydroelectric Plant to the El Porvenir and Atacocha mine sites is presented in Figure 15-2.

La Candelaria Hydroelectric Plant with 4.6 MW distributed in three turbines (0.5 MW, 0.96 MW, and 3.2 MW), is connected to the El Porvenir Mine through MILPO substation by a 2.58 km long 50 kV transmission line. However, this small power plant does not operate due to social issues since July 2020.



Figure 15-2: Power Distribution Single Line Diagram for El Porvenir and Atacocha Mine Sites



15.1.2 On-Site Roads

Mine site roads include main roads suitable for mining trucks that transport concentrates to Cerro de Pasco and Lima and service roads for smaller vehicles. The site roads are used by authorized mine personnel and equipment, with access controlled by Nexa.

A network of approximately 15 km to 20 km of service roads has been built providing access to the underground mine, processing plant, TSF, waste rock stockpiles, mine offices, workshops, mine camps, and other surface infrastructure. The roads are approximately six metres wide designed for two-way 15 m³ truck traffic and road maintenance equipment.

15.1.3 Utilities and Services

Raw water is sourced from a small creek, Tingovado, as well as from other creeks around the TSF.

Fresh water supply is obtained from the Carmen Chico River, approximately 3.2 km south of the processing facility. This water is primarily for use in the mine camps and make-up requirements for the processing facility and industrial area.

15.1.4 Sewage Collection and Disposal

A sewage treatment facility has been constructed south of the industrial and mine camp sites at a lower elevation. Buried sewer pipes collect sewage from the site and transfer it to the treatment facility. The treatment facility consists of two independent containerized treatment lagoon systems providing redundancy if one unit must be shut down for maintenance. The system is capable of treating all of the wastewater generated in the camp, industrial, and office areas. Treated effluent is released to the TSF via a small stream.





15.1.4.1 Site Security

The principal site entry point on the access road from Cerro de Pasco consists of a lighted security gate and vehicle access barrier. A gatehouse provides sanitary facilities, communications equipment, and search facilities including metal detection. A weighbridge is located close to the gatehouse to enable load monitoring of incoming and outgoing vehicles.

15.1.5 Communication and IT Systems

Point-to-point satellite communication is the main communication system between the El Porvenir Mine and the outside world. The system includes voice/data/video/fax, internet, and VPN services, including bidirectional links between the Mine site and Lima.

Satellite television for entertainment, cellular communication, and FM radio is provided by local service providers.

15.1.6 Vehicle Fuelling Facility and Mine Equipment Ready Line

The vehicle fuelling facility and ready line is located adjacent to the processing plant. The fuelling facility stores diesel and gasoline. Smaller tanks hold a variety of oils and lubricants.

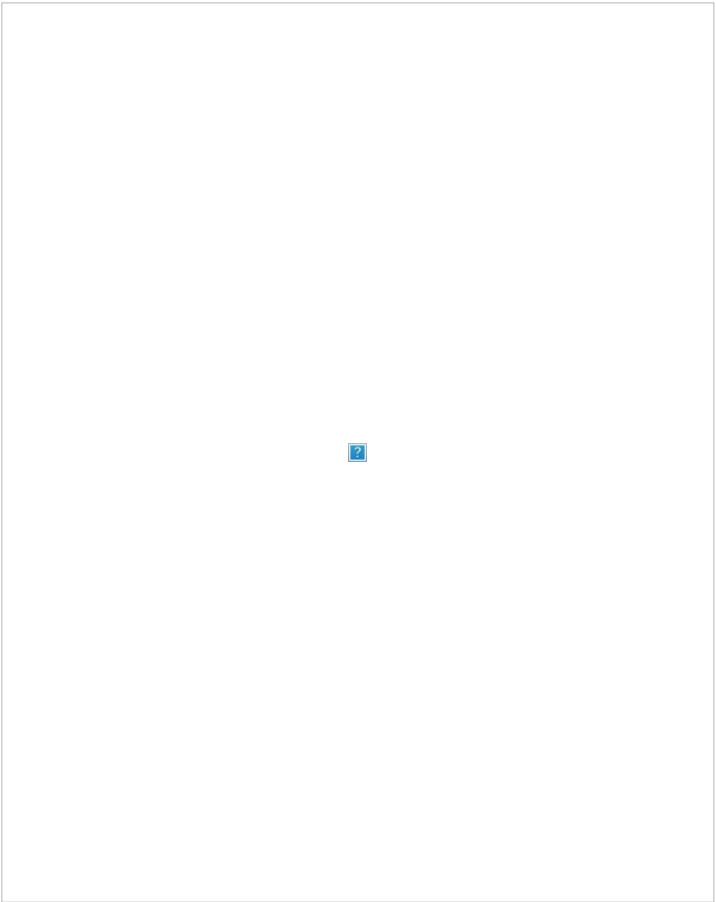
15.1.7 Site Buildings and Facilities

A plan of the site buildings and facilities is provided in Figure 15-3.





Figure 15-3: El Porvenir Site Layout





15.1.7.1 Operations and Maintenance Building

The Operations and Maintenance building is a masonry building that provides offices for mine management, administration, and technical staff, including environmental, administrative management, training, accounting, safety, and security. It includes staff support facilities such as a conference room, printing room, and lunchroom.

The underground mine operations building, electrical room, trackless equipment workshop, tire shop, air compressor shop, maintenance shop, lamp house, lockers, and washrooms are constructed adjacent to the main entrance to the underground mine at a 50 m distance, as approved by Peruvian safety regulations.

To the south of the main entrance to the mine are the main mine supplies storage, processing plant building, electrical workshop, backfill plant, and laboratory facilities.

15.1.7.2 Accommodation Facilities

The permanent accommodation complex has been constructed on an approximately 60 ha site north of the mine. The accommodation complex incorporates the following camp sites:

- Type A: staff houses, and staff hotel where dormitories are private, single occupancy rooms.
- Type B: three story building blocks are semi-private and have single occupancy rooms with two rooms sharing one shower and a washroom.
- Type C: three story blocks of dormitories are double occupancy rooms with a central shower and washroom facility shared by ten rooms.

The accommodation complex also includes the following facilities:

- Kitchen, bakery, dining hall.
- Recreation, exercise, and entertainment facility including a cinema that can also be used for meetings and training.
- Three soccer fields.
- Workers union building.
- Hospital equipped with trauma treatment facilities as well as life support equipment. The hospital is comprised of a waiting and reception area, doctor's office, operating theatre, two bed wards, washroom facilities, storage room, and ambulance parking.

15.1.7.3 Explosives Magazine

The explosives magazine has been constructed and operated in accordance with Peruvian law.

15.1.7.4 Solid Waste Disposal and Recycling Facility

Non-recyclable, non-toxic solid waste is disposed of in an on-site lined landfill. Used tires are shredded and placed in the landfill.

15.1.8 Tailings Storage

The El Porvenir TSF receives tailings generated by both El Porvenir and Atacocha concentrator plants. A portion of tailings is used for hydraulic backfill at El Porvenir. The El Porvenir TSF was originally constructed in the 1970s, and the current elevation of the dam crest is 4,064





MASL. The downstream toe is inferred to be less than 3,920 m from available plans, resulting in a dam height of 140 m.

Nexa is planning to improve the water management system through construction of a perimeter channel (i.e., upstream water diversion) to intercept clean (non-contact water) surface runoff water preventing its entrance to the TSF. Diverted water will be discharged downstream of the TSF in the Lloclla River gorge.

Contact water is recycled via a decant pumping system to the concentrator for use in the processing facility. The diversion on the western side of the TSF will be raised for the ultimate dam (Ausenco, 2016b). A lined seepage collection monitoring pond is located at the downstream toe of the main embankment to control water quality prior to water release to the environment. The monitoring pond is equipped with an overflow spillway and outlet channel for discharge into a local tributary creek of the Lloclla River.

A decant overflow system located on the left side of the main embankment conveys surplus flows from the tailings pond to the monitoring pond through the Lloclla Tunnel. Operation of a sluice gate at the pond location allows for the diversion of decanted water into the monitoring pond or bypass it, discharging directly into a local tributary creek of the Lloclla River. The water intake of the decant overflow system is a hydraulic structure consisting of two concrete towers with a series of inlets stacked vertically. Inlets must be progressively blocked and rendered inactive as the deposited tailings reach certain elevation.

A channeling structure, consisting of two breakwaters, direct flows towards the emergency spillway. The spillway is an overflow tunnel located in the right abutment. It is reportedly designed to convey flows from probable maximum precipitation (SRK, 2017). The tunnel discharges via a tunnel daylighting at elevation 4,035 MASL.

The layout of the TSF with its crest elevation of 4,064 MASL is presented on Figure 15-4. The intention is to raise the main embankment in 10 m increments with intermediate raises of four metres. It is noted that the expansion of the TSF to contain the LOM tailings requires a rockfill embankment dam and seepage collection pond at the northeast corner of the TSF to prevent tailings from impacting the concentrator plant area, as well as the northwest where the Tingovado Creek is diverted. The embankment located at the process pond is raised progressively in a downstream direction and its upstream slope is lined with a two millimetre thick high density polyethylene (HDPE) geomembrane. The detailed design of the El Porvenir TSF to its final elevation of 4,100 MASL has been completed (Ausenco, 2016b). The current plan is for Nexa to raise the dam up to dam crest elevation 4,070 MASL as part of the Cerro Pasco Complex Integration project. Determination to raise the dam beyond that elevation will be made in the future. Upgrades to the pumping and piping systems at El Porvenir will allow disposal of the El Porvenir tailings, not used for hydraulic backfill, at the Atacocha TSF.

Figure 15-5 shows the main TSF dam with a crest elevation of 4,064 MASL in plan view. The average crest width is approximately 15 m, with an overall downstream fill slope of 2.5H:1V and 1.5H:1V upstream; with an average interbank slope of 2H:1V.

Surface preparation for dam raises includes the removal of topsoil and unsuitable soils and compaction to provide a suitable foundation. For cases where there are cavities, a product of karst processes, the sealing of the openings with mortar or cyclopean concrete is required. To SLR's knowledge the measures to address seepage through karst rocks have been implemented through recent TSF construction including a sandy gravel platform around the perimeter of the TSF (SRK, 2017), and bedrock foundation grouting of the dam abutments in 2015. Ongoing operations will require continuous tailings deposition planning and pond management to maintain the design beach widths to limit seepage through the permeable dam.





A cross section of the main dam at its ultimate crest elevation is shown on Figure 15-6. The initial TSF dam raises were performed using mainly compacted coarse tailings (cyclone underflow) with the centreline construction method. Due to a shortfall of the coarse fraction of the tailings to be used in the dam raises from 4,043 MASL, further raises used compacted rockfill and structural fill.

The crest of the dam is a horizontal platform of 15 m width and is composed of structural fill, which is mainly made up of sandy gravel. At the final elevation of the dam crest of 4,100 MASL, the height of the dam will be 187 m above the natural ground level of the gorge in which the dam is constructed.

In the design of the TSF, expansion plans considered that the processing rate would increase to 9,000 tpd in 2019 (3.24 Mtpa). Tailings produced would amount to 95.38% of ore processed. The design also considered the integration of El Porvenir with the Atacocha Mine and the disposal of Atacocha tailings in the El Porvenir TSF from 2016 onward. The Atacocha ore processing rate considered was 4,500 tpd (1.62 Mtpa) with plans for this to be increased to 5,000 tpd (1.8 Mtpa). Tailings produced would amount to 95% of ore processed.

Monthly and annual dam safety inspections are currently being conducted by Geoconsultoria Ltda, an external consultant, for the El Porvenir TSF dam. The SLR QP has relied on the statements and conclusions of reports provided by Nexa and its consultants and provides no conclusions or opinions regarding the stability or performance of the dams and impoundments listed in this TRS.





Figure 15-4: El Porvenir Tailings Storage Facility Layout with Dam Crest at Elevation 4,064 MASL

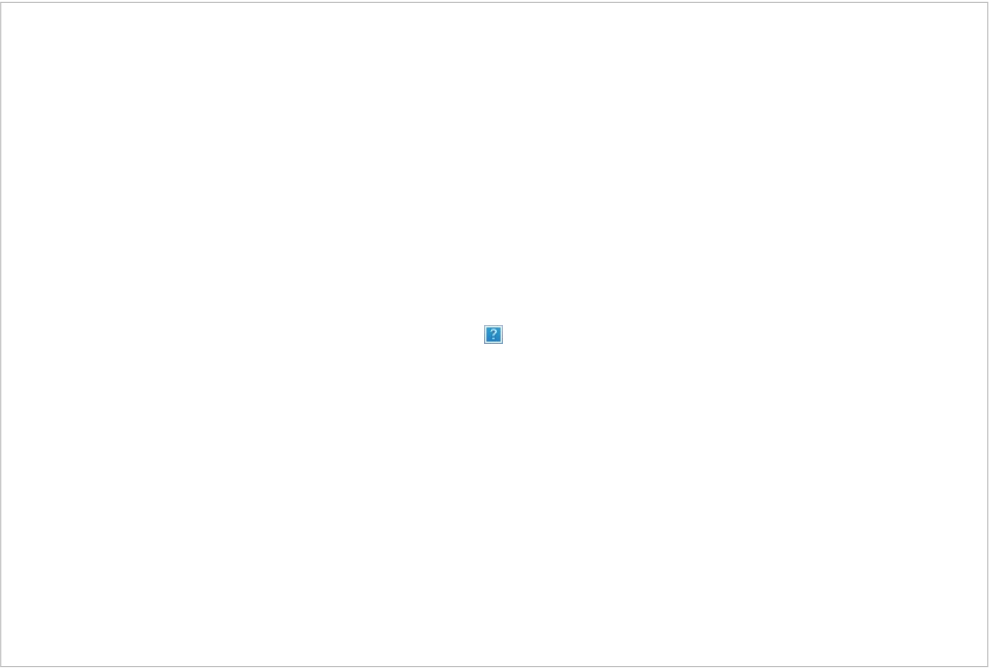




Figure 15-5: El Porvenir Tailings Storage Facility Layout Main Dam Layout at Crest Elevation 4,064 MASL

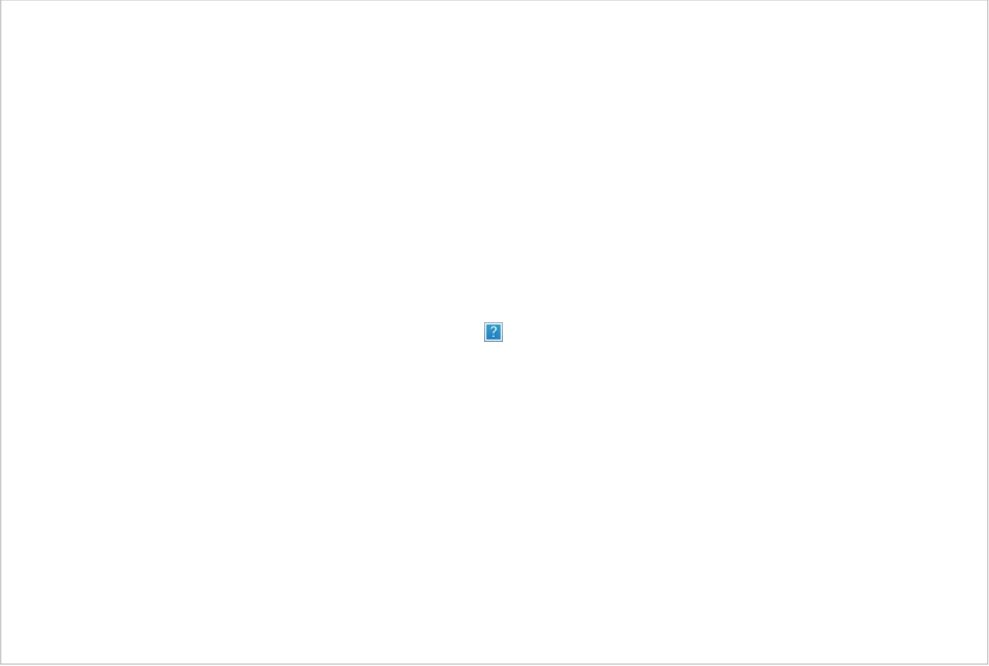
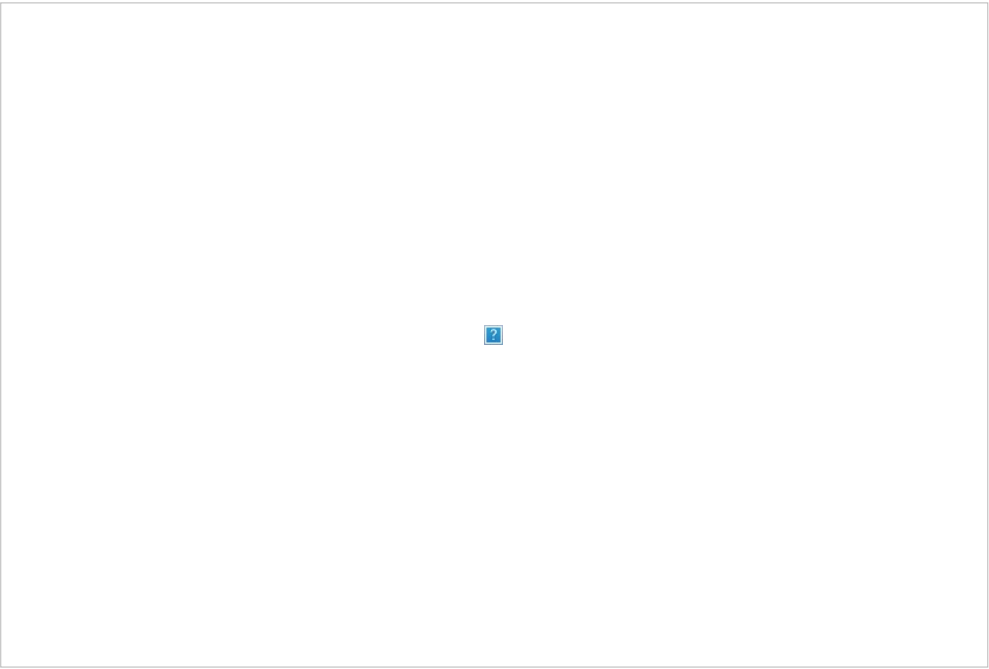




Figure 15-6: El Porvenir Tailings Storage Facility Main Dam Section to Crest Elevation 4,100 MASL



15.1.9 Waste Rock Storage Facilities

Historically, the volume of waste rock deposited on surface has been minor given that the El Porvenir operation is an underground mine. In the past, waste rock has been deposited in two areas within the TSF, and La Quinua waste rock dump (WRD) located outside the TSF. The La Quinua WRD is currently inactive.

Currently, waste rock is only brought to surface for storage if backfilling is not possible. If waste rock is brought to surface in the future, it will be deposited in a designated area near the secondary TSF embankment (southwest of the concentrator plant area), approved in Directorial Resolution R.D. 693-2012 MEM-AAM/LCD/RPP/MPC.

15.2 Atacocha

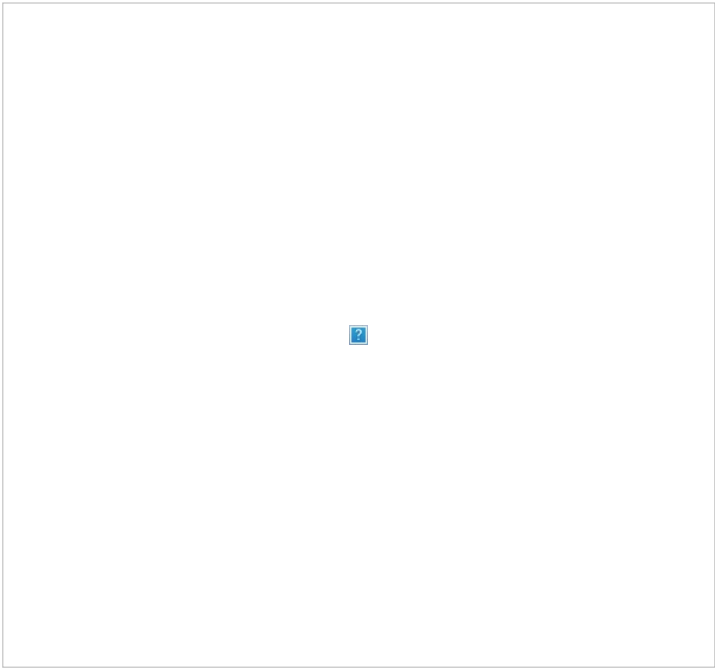
15.2.1 On-site Infrastructure

Site operations comprise an underground mine, open pit mine, and a process plant facility. Supporting on-site infrastructure include maintenance facilities; maintenance buildings for underground and surface equipment, laboratory, and tailings pumping station. Facilities and structures supporting operations include warehouses and laydown areas, offices, dry facilities, hydroelectric generating station, power lines and substation, fuel storage tanks, and accommodations camp. A network of site roads that are approximately 6 m wide and total 15 km in length are used by authorized mine personnel and equipment, including ore and waste haul trucks, concentrate haul trucks, support and light duty vehicles to provide access to on-site infrastructure.

Figure 15-7 shows the general layout of the Atacocha infrastructure.



Figure 15-7: Atacocha Site Layout



15.2.2 Power Plant and Distribution

Power supply for the Project comes from two sources, Electroandes, a power supplier located in Paragsha via a 30 km long 50 kV transmission line and two small hydro power plants connected to Atacocha Substation.

The first hydro power plant is the Chaprin hydro power plant that has 5.2 MW (3 x 1.8 MW). It produces almost 30 GWh per year. Is it connected to Atacocha substation via a 14 km long 50 kV transmission line.

The second one is Marcopampa hydroelectric generating station with a total capacity of 1.2 MW via a 2 km long 4.16 kV transmission line. However, this hydroelectric generating station is not in operation because of social problems.

Nexa has performed studies to retrofit these power plants and solve the social problems. However these improvements are not considered in the current plan.

A simplified electrical single line diagram showing power generation and distribution from the grid and the Candelaria Hydroelectric Plant to the El Porvenir and Atacocha mine sites is presented in Figure 15-2.

15.2.3 Tailings Storage Facility and Waste Rock Storage

The Atacocha TSF embankment crest was raised to an elevation of 4,128 MASL, the dam crest elevation currently permitted. Mine rock disposal takes place downstream of the existing Atacocha TSF dam, which also serves to buttress the dam to enhance stability. The Atacocha TSF dam has been raised in at least six stages by the downstream method, with a 2H:1V overall downstream slope and a 1.5H:1V upstream slope. The upstream slope is lined with a geomembrane. The Atacocha TSF is shown in Figure 15-8 and a dam cross section in Figure 15-9.

It is understood that the first of four stages of dam raising included geosynthetic clay liner (GCL) on both the upstream and downstream faces of the dam and around the perimeter of the TSF (SRK, 2017). The GCL was reportedly installed for the initial TSF development over concerns about potential acid generation in the tailings and in order to meet permitting conditions. The GCL lining on geogrid support layers around the TSF also serves to mitigate potential issues with karst terrain.

The Atacocha TSF is not equipped with an emergency spillway. It has a contingency pumping system that, when operating at the maximum combined pumping rate, reportedly provides capacity to handle the probable maximum flood. The Atacocha TSF has a perimeter diversion channel to intercept non-contact water and minimize the catchment area of the TSF.

Monthly and annual dam safety inspections are currently being conducted by Geoconsultoria Ltda, an external consultant, for the Atacocha TSF dam. The SLR QP has relied on the statements and conclusions of reports provided by Nexa and its consultants and provides no conclusions or opinions regarding the stability or performance of the dams and impoundments listed in this TRS.

Mine waste rock management planning includes encapsulation of potentially acid generating waste rock within a non-potentially acid generating waste rock surround and the waste rock dump area is provided with a sub-drain seepage collection system (Ausenco, 2018b).



Figure 15-8: Atacocha Tailings Storage Facility Layout with Dam Crest at Elevation 4,128 MASL

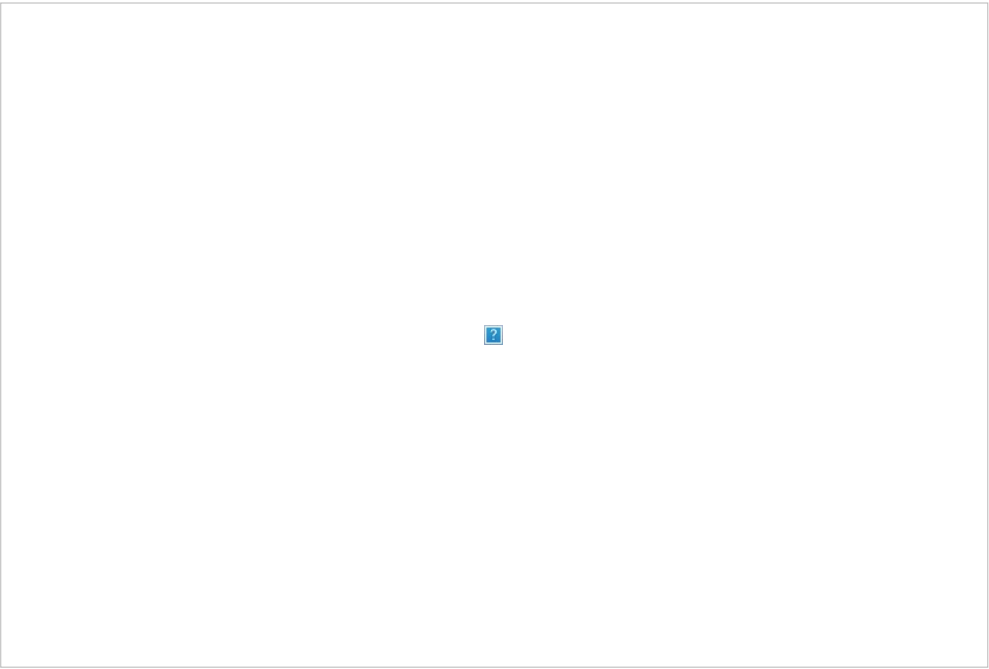
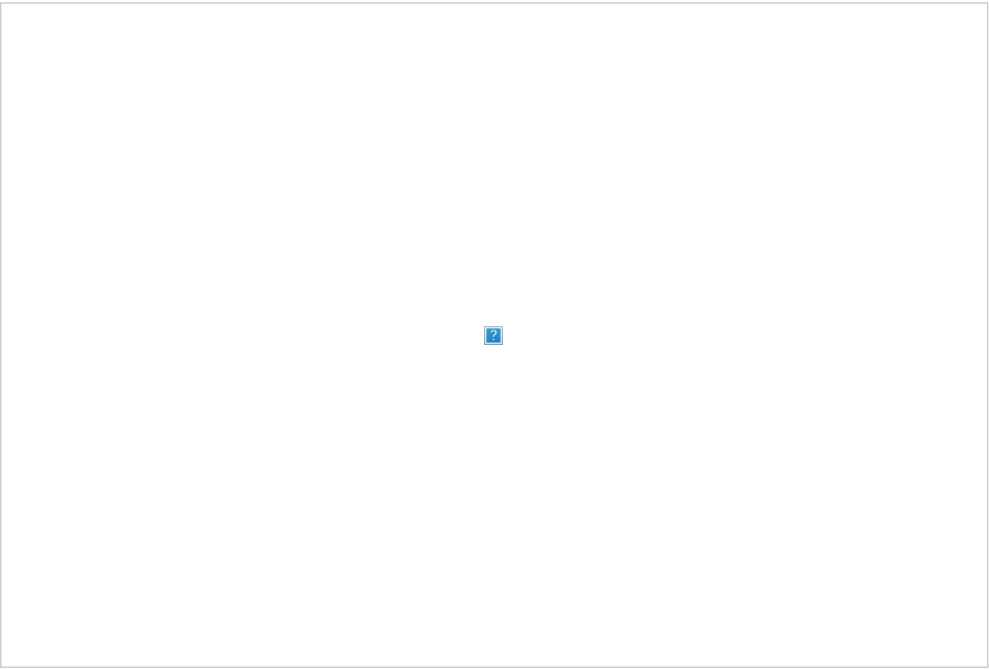




Figure 15-9: Atacocha Tailings Storage Facility Main Dam Section to Crest Elevation 4,128 MASL



16.0 Market Studies

16.1 Markets

The principal commodities produced at El Porvenir and Atacocha, Zn, Pb, Cu, Ag, and Au, are freely traded, at prices and terms that are widely known, so that prospects for sale of any Nexa production are virtually assured.

The final sale products for El Porvenir processing plant (for all underground material processed between years 2024 and 2033) are copper, lead, and zinc concentrates. El Porvenir copper and lead concentrates are sold to traders and delivered by road and rail to Callao, which is approximately 270 km by road, for shipping overseas. Zinc concentrate is transported by road and rail to Nexa’s Cajamarquilla zinc refinery near Lima as per Nexa’s internal planning. Over the LOM, zinc concentrate represents 60% of El Porvenir’s gross revenue, while lead concentrate and copper concentrate represent 37% and 3%, respectively.

The final sales products for the Atacocha processing plant (for open pit material processed between years 2024 and 2027) are lead concentrate and zinc concentrate. Over the LOM of the Atacocha plant, the sale of lead concentrate represents 73% of Atacocha’s gross revenue, while zinc concentrate represents 27% of Atacocha’s gross revenue.

Over the LOM for the Cerro Pasco Complex, considering production from both El Porvenir and Atacocha plants, the gross revenue, broken down by metal sold is as follows: zinc 54%, lead 16%, copper 2%, silver 27%, gold 1%.

SLR has reviewed the concentrate terms provided by Nexa and found them to be consistent with current industry norms.

Market information in this section is based on the industry scenario analysis prepared by Nexa’s Market Intelligence team for years 2022 and 2023 based on information sourced from different banks and independent financial institutions, economy and politics research groups, and metals consultants.

Nexa’s Market Intelligence team notes that during the last two years the short-term market scenario is still challenging due to volatility in markets, uncertainty due to fear of a decrease in global demand, inflation affecting major economies and potential US recession in the short term, and geopolitical risks such as the war between Russia and Ukraine, and recent conflict in the Gaza Strip. All these factors are affecting the market fundamentals.

The SLR QP has reviewed the market studies and analyses and is of the opinion that the results support the assumptions in the TRS.

16.1.1 Zinc

16.1.1.1Zinc Demand

The major market drivers for zinc demand are construction and infrastructure, transportation and vehicles production, industrial machinery production, batteries, and renewable energy. According to Nexa’s Market Intelligence team, zinc demand growth will be moderate but will remain strong, supported in part, by government backed stimulus in infrastructure/urbanization and the energy transition, and also supported by China and emerging markets economy.



16.1.1.2Zinc Supply

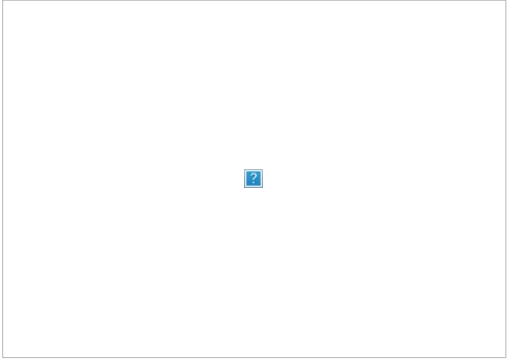
Nexa’s Market Intelligence team’s supply forecast analysis was based on the following industry information: zinc mine start-up and closure, mine production guidance, disruption allowance evaluation, project pipeline, and cost evaluation. Nexa’s analysis results are summarized as follows:

- Mine supply increasing until 2026: operations achieving regular output, projects coming online and ramp-ups, compensating mine grades reduction. Additional volume after 2025 coming from projects at early stages of development .
- Metal production with an average growth of 1.9% from 2023 to 2027, as Europeans smelters overcome energy challenges and return to regular output. Market deficit expected until 2024 and a tight balance afterwards.
- Prices remaining at higher levels throughout the cycle, as refined zinc market remains tight, with inventories at a lower range.

16.1.1.3Zinc Price Outlook

Zinc prices depend mainly on variations in supply, demand, and the perceived supply/demand balance. The most commonly referenced currency for zinc transactions is US dollars. Nexa forecasts a long-term price of US\$2,800/t for its base case price scenario. Figure 16-1 shows the results of Nexa’s analysis.

Figure 16-1: Zinc Price Outlook



According to Nexa’s team, prices are expected to remain at good margin levels, but not elevated.





16.1.2 Copper

16.1.2.1Copper Demand

The major market drivers for Cu demand are power generation and transmission, construction, factory equipment, and the electronics industry. Nexa foresees that after a sharp recovery in 2021, year over year demand may return to the pre-pandemic levels. Copper demand will be mostly driven by Electric Vehicles (EVs), renewables, and grid expansion. Major analysts foresee copper’s role over the longer term will intensify as a result of decarbonization and the ‘greening’ of the economy.

16.1.2.2Copper Supply

Nexa’s Market Intelligence team’s supply forecast analysis was based on the following industry information: copper mine start-up and closure, mine production guidance, project pipeline, and cost evaluation for the last two years. Nexa’s forecast analysis results are summarized as follows:

- Big-scale brownfield and greenfield projects are expected until 2025, contributing to a concentrate surplus.
- Supply risks: environmental requirements and permitting processes become increasingly stringent and investors demand green credentials. Some projects will also be halted by environmental opposition.
- Among other sources of supply that could come online, scrap is expected to play an important part (32% of world’s demand by 2027). China remains the main player for copper scrap: volumes consumed and regulations/standards established.

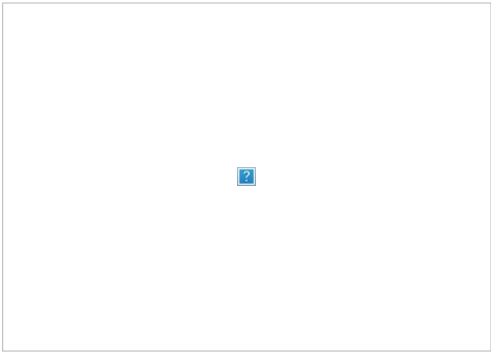
16.1.2.3Copper Price Outlook

The main factors that drive copper prices are variations in supply, demand, and the perceived supply/demand balance. Nexa forecasts a long-term price of US\$7,612/t for copper. Figure 16-2 shows the results of Nexa’s analysis.





Figure 16-2: Copper Price Outlook



16.1.3 Lead, Silver, and Gold

Nexa has based its lead and silver price forecast solely on consensus prices and correlation analysis published by metal market analysts and financial institutions.

16.1.3.1Lead Price Outlook

Recently, lead prices have been supported by a reduction in metal inventories due to the post-pandemic effects in the supply chains (higher freight and storage costs). Recent price movements haven't climbed as sharply as other metals, which has increased lead-zinc spreads to unusual (high) levels. For that reason, lead may be less vulnerable to a further price correction in the mid term.

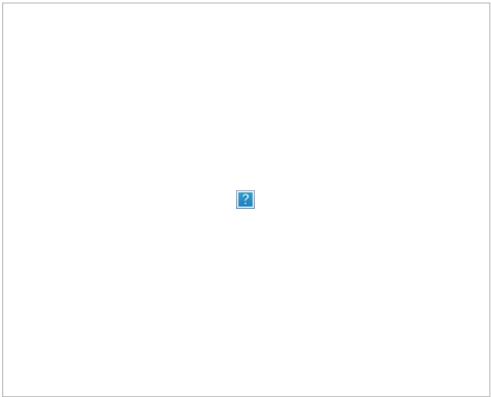
As fundamentals are concerned, the Chinese and Indian automotive sectors will be the main drivers of global demand growth.

Nexa forecasts a long-term price of US\$2,030/t for lead. Figure 16-3 presents the results of Nexa's lead analysis.





Figure 16-3: Lead Price Outlook



16.1.3.2Silver and Gold Price Outlook

Silver and gold represent 27% and 1% of Cerro Pasco’s gross revenue, respectively. Nexa’s silver and gold prices were chosen based on the median of consensus prices published by banks and institutions on a monthly basis.

Nexa forecasts a declining silver price from 2026 onwards (between US\$20.50/oz Ag and US\$21.11/oz Ag). For silver, current price movements are more based on investors optimism and less on increase in demand.

For gold, Nexa forecasts declining prices from 2026 onwards, from US\$1,945/oz Au in the short term to US\$1,619/oz Au in the long term. For gold, prices may lose strength throughout the cycle 2023 - 2027 as economies recover from current recession scenario and investors migrate to other types of assets.

The silver and gold forecast curves in Figure 16-4 and Figure 16-5, respectively, present the median silver and gold prices based on a consensus of institutional sources.





16.2 Contracts

Nexa has negotiated contracts for the sale of its copper and lead concentrates with several known traders (such as Glencore, Trafigura, Humon, and IXM). SLR has reviewed the agreement terms and found these to be in accordance with industry standards.





In addition to concentrate sales, Cerro Pasco has numerous contracts with suppliers for the majority of the operating activities at El Porvenir and Atacocha mine sites, such as:

- Mining operations: Drilling, explosives, loading, hauling, underground mine development, maintenance, etc.
- Processing: Plant maintenance, and laboratory services
- Suppliers for consumables, reagents, maintenance and general services
- General and administrative (G&A) requirements, and other services to support a remote mine operation.

SLR has not reviewed the various support service contract details at the Cerro Pasco Complex, however, Nexa has used these contractors in the past and continues to do so.





17.0 Environmental Studies, Permitting, and Plans, Negotiations, or Agreements with Local Individuals or Groups

Nexa has several corporate policies, including a Compliance Policy. SLR understands that Nexa does not have a specific environmental policy.

Nexa announced an Environmental, Social and Governance (ESG) strategy based on nine pillars, commitments and indicators in 2022 as per the 2022 Annual Report and on the company website. Environmental commitments include:

- Reducing green house gas emissions to reach net zero by 2050
- Optimising water management
- Ensuing full recovery of biodiversity in areas impacted by Nexa activities
- Be recognized as an engaged and transparent company in dam safety and management
- Be a global benchmark waste management and the circular economy
- Implement a decommissioning management system in a responsible manner.

Social commitments include:

- Ensure compliance with international and national Human Rights practices
- Maintain a social licence to operate
- Build social legacy with communities in affected areas
- Ensuring the health and well being of company workers
- Increase diversity and inclusion within the company
- Be recognised for attracting and retaining talent.

Governance commitments include:

- Raise awareness within the company sphere of influence about good business conduct and human rights practices
- Promote good business practices related to ethical, labour, environmental, community and human rights issues
- Transparent management of the ESG program.

Nexa is implementing initiatives and projects in several operations towards achieving these commitments.

17.1 El Porvenir

17.1.1 Environmental Aspects

17.1.1.1Environmental Setting

Environmental baseline studies have been completed as part of the Environmental Impact Assessment (EIA). A summary of the existing conditions in the El Porvenir area based on





information included in Ecotec (2018) and KCB (2020) is presented below, sourced from SLR (2021).

Climate

The climate is cold and dry throughout the year, which is typical of the Central Andes Mountain Region. Approximately 80% of the annual rainfall takes place between October and March. From June to August there are generally minimal rainfalls. Based on data from the Cerro de Pasco regional meteorological station operated by the government (data record from 1975 to 2017), the average temperature ranges from 4°C in July to 6°C in November. The average annual precipitation is 943 mm, with maximum monthly precipitation of 135 mm in March and minimum monthly precipitation of 15 mm in July.

Air Quality

Air quality has been characterized using records from eight monitoring stations for the period 2016 to 2018. The monitoring results are compared against national environmental quality standards for air quality (D.S. No. 003-2017-MINAM). Measured concentrations for particulate matter less than 10 µm (PM10), particulate matter less than 2.5 µm (PM2.5), gases (sulphur dioxide, nitrogen dioxide, carbon monoxide, ozone, hydrogen sulphide) and benzene were below the limit set in the standard.

Surface Water Quality

The existing conditions presented in Ecotec (2018) and KCB (2020) are based on surface water quality monitoring conducted at five sampling locations in three natural waterbodies (Lloclla River, Tingovado Creek, and Huallaga River). Four of these stations are located upstream of the mining activities and one is located downstream. Surface water quality is compared with the national environmental quality standards for water: D.S. No. 002-2008-MINAM for monitoring records from 2013 and 2014, D.S. No. 015-2015-MINAM for monitoring records from 2015 and 2016, and D.S. No. 004-2017-MINAM for monitoring records from 2017 and 2018. The reference values selected from the standards correspond to class 3-D1 for irrigation of high and low stem crops, and class 4-E2 for the Huallaga River.

Results from monitoring of water quality in the Lloclla and Huallaga rivers indicate a reduction of exceedances over time. Monitoring data from 2016 to 2018 (Ecotec, 2018) indicate some exceedances associated with zinc and lead in the Huallaga River, and some exceedances for pH, lead and manganese in the Lloclla River.

The water quality analysis included in Ecotec (2018) presents an individual discussion for each parameter explaining how the exceedances are associated with geological and morphological conditions inherent to the El Porvenir location. From the data presented in the Ecotec report exceedances are observed for short periods of time and are not simultaneously occurring for all the monitored parameters.

Effluent Water Quality

Effluent water quality is monitored at two discharge locations: water discharge from the underground mine to the Huallaga River, and water discharge from the TSF to the Lloclla River. The water quality at the effluent discharge locations complies with the maximum permissible limits established by the current Peruvian Legislation (D.S. No. 010-2010-MINAM and D.S. 003-2010-MINAM).

Groundwater Quality

No groundwater quality monitoring has been carried out prior to 2020 with the exception of monitoring at two locations where discharge of groundwater to surface from the aquifer takes





place (i.e. springs). According to Ecotec (2018), one of the springs (station 13MM) has the potential to influence concentrations of arsenic, manganese, and lead in the waters of the Lloclla and Huallaga rivers. The second spring (station 14MM) has the potential to influence concentrations of arsenic in the water of the Lloclla and Huallaga rivers. Comparison against national standards is not applicable because no standards for groundwater quality have been developed for Peru.

Soils and Land Use

There are two types of soils in the El Porvenir area, mineral and organic, derived from residual and transported soils. Actual land use corresponds to five categories: urban development (populated centers) and private facilities (mining activity), cultivated land, natural pastures, arboreal vegetation, and unproductive land (rock outcrops).

Soils at El Porvenir have concentrations of arsenic, cadmium, and lead that exceed the national environmental quality standards (D.S. No. 011-2017-MINAM for industrial use), at some sampling points. According to the baseline characterization, high values of arsenic and lead could be attributed to the local lithology and mineralization. High values of cadmium could be of natural origin since cadmium is associated with zinc and lead impurities.

Noise and Vibrations

Ambient noise has been characterized using records from eight monitoring stations for the period 2016 to 2018. Exceedances were registered in three stations during the day and four stations at night when comparing the monitoring results against the national environmental noise quality standards (D.S. No. 085-2003-PCM) for an Industrial Zone. Exceedances were attributed to human activities and vehicular traffic (Ecotec, 2018). The ambient vibrations monitored at three locations meet international standards used as a reference (BS7385 Part 2-1993).

Aquatic Biology

Aquatic communities account for plankton, periphyton, macroinvertebrates (benthos), and fish. According to KCB (2020), during the wet season in 2015 the phytoplankton was represented by 56 species, the zooplankton by 16 species, the periphyton by 45 species, the benthos by 30 species, and the fish by one specie (*Oncorhynchus mykiss* [rainbow trout]). During the wet season in 2016 the phytoplankton was represented by 27 species, zooplankton by nine species, periphyton by 11 species, and benthos by 14 species. None of the species identified in the El Porvenir area of influence are included in the list of protected species within the Peruvian legislation.

Flora

There are five species included in the national protection list approved under Supreme Decree D.S. No. 043-2006-AG that are found in the El Porvenir area: *Ephedra rupestris* (CR), *Senecio nivalis* (VU), *Chuquiraga spinosa* (NT), *Baccharis genistelloides* (NT), and *Buddleja coriácea* (CR). One specie was identified as endemic: *Plantago sericea* (Plantaginaceae), and two species are used for medicinal purposes by local communities: *Minthostachys mollis* and *Ephedra rupestris*.

Fauna

Fauna in the El Porvenir area is represented by six species of mammals, 34 species of birds, one specie of amphibian, and one specie of reptiles. Four species of mammals, eight species of birds, one specie of amphibian, and one specie of reptiles are included in the national protection list approved under Supreme Decree D.S. No. 004-2014-MINAGRI. The endemic





species include two species of mammals, two species of birds, one specie of amphibian, and one specie of reptiles.

Fragile Ecosystems

The high elevation wetlands (referred to as bofedales in Spanish) are present within the area of indirect influence of El Porvenir (i.e., they are located outside the direct area of influence). Ecosystems considered as fragile in Perú are recognized by Law No. 28611 – Environment General Law.

Social

The El Porvenir area of influence encompasses the following rural communities and populated centers:

- Comunidad de San Francisco de Asís de Yarusyacán,
- Comunidad de Cajamarquilla,
- Comunidad Santa Rosa de Pitic,
- Comunidad San Miguel,
- Comunidad La Candelaria,
- Centro Poblado La Quinua, and
- Cooperativa Pucayacu.

17.1.1.2Environmental Studies and Management Plans

SLR has been provided with the following documents and reports to conduct its review:

- Modification of the Environmental Impact Assessment for Capacity Expansion of the Concentrator Plant to 5,500 tpd (Compañía Minera Milpo, 2011)
- Modification of the Environmental Impact Assessment for Capacity Expansion to 7,500 tpd (Cesel Ingenieros, 2011)
- Fifth Supporting Technical Report (Quinto Informe Técnico Sustentatorio in Spanish) for Modification of Auxiliary Components of El Porvenir Mine (Ecotec, 2018)
- Sixth Supporting Technical Report (Sexto Informe Técnico Sustentatorio in Spanish) for Introduction of Technical Improvements to the Concentrator Plant (Escegis S.R.L, 2020)
- Regulatory report regarding the evaluation of the Sevent Supporting Technical Report (Septimo Informe Técnico Sustentatorio in Spanish) for Introduction of Technical Improvements to the Concentrator Plant (SENACE, 2021)
- Regulatory report regarding the evaluation of the Eighth Supporting Technical Report (Octavo Informe Técnico Sustentatorio in Spanish) for Introduction of Technical Improvements to the Concentrator Plant (SENACE, 2024)
- Annual Report on Compliance with the Environmental Management Strategy in 2018 (Nexa El Porvenir, 2019)
- Annual Report on Compliance with the Environmental Management Strategy in 2019 (Nexa El Porvenir, 2020)
- Environmental Management Plan included in the Eight Supporting Technical Report
- Quarterly environmental monitoring reports for 2023





- Sustainability reports for El Porvenir for 2021 and 2022
- Emergency response plan for El Porvenir

El Porvenir is managed according to the environmental and closure considerations presented in four type of documents, which must be approved by directorial resolutions (RD for its acronym in Spanish) from the Peruvian government (see Section 17.1.3):

- Environmental Adjustment and Management Plan
- EIA and subsequent modifications
- Supporting Technical Reports (ITS for its acronym in Spanish)
- Mine Closure Plan

Various EIA modifications and ITSs have been submitted and approved between 2001 and 2024. The most recent EIA approved in 2012 corresponds to the expansion of the concentrator plant production rate to 7,500 tpd.

The key project effects and associated management strategies are presented in Table 17-1, as described in the EIA and ITS documents reviewed by SLR. Prevention and mitigation measures identified for soils, air quality, water quality, biology, socio-economic aspects, landscape, and archeological remains are presented in the Environmental Management Plans included in the EIA and ITS documents. Mitigation measures against vibrations are not considered in the environmental studies provided to SLR. The monitoring program includes meteorology, air quality and gas emissions, non-ionizing radiation, ambient noise, surface water quality, spring water quality, effluent discharges, flora and fauna.

The monitoring program includes the following:

- Air quality at nine locations
- Non-ionizing radiation at two locations
- Gas emissions at six locations
- Ambient noise at 11 locations
- Surface water quality in receiving water bodies at five locations
- Groundwater quality daylighting at surface from springs at three locations
- Industrial effluent water quality at two locations
- Treated wastewater effluent water quality at two locations
- Monitoring of flora at four locations
- Monitoring of fauna at four locations
- Hydrobiology monitoring at four locations

The environmental monitoring is conducted by an external consultant (SGS del Perú) responsible for preparing quarterly reports for Nexa. The results of the monitoring program are reported quarterly to the Agency for Environmental Assessment and Enforcement (OEFA for its acronym in Spanish) and the National Water Authority (ANA for its acronym in Spanish).

The conclusions presented by SGS del Perú in the quarterly reports prepared for Nexa in 2023 are summarized as follows:





- Water quality for industrial effluent discharge was in compliance with maximum permissible limits established in Peruvian norm D.S. No. 010-2010-MINAM.
- Water quality for treated wastewater discharge from domestic use was in compliance with maximum permissible limits established in Peruvian norm D.S. No. 003-2010-MINAM.
- The water quality values measured in receiving water courses (Llocia River, Huallaga River, Tingovado Creek) are compared against the Peruvian Environmental Quality Standards for water quality established in norm D.S. No. 004-2017-MINAM. The measured values for total metals met the applicable standards for water quality. However, exceedances in pH values were identified at all water quality monitoring locations both upstream and downstream of the operations.
- Water quality monitored at two springs was in compliance Peruvian norm D.S. No. 004-2017-MINAM.
- The non-ionizing radiation values measured at two locations are compared against the Peruvian Environmental Quality Standards for non-ionizing radiation established in norm D.S. No. 010-2005-PCM. Non-ionizing radiation was in compliance with the applicable standards.
- Air quality was in compliance with Peruvian norms D.S. No. 074-2001-PCM, R.M. No. 315-96-EM/VMM and D.S. No. 003-2017-MINAM.
- Ambient noise was in compliance with Peruvian norm D.S. No. 085-2003-PCM.



Table 17-1: Summary of Key Environmental Effects and Management Strategies

Environmental Component	Potential Impact	Mitigation Measures / Management Strategies
Topography and landscape	Relief alteration changes in landscape's visual quality.	No specific measures or strategies are proposed.
Soils	Changes to soil uses. Changes to soil quality.	Mitigation measures imbedded in the infrastructure design to minimize spill accidents. Appropriate management of industrial and domestic waste. Appropriate management of oils and fuels. Appropriate management of hazardous waste. Development and implementation of spills management plan. Removal of soils exposed to spills and storage in sealed containers for appropriate disposal in agreement with applicable legislation. Activities for vehicle maintenance are restricted to designated areas.
Surface water	Changes to surface water flows. Changes to surface water quality.	Appropriate management of chemical substances. Development and implementation of spills management plan. Domestic wastewater treatment. Mine water sedimentation ponds. Diversion of non-contact water around the TSF. Inspection and maintenance of the TSF diversion channel. Collection of surface runoff in the concentrator plant area. Sediment and erosion control measures. Tailings sub-drainage is captured in a monitoring pond and recirculated or discharged according to its quality, considering sediment control. Monthly water quality monitoring for receiving water bodies and effluent discharges. Currently Nexa reports monitoring results from 11 stations (five of them are effluent discharges). Quarterly reporting of monitoring results.
Groundwater	Changes to phreatic level. Changes to groundwater quality.	No specific measures or strategies are proposed. Monthly water quality monitoring in two springs and one piezometer (see Table 17-2). Quarterly reporting of monitoring results.
Air quality	Changes from particulate and gas emissions.	Regular irrigation of access roads with tanker trucks during the dry season. Wet grinding. Traffic speed control. Regular preventive maintenance of vehicles and equipment. Use of personal protective equipment by mine staff and training. Monitoring of particulate matter (PM10 and PM2.5), metals (lead, arsenic and zinc) and gases during the construction and operation phases. Monthly air quality monitoring at six stations located leeward and windward of the Concentrator Plant and the TSF. Quarterly reporting of monitoring results.

Environmental Component	Potential Impact	Mitigation Measures / Management Strategies
Noise	Disturbances resulting from changes to ambient noise levels.	Use of hearing protection devices in the concentrator plant area. Controlled time of exposition of workers to noise sources. Appropriate planning and scheduling of operation of noise sources. Regular preventive maintenance of vehicles and equipment. Use of vehicle horns limited to emergency situations. Quarterly monitoring at six stations. Quarterly reporting of monitoring results.
Flora and fauna	Changes to vegetation cover. Alterations to habitat. Disturbance of wild fauna.	Prohibition to disturb fauna. Land clearing limited to authorized areas. Prohibition to collect flora. Prohibition to extract species of flora and fauna. Noise control measures. Sediment control measures to protect natural streams. Traffic speed limits. Prohibition to use vehicle horns except in case of emergency. Monitoring of phytoplankton, zooplankton, benthic organisms, periphyton and macrophytes at four stations. Monitoring of metals content in sediment samples. Monitoring of flora at four stations. Monitoring of fauna at four stations. Bi-annual monitoring (dry and wet season).

17.1.1.3Key Environmental Issues

SLR is not aware of any recent or ongoing environmental issues taking place associated with the El Porvenir operations. In the SLR QP's opinion, there are no environmental issues that could materially impact the ability to extract the Mineral Resources and Mineral Reserves based on the review of the available documentation.

17.1.1.4Environmental Management System

Nexa uses an ISO 14001 compliant environmental management system at all of its operations to support environmental management, monitoring and compliance with applicable regulatory requirements during operation. Each operation undergoes an annual independent assessment with environmental laws, regulations and commitments.

Nexa utilizes an Integrated Dam Management System (referred to as SIGBar) for the TSF, which provides guidelines for document management, monitoring, evaluation, risk analysis, compliance with standards and legislation, training of personnel, operation of structures and other provisions.

The environmental monitoring program established at El Porvenir and the environmental audits performed annually (aiming to identify critical environmental risks in the operations) are the main tools of the El Porvenir's Environmental Management System to track the implementation of high environmental standards and the continuous compliance with the environmental commitments. The environmental audit matrix includes the evaluation of:

- Audit results to comply with legal requirement for environmental audit.
- Environmental monitoring activities.
- Environmental incidents.

According to Nexa's website and the Nexa Annual Report, the company maintains an active risk assessment, monitoring, and updating process as part of the environmental management system, considering all operating units and corporate areas. This is how the company identifies and manages the main risks from both an operational and strategic point of view, reducing and mitigating impacts to maintain business sustainability. All risks are assigned a "risk owner" and risks rated as high or critical require action plans. Nexa has an integrated management system that establishes the guidelines that govern the conduct of the businesses, with a focus on quality management of environmental, health and workplace safety, and social responsibility issues. In addition, Nexa follows applicable environmental laws and regulations pertaining to its business in each country where it operates.

17.1.2 Tailings Disposal, Water Management and Monitoring

17.1.2.1Environmental Geochemistry

Geochemical testing of the cyclone tailings underflow by Ausenco (2013) determined that the tailings have a high potential for generating acid drainage in the long term. While the leaching tests do not indicate potential for metal solubilization in the short term, kinetic tests, that demonstrate the evolution of the quality of the leachates over time, have not been completed. Geochemical testing by the Universidad Nacional de Ingenieria (Ausenco, 2018c) of the waste rock used for dam construction concluded that the rock was non acid generating.

According to information included in the initial Mine Closure Plan (KCB, 2006), the waste rock deposited on surface (mostly in the La Quinoa WRD) is non acid generating. SLR is not aware



of geochemistry analysis of the rock walls of the El Porvenir underground mine having been conducted. If the rock is similar to the material disposed in the La Quinua WRD, then it is either non acid generating or has an uncertain potential for acid generation. Due to high neutralization potential of the rock identified from early testing, no acid rock drainage (ARD) is anticipated to occur in the short or mid term. The Mine Closure Plan recommends carrying out additional geochemical studies to confirm the rock acid generation potential before closure in order to define and appropriate closure strategy and management measures to achieve geochemical stability.

17.1.2.2 Tailings Management

SRK (2017) reported that crest settlements at the left side of the dam were reportedly noted in a 2008 report by Golder Associates that was not available for review. No issues regarding crest settlements were noted in recent dam safety surveillance reports. SLR notes however that bedrock foundation grouting of the left and right abutments carried out in 2015 observed very significant grout takes in numerous grout hole stages indicating the filling of voids. A series of seepage collection sub-drainage pipes were also installed on the downstream shell of the dam prior to raising the rockfill to the crest elevation of 4,056 MASL (Ausenco, 2016a).

According to a teleconference held with Nexa staff on March 14, 2024, the rock used to raise the dam is non-potentially acid generating rock taken from a quarry.

Tailings disposal at El Porvenir is performed in subaerial conditions which allows a beach with a gentle slope towards supernatant pond (settling pond). The safety of operating a centerline raised tailings dam depends on the ability to maintain wide tailings beach and a low phreatic level in the dam for stability. Tailings deposition plan considers deposition from three main locations to create the settling pond to be centrally located within the TSF and a tailings beach to form in front of the main embankment. The minimum beach width targeted by Nexa for operations in the OMS manual is 320 m. A capacity assessment of the TSF by Nexa (2020) recommends topographic and bathymetric surveys every six months to assess the available capacity.

The Cerro Pasco Complex Integration project provides Nexa with flexibility for tailings management by making possible the discharge of tailings from El Porvenir to the Atacocha TSF. It relies mostly on the storage capacity of the Atacocha TSF for tailings disposal in the future. It is not dependent on a raise of the El Porvenir dam above crest elevation 4,070 MASL.

Dam surveillance at El Porvenir consists of instrumentation measurements and field inspections. Field inspections (regular routine inspections) are carried out by Nexa personnel responsible for its operation, and monthly by an external consultant (Geoconsultoria). Piezometers and water level indicators are measured every two weeks, surface landmarks monthly. Pluviometry (precipitation) and the level of the pond within the TSF are read daily. The data are reviewed by an external consultant (Geoconsultoria) on a monthly basis. It is noted that Geoconsultoria has been conducting the monthly reviews for Nexa for various years now, which provides consistency to the review.

Nexa utilizes an Integrated Dam Management System (referred to as SIGBar) which provides guidelines for document management, monitoring, evaluation, risk analysis, compliance with standards and legislation, training of personnel, operation of structures and other provisions. An Operation, Maintenance, and Surveillance (OMS) manual is available that describes roles and responsibilities of personnel assigned to the operation and maintenance for the TSF. It includes an emergency response plan. A dam breach analysis was completed in 2022 considering the crest elevation 4,062 MASL to inform the emergency preparedness and response plan. Nexa



reportedly considered the results of the dam breach analysis to inform the hazard potential classification of the TSF dam. SLR is not aware of a Trigger Action Response Plan (TARP) being established for the instrumentation system.

A Failure Mode and Effects Analysis (FMEA) was conducted by Ausenco in 2022 for the El Porvenir TSF dam raise to elevation 4,064 MASL. The level of risk was assessed considering four categories: Low, Medium, High and Extreme. Based on consideration of design and operation changes, operational controls, monitoring of geotechnical instrumentation and detailed studies completed for the TSF, all the risks ratings were either Low or Medium. No High or Extreme risks were identified. Ausenco concluded that the actions implemented and planned by Nexa appear to be adequate to mitigate the risks considered in the evaluation.

The risk status of failure modes is dynamic. All analyzes carried out are based on the conditions of the tanks in their current condition, so it is required to periodically review the failure modes, with the aim of identifying any variation in operating conditions and re-evaluating if necessary.

According to the OMS manual, the El Porvenir tailings dam design takes into consideration international standards (such as Canadian Dam Association, ICOLD, ICMM) in terms of geotechnical stability and flood management. A hazard consequence classification of 'Extreme' has been adopted for seismicity (maximum credible earthquake) and hydrological (probable maximum flood) design criteria. Nexa's governance practices for El Porvenir aim to follow international standards and common practices by having appointed an Engineer of Record, implementing quality assurance during construction, preparing a monthly dam safety evaluation report, and conducting regular geotechnical monitoring. The SLR QP has relied on the statements and conclusions of reports provided by Nexa and its consultants and provides no conclusions or opinions regarding the stability or performance of the dams and impoundments listed in this TRS.

SLR understands that annual dam safety inspections were temporarily interrupted due to the COVID pandemic that started in 2020 but have now been resumed and an annual dam safety inspection report for 2023 is being prepared by Geoconsultoría. It is noted that no annual inspection reports were included within the documentation provided to SLR for review for this TRS. Two recent monthly inspection reports by Geoconsultoría for December 2023 and January 2024 were provided to SLR. Geoconsultoría stated in the January report that the safety condition of the dam is satisfactory, and no non-conformities were identified from the monitoring data and the inspections. Of note, the target freeboard and minimum tailings beach width (measured relative to the dam) for operations were not met in December 2023 but corrective actions were implemented by Nexa and both were met in January 2024.

The following recommendations are proposed for the El Porvenir TSF:

- Develop TARPs for the piezometers for inclusion in the OMS manual and monitoring plan.
- Capacity assessments of the TSF completed on a bi annual basis with topographic and bathymetric surveys.
- Complete long term geochemical kinetic testing of the tailings.
- Implement a groundwater monitoring program at the TSF to determine levels of metals and sulphates. Monitoring stations should be implemented both upstream and downstream of the TSF.
- Monitor the water quality from the TSF subsurface drains.



Hatch (2024) noted that for the emergency spillway channel, post-seismic and pseudo-static conditions were not analyzed for all types of sliding surfaces. Nexa indicated to Hatch that these analyses were not performed because they are not permanent structures and would be repaired if there were potential damages. Hatch recommended conducting studies on post-seismic and pseudo-static conditions for sliding surfaces of fault blocks, both globally and locally, regardless of the temporality of the structure.

17.1.2.3 Water Management

Freshwater is withdrawn at the Yanamachay pumping station from the Carmen Chico River and the Huarmipuerto Spring for distribution to the potable water tank and three water supply ponds that feed the concentrator plant for industrial processes. These water supply ponds also receive water from the Milpo Creek via the Socorro Pond. Water from the potable water tank is supplied to the mine camp and neighbouring communities (Vista Alegre, San Carlos, San Juan).

Water for underground mine operations activities is taken from the water supply ponds of the concentrator plant. Underground mine water is pumped to the La Quinua Sedimentation Pond to promote settling of solid particles before being discharged to the Huallaga River.

Tailings discharged to the TSF come from the El Porvenir and Atacocha concentrator plants. Tailings water and surface runoff resulting from direct rainfall over the TSF footprint are collected in the tailings pond. Water from the tailings pond is recirculated to the El Porvenir concentrator plant as make-up water for ore processing via the three water supply ponds of the concentrator plant area. Seepage water intercepted by the TSF underdrain system is captured in a lined monitoring pond and recirculated to the tailings pond or discharged into a local tributary of the Lloclla River if the water quality meets the applicable standards for direct discharge to the environment. Surplus water collected in the TSF pond is discharged through a decant overflow system that conveys flows to the monitoring pond. Operation of a sluice gate at that location allows for discharge control of decanted water into the monitoring pond or directly into a local tributary of the Lloclla River. As a contingency measure, the water management system allows conveyance of water collected in the monitoring pond to the sediment ponds located near the La Quinua WRD.

Nexa is planning to improve the TSF water management system through construction of a perimeter channel to intercept non-contact water (freshwater) from the sub-watershed that contributes natural surface runoff towards the TSF footprint. The Chinchao and Tingovado creeks will be intercepted by this diversion channel that will redirect water from the creeks towards the Lloclla River.

Sanitary wastewater generated at El Porvenir is collected and treated in a wastewater treatment plant. Treated water is conveyed to the tailings pond of the TSF for re-use in mine operation activities.

Furthermore, it is unclear if the water balance for El Porvenir is continuously tracked during operation to support decision making associated with water management and dam safety. A water balance for ongoing operations to be updated regularly by mine operations personnel (or a designated consultant) is an important tool to ensure that sufficient water is available for ore processing and that pond water levels are adequate for safe operation of the TSF. The water balance makes it possible to track trends and conduct short term predictions through the simulation of variable operating and/or climatic scenarios to support decision making associated with tailings pond operation (e.g., maintaining adequate dam freeboard at all times).

As indicated in Hatch (2023), there is no integrated water balance for the entire operation after the integration of both units. SLR recommends developing a comprehensive water balance





assessment to confirm that sufficient water will be available to meet the ore processing water demand and the safe operation of both the El Porvenir TSF and the Atacocha TSF.

SLR recommends Nexa develop an integrated water balance that reflects the interaction between the El Porvenir and Atacocha operations in regard to water balance, to identify and predict possible scenarios of interruption of mine operations due to water management issues and/or dam safety concerns (e.g., not maintaining adequate dam freeboard).

According to the Nexa 2020 (Annual Report on Compliance with the Environmental Management Strategy in 2019), water quality monitoring currently takes place at the 14 locations listed in Table 17-2. Based on the documentation available for review, SLR is not aware of any non-compliance issues raised by the authorities associated with the El Porvenir water quality monitoring program.

Based on the Environmental Management Plans presented in the EIA and ITS documents, only one groundwater quality monitoring location is included in the environmental monitoring program. Monitoring results at this location are not included in the quarterly monitoring reports on water quality.

Typical practice for environmental monitoring of groundwater involves the installation of wells upstream and downstream of the mine site to compare water quality results and identify potential impacts of the mine operation to groundwater. It is unclear how El Porvenir currently verifies that no changes to groundwater due to mining activities are taking place within the area of influence of the operation. SLR recommends expanding the groundwater quality monitoring program to include additional stations for collection of groundwater quality samples (and subsequent analysis). As a minimum, consideration should be given to the installation of one station upstream of El Porvenir.

Table 17-2: Water Quality Monitoring Locations

Station ID	Type of Water	Location
5MM	Surface water effluent	Underground mine discharge at La Quinoa tunnel outlet.
5AMM	Surface water effluent	Discharge from sedimentation pond to the Huallaga River.
6MM	Surface water effluent	Discharge from the TSF to the Lloclla River.
6CH-F4	Surface water effluent	La Candelaria Hydroelectric Plant - Station 4.
16MM	Surface water effluent	Inflow to the Sanitary Wastewater Treatment Plant from the mine camp.
7MM	Receiving water body	Lloclla River upstream of the TSF.
8MM	Receiving water body	Lloclla River downstream of the TSF.
9MM	Receiving water body	Huallaga River upstream of the La Quinoa tunnel outlet.
10MM	Receiving water body	Huallaga River downstream of the La Quinoa tunnel outlet.
11MM1	Diverted water	TSF diversion channel before the discharge to the Lloclla River.
12MM	Surface water body	Tingovado Creek upstream of the diversion channel.
13MM	Groundwater	Spring.
14MM	Groundwater	Spring.
15MM	Groundwater	Piezometer.





17.1.3 Environmental Permitting

17.1.3.1Current Permits, Approvals and Authorizations

The El Porvenir operation is managed according to the environmental and closure considerations presented in three types of documents, which must be approved by directorial resolutions from the Peruvian government:

- EIA and subsequent amendments and modifications
- Supporting Technical Reports (ITS for its acronym in Spanish)
- Mine Closure Plan

SLR understands that El Porvenir has the permits required to continue the mining operations in compliance with applicable Peruvian permitting requirements. The permits are RDs issued by the Peruvian authorities upon approval of mining environmental management instruments filed by the mining companies such as EIAs, ITSs, and Mine Closure Plans. The approved permits address the authority’s requirements for operation of the El Porvenir underground mine, TSF, concentrator plant, water usage, and effluents discharge.

Nexa maintains an up-to-date record of the legal permits obtained to date, documenting the approving authority, validity period and expiry dates, status (current, canceled or superseded), and indicating if renewal is required or not.

The El Porvenir directorial resolutions on environmental certifications, effluent discharge, water use, mine closure and tailings management are listed in Table 17-3. According to the record of the legal permits provided by Nexa in February 2024, the approved environmental certifications (i.e., EIA and ITS) do not have expiry dates and therefore renewal dates are not applicable.

With the approval of the eighth ITS, Nexa can operate El Porvenir TSF until 2037, whereas prior to its approval the operation was authorized until 2026.

Table 17-3: Environmental, Mine Closure, and Tailings Disposal Licences

Authority	Obligation/Licence	Date of Issue (DD/MM/YYYY)	Expiration Date (DD/MM/YYYY)	Status
Environmental Certifications				
MINEM-DGM	PAMA (Programa de Adecuación y Manejo Ambiental) Approval RD 023-1997-EM/DGM	17/1/1997	None	Active
MINEM-DGE	PAMA Approval - Electric System (CH Candelaria + CT Milpo) RD 028-1997-EM/DGE	23/1/1997	None	Active
MINEM-DGAAM	EIA for Production Expansion of the Plant to 3,100 tpd RD 379-2001-EM/DGAA	26/11/2001	None	Active
MINEM-DGM	PAMA Approval of Execution RD 288-2002-MEM/DGM	7/11/2002	None	Active





Authority	Obligation/Licence	Date of Issue (DD/MM/YYYY)	Expiration Date (DD/MM/YYYY)	Status
MINEM-DGAAM	Modification of the EIA for Production Expansion of the Concentrator Plant to 5,500 tpd RD 271-2011-MEM/AAM	2/9/2011	None	Active
MINEM-DGAAM	EIA for Capacity Expansion of the Concentrator Plant to 7,500 tpd and Expansion of Cyclone Tailings RD 203-2012-MEM/AAM	25/6/2012	None	Active
MINEM-DGAAM	1st ITS El Porvenir - Transmission Line 220 kV Substation Paragsha II - Substation El Porvenir and Transmission Line 50 kV RD 159-2014-MEM/DGAAM	2/4/2014	None	Active
MINEM-DGAAM	2nd ITS El Porvenir - Integration Tailings Storage/Tailings Line Atacocha-El Porvenir (El Porvenir Zone) RD 526-2014-MEM/DGAAM	20/10/2014	None	Active
MINEM-DGAAM	IGA Ownership Change Record 647-2015-MEM/DGAAM	2/3/2015	None	Active
MINEM-DGAAM	3rd ITS El Porvenir - Approval "Variant to Ends of Transmission Line 220 kV-S.E. Paragsha II-SE El Porvenir and SE Milpo (El Porvenir), and tension reduction of Transmission Line from 220 kV to 138 kV" RD 271-2015-MEM-DGAAM	9/7/2015	None	Active
SENACE	4th ITS El Porvenir - Capacity Expansion of the Concentrator Plant to 9,000 tpd RD 319-2017-SENACE-DCA	24/10/2017	None	Active
SENACE	5th ITS El Porvenir - Auxiliary Components RD 058-2018-SENACE-PE/DEAR	13/12/2018	None	Active
SENACE	6th ITS El Porvenir - Introduction of Technical Improvements to the Concentrator Plant RD 51-2020-SENACE-PE/DEAR	10/3/2020	None	Active
SENACE	7th ITS El Porvenir - Drilling Pads and Modification to General Offices RD 36-2021-SENACE-PE/DEAR	04/03/2021	None	Active
SENACE	8th ITS El Porvenir - Auxiliary Components RD 23-2024-SENACE-PE/DEAR	07/02/2024	None	Active





Authority	Obligation/Licence	Date of Issue (DD/MM/YYYY)	Expiration Date (DD/MM/YYYY)	Status
Effluent Discharge and Reuse Authorizations				
ANA-DGCRH	Authorization for Discharge of Treated Industrial Residual Water from the Concentrator Plant RD 014-2010-ANA-DGCRH	10/8/2010	10/8/2012	Inactive Modified
ANA-DGCRH	Authorization for Domestic Residual Water Reuse for Irrigation RD 005-2013-ANA-DGCRH	7/1/2013	7/1/2015	Inactive Renewed
ANA	Renewal of Authorization for Discharge from LQ and Porvenir Underground Mine Portals RD 172-2015-ANA-DGCRH	15/6/2015	15/6/2019	Expired Not Renewed
AAA-HUALLAGA	Authorization for Water Reuse RD 165-2015-ANA/AAA-HUALLAGA	7/7/2015	7/5/2019	Expired Not Renewed
ANA	Renewal of Authorization for Discharge from LQ and Porvenir Underground Mine Portals RD 192-2019-ANA-DCERH	16/6/2019	16/6/2022	Active
ANA	Renewal of Authorization for Domestic Residual Water Reuse for Mining Purposes (Irrigation) RD 600-2019-ANA/AAA-HUALLAGA	6/7/2019	7/6/2025	Active
Water Use Licences				
ANA	Mine Water Licence RS 0392-1974-AG	08/4/1974	None	Inactive
ANA	Mine and Camp Water Licence RS 0057-76-AG/DGA	4/3/1976	None	Inactive
ANA	Mine and Population Water Licence RS 307-76-AG/DGA	14/12/1976	None	Inactive
ANA	Power Generation Water Licence RD 0020-92-AG-DGAS	30/6/1992	None	Active
ANA	Power Generation Water Licence RD 0029-92-AG-DGAS	17/7/1992	None	Active
ANA	Population Industrial Water Licence RA 0014-92-SRP-DGA/RN Y DR SAS	13/12/1992	None	Inactive
ANA	Power Generation Water Licence RA 001-93-DGA-SRPRN	15/2/1993	None	Active





Authority	Obligation/Licence	Date of Issue (DD/MM/YYYY)	Expiration Date (DD/MM/YYYY)	Status
ANA	Population Camp Water Licence RA 011-98-AG-DSRAP/INRENA-ATDRP	9/7/1998	None	Inactive
MINAGRI-ANA	Power Water Use Licence (Modification Ar1) RD 127-2006-AG-DRA-P-A-TPDR	22/12/2006	None	Inactive Modified
MINAGRI-ANA	Water for Population Use Licence (Modification Ar1) RD 125-2006-AG-DRA-P/ATPDR	22/12/2006	None	Inactive Modified
MINAGRI-ANA	Water for Mining Use Licence (Modification Ar1) RD 126-2006-AG-DRA-P/ATPDR	22/12/2006	None	Inactive Modified
ANA	Approval of Ownership Change to MAP - Water for Population Use Licence RD 264-2015-ANA-AAA-X-MANTARO	6/4/2015	None	Inactive
ANA/AAA-HUALLAGA	Approval of Ownership Change to MAP - Power Use RD 086-2016-ANA/AAA-HUALLAGA	11/2/2016	None	Not Applicable
ANA	Approval of Ownership Change to MAP - Water for Mining Use Licence RD N° 399-2016-ANA/AAA-HUALLAGA	13/6/2016	None	Inactive
ANA	Approval of Ownership Change to Nexa El Porvenir- Surface Water for Mining Use RA 322-2019-ANA-AAA-HUALLAGA-ALA ALTO HUALLAGA	3/10/2019	None	Active
Mine Closure Plans				
MINEM-DGAAM	El Porvenir Mine Closure Plan Approval RD 166-2009-MEM/AAM	17/6/2009	9/15/2019	Active Renewable
MINEM-DGAAM	El Porvenir Mine Closure Plan First Amendment RD 286-2011-MEM/AAM	15/9/2011	9/15/2019	Active Renewable
MINEM-DGAAM	El Porvenir Mine Closure Plan Update RD 034-2013-MEM/AAM	30/1/2013	9/15/2019	Active Renewable
MINEM-DGAAM	El Porvenir Mine Closure Plan Second Amendment RD 277-2016-MEM/DGAAM	15/9/2016	9/15/2019	Active Renewable





Authority	Obligation/Licence	Date of Issue (DD/MM/YYYY)	Expiration Date (DD/MM/YYYY)	Status
Tailings Management				
MINEM-DGM	Beneficiation Concession for the Tailings Storage Facility RD 280-97-EM/DGM	12/8/1997	None	Active
MINEM-DGM	Beneficiation Concession for the Tailings Storage Facility RD 281-97-EM/DGM	12/9/1997	None	Active
MINEM-DGM	Construction Authorization for Expansion of Tailings Storage Facility to Dam Elevation 4,043 RD 178-2010-MEM	7/4/2010	None	Active
MINEM-DGM	Authorization for Operation of Tailings Storage Facility to Dam Elevation 4,043 RD 356-2010-MEM-DGM/V	18/9/2010	None	Active
MINEM-DGM	Modification of Schedule for Expansion of the Tailings Storage Facility RD 252-2014-MEM-DGM/V	9/7/2014	None	Active
MINEM-DGM	Construction Authorization for New Components of Tailings Line from Profile Alignment Station 1+524m to El Porvenir Tailings Storage Facility RD 0584-2014-MEM-DGM/V	29/12/2014	None	Active
MINEM-DGM	Authorization for Operation of El Porvenir Tailings Storage Facility to Dam Elevation 4,047 and Expansion of the Beneficiation Concession "Aguiles 1 Accumulation" to 183.28 ha RD 612-2015-MEM/DGM	12/6/2015	None	Active
MINEM-DGM	Authorization for Operation of Tailings Pipeline El Porvenir RD 194-2015-MEM-DGM-DTM/PB	19/6/2015	None	Active
MINEM-DGM	Authorization for Operation of New Components of Tailings Line from Profile Alignment Station 1+524m to El Porvenir Tailings Storage Facility RD 0251-2015-MEM-DGM/V	19/6/2015	None	Active
MINEM-DGM	Authorization for Operation of Tailings Storage Facility Expansion to Dam Elevation 4,048.5 RD 0499-2016-MEM-DGM/V	18/8/2016	None	Active



Authority	Obligation/Licence	Date of Issue (DD/MM/YYYY)	Expiration Date (DD/MM/YYYY)	Status
MINEM-DGM	Construction of Tailings Storage Facility Expansion to Dam Elevation 4,100 and Secondary Embankment at the Process Plant Side RD 006-2017-MEM-DGM/V	9/1/2017	None	Active
MINEM-DGM	Authorization for Operation of Tailings Storage Facility Expansion to Dam Elevation 4,056 and Extension of Diversion Channel RD 828-2017-MEM-DGM/V	25/9/2017	None	Active
MINEM-DGM	Authorization for Operation of Tailings Storage Facility to Dam Elevation 4,060 RD 0498-2019-MEM-DGM/V	7/10/2019	None	Active

17.1.3.2Future Permits and Authorizations

The main future permits to be obtained by Nexa for the implementation of the Cerro Pasco Complex integration include (Hatch, 2024):

- Modification of the EIA for El Porvenir (environmental certification)
- Amendment to the El Porvenir Mine Closure Plan to reflect the integration of both mining units and the modification of the EIA
- Water use authorization
- Renewal of industrial effluent discharge authorization

The effluent discharge authorization involves carrying out an assessment of the treatment system for discharge at monitoring stations 5MM and 6MM.

An independent technical evaluation of key components of the Cerro Pasco Complex Integration project was completed in early 2024 considering both El Porvenir and Atacocha. It included, among others, the TSFs, social risks and permitting (Hatch, 2024). No fatal flaws were found by Hatch. The evaluation resulted in a number of findings and recommendations to be considered by Nexa to derisk the Cerro Pasco Complex Integration project.

It is noted that the authorization for discharge of industrial effluent is expired. Nexa informed that the file for renewal of the authorization is under review by the environmental authority (Hatch, 2024).

Nexa should track closely the action items identified for obtention of new permits and renewal of expired permits required for the Cerro Pasco Complex Integration project and follow up on the status of progress regularly to prevent possible delays in the submission of permitting applications. Completion of permitting approvals within the project schedule developed by Nexa is critical to the success of the Cerro Pasco Complex Integration. There is a level of uncertainty regarding the amount of time required by the authorities for review and approval of permitting applications. In order to mitigate the risk of delayed approval, Nexa should initiate the first steps

of the approval process for the main permits as early as possible (for example, the engineering design and the baseline field work) in order to build a buffer in the schedule.

17.1.3.3 Permitting Schedule

The main permits required for the implementation of the Cerro Pasco Complex Integration project are the modification of the EIA and the associated modification of the Mine Closure Plan for El Porvenir. The modification of the EIA from beginning to end, culminating with the approval, is anticipated to take approximately three years. This period includes the field work (collection of baseline data), development of supporting studies, the preparation of the EIA report, the submission of the report to SENACE, and the evaluation period involving the review from SENACE followed by Nexa addressing the comments resulting from the review. The review process is anticipated to take approximately one year but it could take less or longer.

Nexa initiated work on the EIA amendment during Q4 2023. Its approval by late Q1 or early Q2 2027 represents the critical path for the Cerro Pasco Complex Integration project from an environmental permitting perspective. Other environmental management instruments such as new ITS submissions and the Mine Closure Plan amendment have a shorter process of completion to receive approval from the regulators.

There is a high level of uncertainty associated with the actual duration of the review and approval period due to staffing issues SENACE and adjustments to its review and approval processes. As a mitigation measure, Nexa has included additional time in its permitting schedule for the Cerro Pasco Complex Integration project to carry a contingency for the permitting process. In addition, SLR understands that the storage capacity of the El Porvenir TSF will provide additional contingency by allowing to continue disposal of tailings at the El Porvenir TSF for approximately six months beyond the timeline set for approval of the EIA amendments for the two mining units.

17.1.4 Social or Community Requirements

17.1.4.1 Social Setting

The El Porvenir mine is located in the central Andes mountains region of Peru, specifically in the district of San Francisco de Asís de Yarusyacán, in the province of Pasco, Peru. The mine is situated 13 km from the town of Cerro de Pasco.

Its area of influence encompasses the rural communities and populated centers listed at the end of Section 17.1.1.1.

17.1.4.2 Key Social Issues

Regarding social issues for the Cerro Pasco Complex, Nexa's social team has noticed an increasing population around its operations (due to the influx of newcomers) and the overall perception of contamination from the mine operations, especially lead-related contamination to water bodies. The Cerro Pasco Complex project may increase expectations from the local communities in terms of contracting, employment, training and community investment opportunities (e.g., water, health, housing, and community infrastructure-projects). As of September 2023, El Porvenir had approximately 322 open commitments agreed with the communities from its area of influence (Nexa, 2023).

According to the annual report for 2023 issued by Nexa Resources Peru, one of the key risks for the Cerro Pasco operations (both El Porvenir and Atacocha mining units) is social conflict with communities within the area of influence, which can lead to blockades and in turn could result in



operation interruptions and reputational damage. There is precedent for such conflict given that blockades organized by communities have taken place in the past and as recently as last year (2023) leading to short suspensions of operations.

The company has implemented the following mitigation measures to counterbalance this risk (Nexa Resources Peru, 2024):

- Mapping stakeholders to avoid, identify and alert potential conflicts proactively
- Having a commitment tracking tool to register and track the implementation of commitments
- Conducting ongoing and proactive dialogue with local stakeholders to ensure adequate and timely information.

17.1.4.3 Social Management System

At a corporate level, Nexa has adopted the International Integrated Reporting Council (IIRC) guidelines and the Global Reporting Initiative (GRI) standards. The IIRC guidelines promote a cohesive and integrated approach to reporting on organizational activities. The GRI standards provide best practices for public reporting on economic, environmental, and social impacts to aid Nexa and its shareholders in understanding their corporate contribution to sustainable development. Nexa reported on these standards in its most recent annual report for 2023 (Nexa Resources Peru, 2024).

According to the annual report for 2022 issued by Nexa, the company seeks to create a positive legacy in host communities and maintain a constant and close dialogue with them, working towards building a positive relationship with stakeholders. Nexa's ESG strategy is built around nine Environment, Social and Governance pillars. The Social Component includes the following four pillars (Nexa, 2023):

- People and Culture focuses on training and development and building a diverse, inclusive, and plural company.
- Health, Safety and Well-Being seeks to build a robust safety, health and well-being culture and environment.
- Social Legacy includes two sub-pillars: (i) Local Development, and (ii) Social License to Operate
- Human Rights to ensure compliance with international and local human rights practices.

The Social Legacy pillar is built around local development and the social license to operate sub-pillars. While local development aims to support income generation in host communities towards economic and social empowerment, the social license to operate is a desired outcome to be recognized as a trusted company by stakeholders.

Regarding Human Rights, Nexa became a signatory of the United Nations Global Compact and has developed training and procedures to avoid and prevent human rights violations. Nexa Resources is committed to respecting and complying with the requirements of ILO 169 (Indigenous and Tribal Peoples Convention, 1989) and the host country's regulations. It also strives to obtain the free, prior and informed consent of Indigenous Peoples in the locations it operates. In these territories, Nexa's approach is to have formal social investment agreements with local communities validated by the community's own governance as required by the laws of Peru for the collective lands of original communities (Nexa, 2023).





Nexa has a Corporate Compliance Program to guide Nexa's employee's behaviour and interactions with stakeholders. The Compliance Program includes the following policies and procedures:

- Code of Conduct
- Compliance Policy
- Anti-Corruption Policy
- Antitrust Policy
- Policy on Preventing Money Laundering and Terrorist Financing
- Disclosures Policy
- Insider Trading Policy
- Integrated Management Policy
- Information Security Policy

Specifically, for El Porvenir mine, a social baseline description, assessment of socio-economic impacts, and identification of mitigation/enhancement measures have been carried out to mitigate negative impacts and maximize positive benefits of the mine. These components are generally consistent with social impact assessment practices. A Community Relations Plan has been developed (included in the EIA amendment from 2011) outlining objectives, strategies and specific indicators for the following programs: information and communication; support to social projects and productive investment projects; health services; education; technical training; training for social and environmental participatory monitoring; promotion of environmental awareness; compensation for land use; and improvement of houses in surrounding communities.

Nexa has a permanent information office dedicated to receiving, managing, and addressing complaints, claims, questions and information requests from the communities. To be proactive, Nexa has also developed a communications program that involves the following activities (SLR, 2021):

- Distribution of informative material (Quarterly)
- Social concern monitoring (Quarterly)
- A complaint management process aimed at preventing and managing possible social conflicts in the area
- Meetings with local authorities (Quarterly)
- Guided tours (Quarterly)

Nexa Resources Peru has a Social Management Team of approximately 10 people led by a Social Manager and three Superintendents. They are accountable for building and maintaining positive relationships with local communities for Peru's operations (Nexa Resources Peru, 2023a).

17.1.4.4Community Engagement and Agreements

Nexa works closely with the communities in the area of influence, respecting their internal governance through their elected representatives and authorities when engaging with them for an environmental license or social negotiation. In addition, Nexa encourages local communities



to raise questions and concerns independently through its permanent offices or virtual communication.

SLR understands that Nexa has undertaken three community consultation activities for each of its mining units in Peru, including El Porvenir, and the recurring topics raised are local employment and contracting, monitoring of social commitments, local environmental monitoring, and social investment. In 2023, Nexa used a variety of stakeholder engagement mechanisms such as meetings with local leaders, public consultation activities, surveys and interviews, public participation committees, and environmental participatory monitoring to inform, receive feedback and involve local stakeholders in their activities (Nexa Resources Peru, 2024).

El Porvenir has signed agreements with Comunidad San Francisco de Asís de Yarusyacán y Comunidad Cajamarquilla associated with rights to land from the communities.

Regarding land use-related agreements/payments such as rights of way or usufruct with local communities, El Porvenir spent S/2,461,000 sol in 2023 to accommodate its operation expansions.

Nexa funds social investment initiatives in education, capacity building and training, water and sanitation, healthcare, transportation, and infrastructure. In 2023, El Porvenir spent approximately S/6,418,971 sol in social investment initiatives for communities within the area of influence.

Examples of social investment include the construction of a sports centre in the San Juan de Milpo community, the delivery of career counselling workshops for 69 senior high students, and the provision of music, computer, English and sports workshops for students of the San Juan de Milpo school (Nexa Resources Peru, 2024).

SLR understands that Nexa has a grievance mechanism for receiving local community questions, concerns, and complaints. In 2023, El Porvenir received 95 questions and 58 concerns and complaints. They were related to subcontractors, project updates, compensation, and environmental concerns (Nexa Resources Peru, 2024).

17.1.4.5Indigenous Peoples

According to the annual report for 2022 issued by Nexa, El Porvenir and Atacocha's mines are close to Quechuas populations, which were recognized as indigenous by the Peruvian government after Nexa started operation of those mines in Peru.

The indigenous communities are identified in Nexa's social relationship strategies. In some cases, they own the surface rights for land where Nexa carries out mining activities and receive compensation under agreements and contracts (Nexa, 2023).

Nexa is planning to carry out an evaluation of which communities in the surroundings of the El Porvenir and Atacocha operations meet the regulatory criteria for indigenous communities.

17.1.4.6Local Procurement and Hiring

SLR understands that local hiring is a key priority for Nexa as a mechanism to create value and deliver economic benefits to the local communities in the area of influence. The community relations team is accountable for proposing candidates from the direct and indirect areas of influence to Nexa and its subcontractors to meet their unskilled workforce demands.

In 2023, Nexa experienced an increase in local hiring for its three mine operations in Peru (El Porvenir, Atacocha, and Cerro Lindo). In 2023 El Porvenir employed 927 local workers from



which 131 were employed by El Porvenir directly, and the remaining 796 workers were employed by its subcontractors (Nexa Resources Peru, 2024).

For the Cerro Pasco Complex, Nexa has declared local hiring commitments with eight local communities. Nexa has specific local hiring targets with Anexo San Juan de Milpo (30%) and Comunidad Matriz San Francisco de Asis de Yarusyacan (60%). To date, community members from Comunidad Matriz San Francisco de Asis de Yarusyacan represent 21% of the total local hires for the Cerro Pasco Complex.

As with local hiring, Nexa prioritizes local contracting to maximize benefits for local communities. Seven local businesses are serving the Cerro Pasco Complex. Approximately 50% of the workforce these local businesses hire are community members. Of note, 100% of the workforce hired by ECOSEM Yanapampa, owned by Anexo Yanapampa, is from the community (Nexa Resources Peru, 2023b)

In 2023 El Porvenir spent approximately S/347,527 sol on local purchases and support to community businesses (Nexa Resources Peru, 2024).

17.1.5 Mine Closure Requirements

17.1.5.1 Mine Closure Plan and Regulatory Requirements

The Mine Closure Plan is periodically updated over the LOM. A conceptual Mine Closure Plan was prepared in 2006 for the Mine components within the context of the Peruvian legislation (KCB, 2006) and has subsequently been amended or updated four times. The Mine Closure Plan addresses temporary, progressive, and final closure actions, and post-closure inspection and monitoring. Under Article 20 of the Peruvian mine closure regulations, the first update of the Mine Closure Plan must be submitted to the Peruvian Ministry of Energy and Mines three years after approval of the initial Mine Closure Plan, and every five years thereafter. Two years before final closure, a detailed version of the Mine Closure Plan will have to be prepared and submitted to the Peruvian Ministry of Energy and Mines for review and approval. The following is a summary of the El Porvenir Mine Closure Plan updates and modifications to date:

- Initial Closure Plan approved in 2007 by R.D. No. 318-2007-MEM/AAM and prepared according to the modification of Supreme Decree D.S. No. 033 2005 EM (Mine Closure Law).
- Feasibility level Mine Closure Plan approved in 2009 by R.D. No. 166-2009-MEM-AAM.
- First amendment to the Mine Closure Plan approved in 2011 by R.D. No. 286-2011-MEM-AAM.
- Update of the Mine Closure Plan approved in 2013 by R.D. No. 034-2013-MEM-AAM.
- Second amendment to the Mine Closure Plan approved in 2016 by R.D. No. 277-2016-MEM-AAM.
- Third amendment to the Mine Closure Plan prepared in January 2020 and submitted to the Peruvian Ministry of Energy and Mines for approval.

The Conceptual Mine Closure Plan approved in 2007 (KCB, 2006), the R.D. from 2009, the update to the Mine Closure Plan approved in 2013 (Schlumberger Water Services, 2012), and the third amendment to the Mine Closure Plan (KCB, 2020) were available for review.

The Third amendment to the Mine Closure Plan includes five years of progressive closure (2021 to 2025), two years of final closure (2026 and 2027), and five years of post-closure (2028 to



2032). Post-closure monitoring, assumed to extend for five years after closure, will include monitoring of physical, geochemical, hydrological, and biological stability.

The specific objectives of the El Porvenir Mine Closure Plan are as follows:

- Health and safety – Assure public health and safety during execution of closure and post-closure activities, recovering the original environmental quality of the surroundings and developing feasible rehabilitation works from a biological, technical and financial perspective. Protect the human health and the environment by maintaining physical and chemical stability of Mine components.
- Physical stability – Geotechnical stability of earth structures implementing designs that minimize short term and long term risks of failure following the applicable Peruvian legislation and best international practices.
- Geochemical stability – Feasibility design of encapsulating covers for hazardous materials and materials with potential to cause contamination of the environment. The covers should be designed to employ local materials with physical and geochemical characteristics resistant to degradation and erosion through time. The covers should be compatible with the landscape, favourable to the growth of local vegetation species.
- Hydrological stability – Adequate management of surface runoff. Design flows with adequate return period according to the applicable Peruvian legislation should be evaluated. The need for closure water management structures should be identified.
- Land use – Recovery of original levels for ground surface to the extent feasible in order to make it compatible with predevelopment land uses in the project area.
- Waterbodies use – Maintain equilibrium in the micro basins located in the mine area, preserving water quantity and quality, and implementing adequate water management.
- Social objectives – Minimize socio economic impacts creating conditions that promote sustainability for the social stakeholders through execution of social programs.

The Mine Closure Plan promotes to the extent feasible a passive condition that minimizes the efforts required for care and maintenance of the closed Mine components during post-closure.

The closure criteria for each component of El Porvenir are defined according to the following aspects:

- Dismantling
- Demolition, salvage and disposal
- Physical stabilization
- Geochemical stabilization
- Hydrological stability (water management)
- Re-establishing the landscape contour
- Re-vegetation
- Rehabilitation of aquatic habitats
- Social programs
- Post-closure maintenance and monitoring



The Mine Closure Plan concentrates on the decommissioning and closure of primary facilities and elements of infrastructure at El Porvenir, which include:

- Underground mine and associated portal, ventilation shafts, support facilities, and underground infrastructure
- Processing facilities (concentrator plant and associated infrastructure)
- WRDs
- TSF
- Water management facilities and infrastructure
- Borrow areas and quarries
- Mine camps (San Juan de Milpo and Carmen Chico) and administrative buildings
- Access roads
- Ancillary buildings

Ancillary infrastructure including among others:

- Electrical and ventilation systems
- Transportation systems
- Communication systems
- Domestic waste landfill
- Waste management facilities.
- Organic waste management facilities
- La Candelaria Hydroelectric Plant
- Power transmission lines and electrical sub-stations
- Topsoil deposits

A summary of the main proposed closure activities is presented in Table 17-4. Of note, the water supply to the San Juan de Milpo community from the Carmen Chico spring will be retained during post-closure.

Table 17-4: Summary of Main Closure Activities

Mine Component		Closure Activities
Mine	Underground mine	Redirection of underground mine water discharge towards the TSF. Flooding of underground works (recovery of phreatic level). Plugging or filling of mine openings. Disconnection, dismantling and removal of equipment and water management infrastructure. Soil sampling to evaluate contamination. Excavation/removal of contaminated material (including concrete) for appropriate disposal.





Mine Component		Closure Activities
Waste disposal facilities	La Quinua WRD	Slope contouring for physical stability. Cover installation and revegetation. Construction of an erosion prevention structure on the slope adjacent of the Huallaga River.
	TSF	Dam reconfiguration, if required for physical stability. Leveling and recontouring of the disposed tailings surface. Cover installation to prevent oxidation of the deposited tailings. Re-vegetation. Replacement of the overflow tunnel with a closure overflow spillway that discharges surface runoff to the Milpo Creek. Improvements to the drainage system near the confluence of the Milpo Creek and the Lloclla River to prevent flooding the area of the San Miguel community.
Other infrastructure	Concentrator plant Shops Water management infrastructure Power transmission lines Hazardous waste storage areas Access roads La Candelaria Hydroelectric Plant	Dismantling, demolition, salvaging and disposal of structures. (Donation of facilities to the local community will be considered on grounds of safety). Disposal of concrete in the underground mine. Removal of equipment for recycling, salvaging or disposal. Removal of contaminated soils. Transportation to authorized disposal areas. Cleaning and purification of tanks and deposits. Removal of Socorro pond. Recontouring of terrain and re-vegetation. Sale of the hydroelectric power plant to a third-party that could continue the power supply to local communities.
Staff facilities	Mine camp Administrative buildings Potable water and septic systems	Mobilization of equipment, machinery, and personnel. De-energization. Dismantling and removal of structures and equipment to authorized disposal areas. Dismantling and demolition of concrete structures for disposal in the underground mine. Recontouring of terrain and re-vegetation.

It is noted that the design criteria for the El Porvenir TSF closure planning have been defined according to Peruvian Standards, which are less stringent than Canadian dam safety guidelines. For example, the El Porvenir TSF dam has been designed to meet stability requirements for a 2,500-year return earthquake with estimated peak ground acceleration of 0.4 times the acceleration due to gravity, which is significant. Post-seismic stability analyses for El Porvenir dam were carried out by Ausenco (2016) to demonstrate dam stability but no information was provided related to the risk of failure of the emergency spillway inlet control structure and the





potential for liquefied tailings release through the spillway tunnel. The ultimate tailings level is some 50 m above the spillway tunnel invert.

The El Porvenir TSF emergency spillway has been designed to pass the Probable Maximum Flood resulting from 146 mm of precipitation in 6 hours, which is appropriate given the size of the dam. It is not clear that the post closure flood routing assumed the perimeter watershed diversion channels would still be in service in the long term. The risk of diversion channel blockage and potentially higher inflows to the TSF should be evaluated with additional freeboard added to the dam crest, if required, to ensure the dam is not overtopped.

A comprehensive dam safety review is recommended in support of operation in future years and in order to finalize the detailed closure plan prior to moving into the closure stage.

Physical, chemical, hydrological, and biological stability conditions following closure will be verified through implementation of the post-closure maintenance and monitoring program. Monitoring will also support the evaluation and verification of compliance with closure activities, and the identification of deviations leading to the adoption of corrective measures. The monitoring activities will be carried out considering the Peruvian Environmental Quality Standards and Maximum Permissible Limits, as well as criteria set in the Mine Closure Plan for physical, chemical, hydrological, and biological stability.

No specific details of the post-closure monitoring programs for physical stability, water quality, biology and social were found in the Mine Closure Plan reports provided to SLR. Hence, SLR recommends to either confirm if these programs have been sufficiently advanced at a concept level or if details should be incorporated to the next update of the Mine Closure Plan for El Porvenir. As a minimum, it is recommended that post-closure monitoring programs include the following:

- Specific activities and frequency to monitor physical and hydrological stability (mainly focused on inspections).
- Locations and frequency for water quality sampling (surface water and groundwater).
- Biology campaigns and frequency.
- Indicators to track progress with social initiatives and programs implemented during the operations phase towards achieving social objectives at closure and post-closure.
- Proposed documentation and reporting.

17.1.5.2 Closure Cost Estimate and Financial Assurance for Closure

A closure cost estimate was developed and included in the Mine Closure Plans. The total value estimated in 2020 for the remaining LOM presented in the third amendment to the Mine Closure Plan is as follows (excluding local taxes):

- Progressive Closure (2021 to 2027) US\$10,990,121
- Final Closure (2028 to 2029) US\$12,583,266
- Post-Closure (2030 to 2034) US\$ 1,622,646
- Total US\$25,196,033

According to Supreme Decree D.S. N° 262-2012-MEM/DM, the financial assurance is calculated based on inflation and discount rates in order to estimate the net present value (NPV) for the mine closure cost. The total financial assurance (progressive closure, final closure, and post closure) calculated in 2020 considering an inflation rate of 2.37% and a discount rate of





2.14%, is US\$20,635,472 (including local taxes). A detailed breakdown of the cost estimate is provided in the third amendment to the El Porvenir Mine Closure Plan (KCB, 2020). The closure cost estimate was not reviewed by SLR for this TRS.

17.1.6 Qualified Person’s Opinion on the Adequacy of Current Plans to Address any Issues Related to Environmental Compliance, Permitting and Local Individuals or Groups

In the SLR QP’s opinion, the Environmental Management Plan at El Porvenir is adequate to address potential issues related to environmental compliance according to the commitments captured in the regulatory permitting approvals.

No issues or concerns associated with environmental permitting planning were identified by the SLR QP based on the documentation provided by Nexa to SLR for review, and a meeting held with Nexa staff in support of this TRS. Nexa’s Environmental Management Superintendent for El Porvenir and Atacocha understands well the environmental permitting requirements and has developed a tracking matrix that identifies the key components of each permit, corrective actions to be implemented to be in compliance, and the status of implementation of each action. All action items are qualified according to a ranking of criticality established (low, medium and high) for continuity of the operation.

In the SLR QP’s opinion, the plans developed as part of the Social Management System are adequate to pursue positive relations with the communities located in the area of influence, promote social benefits, and contribute to reduce social risk for the El Porvenir operations.

17.2 Atacocha

17.2.1 Environmental Aspects

17.2.1.1Environmental Setting

Environmental baseline studies have been completed as part of the EIA. The detailed baseline characterization is included in the EIA reports. A summary of the existing conditions in the Atacocha area is presented below, sourced from RPA (2019).

Terrain

Topographical relief comprises deep, long, narrow valleys with steep slopes. Some rivers cross through the area and have moderate slopes and some scattered peaks. The main valley has a general inclination from south to north. The Atacocha processing plant is located near the Huallaga River valley (3,600 MASL) surrounded by rugged hills/mountains.

Climate

The climate is cold and dry throughout the year, which is typical of the Central Andes Mountain Region. The rainy season occurs from December to April. From June to August there are generally minimal rainfalls. Based on data from the Cerro de Pasco regional meteorological station operated by the government, the average temperature ranges from 4°C in July to 6°C in November; the maximum monthly precipitation is 163 mm in February and the minimum monthly precipitation is 18 mm in July.

Air Quality

Air quality has been characterized using records from seven monitoring stations for the period 2012 to 2016. The monitoring results are compared against national environmental quality



standards (R.M. No. 181 2016 MINAM). According to SRK (2017), particulate material less than 10 µm (PM10), less than 2.5 µm (PM2.5), and Ozone (O₃) rates as "Good" for the 2011-2016 in all cases, except for some measurements which qualify as "Moderate". The concentrations of the variables Carbon Monoxide (CO), Nitrogen Dioxide (NO₂), Sulfur Dioxide (SO₂) and Hydrogen Sulfide (SH₂)₂ are all classified as "Good" quality. No values have been registered that indicate "Poor" quality, nor "Threshold of care".

Surface Water Quality

Surface water quality monitoring is conducted at eight sampling locations in three natural waterbodies (i.e., Atacocha Creek, Lalaquia Creek and Huallaga River). Three of these stations are located upstream of the mining activities (one on each waterbody) and the rest are located downstream. Surface water quality is compared with the national environmental quality standards for water (D.S. No. 015 2015 MINAM, D.S. No. 004 2017 MINAM) for irrigation of high and low stem crops (class 3--D1), animal beverage (class 3-D2) and conservation of the aquatic environment (class 4-E2). The environmental standards correspond to "Uses of Water" and do not seek to establish Maximum Permissible Limits for watercourses given that natural watercourses, even those exempt from any anthropogenic influence, do not necessarily meet the values established by the environmental standards (SRK, 2017).

Results from monitoring conducted in 2015 and 2016 showed concentrations of manganese and lead that exceed the national environmental quality standards for class 3 and 4; and concentrations of Cadmium, Thallium, Zinc, and Nickel for class 4. There were also exceedances in parameters such as pH, conductivity and total suspended solids. Monitoring results from 2018 showed exceedances for Manganese, Lead, Cadmium, and Zinc. The water quality analysis included in the 2018 EIA presented an individual discussion for each parameter explaining how the exceedances are associated with geological and morphological conditions inherent of the mine location. It is noted that exceedances are observed for short periods of time and are not simultaneously happening for all the monitored parameters.

Effluent Water Quality

It is noted that effluent water quality is monitored at two locations: discharge from the sediment pond to the Huallaga River, and treated sewage discharge. The water quality at the effluent discharge locations complies with the maximum permissible limits established by the current Peruvian Legislation (D.S. No. 010-2010-MINAM and D.S. No. 003-2010-MINAM). Monitoring results from 2018 showed no exceedances.

Groundwater Quality

Groundwater quality standards from Brazil and Dominican Republic are used by the Peruvian Ministry of Energy and Mines for evaluation of compliance in absence of similar standards for Perú.

Groundwater quality monitoring conducted between 2014 and 2016 upstream of the Atacocha TSF showed concentrations of fluoride and of several total metals (Aluminum, Manganese, Nickel, Zinc, Arsenic and Iron) exceeding the environmental quality standards of Brazil and Dominican Republic. The monitoring conducted downstream of the Atacocha TSF showed short term exceedances of iron and lead (SRK, 2017).

Groundwater quality monitoring was conducted in 2018 at two locations equipped with piezometers, downstream of the Atacocha TSF. The monitoring results showed exceedances of Arsenic, Iron, Manganese, and Turbidity in one of the two piezometers. The water quality analysis completed by Nexa in December 2018 proposes the installation of monitoring locations

upstream of the tailings storage facility to understand the comparative influence of seepage on the water quality results.

Soils

There are two types of soils in the mine site area, mineral and organic, derived from residual and transported soils. Actual land use corresponds to five categories: private facilities (mining activity), natural pastures, arboreal vegetation, terrain with hydromorphic vegetation (areas located in wet environments), and lithic outcrops (rock outcrops in top and hillside of mountains).

Soils at the site have concentrations of arsenic, cadmium and lead that exceed the national environmental quality standards (D.S. No. 002-2013-MINAM), at some sampling points; these high values could be attributed to the local lithology (SRK, 2017).

Noise and Vibrations

Ambient noise has been characterized using records from seven monitoring stations for the period 2012 to 2016. Exceedances were registered in three stations when comparing the monitoring results against the national environmental quality standards for Residential Zone. The exceedances were attributed in the 2018 EIA to human activities and vehicular traffic. The ambient vibrations monitored at 18 locations meet the national environmental quality standards.

Aquatic Biology

According to SRK (2017), the only reported fish species, *Orestias agassizii*, is not registered in any national conservation category. Likewise, two species of macrophytes have been reported and none have been registered with any category of national (D.S. No. 004-2014-MINAGRI) or international conservation (CITES 2017, IUCN 2016.3).

Terrestrial Biology

According to SRK (2017), the fauna is represented by 10 species of mammals; 24, of birds; one specie of amphibian; and 51 taxa of insects. It is worth mentioning that some species such as camelid and sheep cattle belonging to residents of areas bordering the project have been introduced. None of the species reported are categorized as threatened by the national standard (D.S. No. 004-2014-MINAGRI) nor international lists (CITES 2016 and IUCN 2016.I). Nevertheless, consider that two species of rodents are endemic for Peru: *Akodon juninesis* and *Calomys sorellus*.

A total of 112 species of vascular flora have been registered. It is worth mentioning that some species corresponding to vegetation of rural areas have been introduced.

According to international criteria for endangered species only one specie has been recorded: the *Plantago*, of Minor Concern, according to IUCN 2016.1. As to the national standard, D.S. No. 043-2006-AG, four species were registered as Endangered: *Perezia pinnatifida*, *Ephedra rupestris*, *Buddleja coriacea* and *Buddleja incana*. The first two species are native and the *Buddlejas* have been introduced / naturalized and were reported only in ruderal areas as part of the grassland. Likewise, the national standard recognizes *Chuquiraga spinosa* as a species Near Threatened (NT), reported associated with rocky areas at high altitude that provide a favorable microclimate for its development.

There is no evidence of endemic species as to the Red Book of Endemic Species of Peru (Leon et al, 2006).

Metals in Plant and Animal Tissue

According to SRK (2017), concentration of metals in fish tissue (*Orestias agassizii*) exceed international standards for arsenic, lead, antimony and zinc, such as European legislation (European Commission, 2005), Brazilian legislation (Brazil, Laws, etc., 1965), and FAO (Nauen C. E., 1983) for the content of metals in fish for direct human consumption; these same elements are also highly concentrated in the macrophytes and in sediments (exceeding the Canadian standards); also, the concentration of arsenic, lead, and zinc in vegetal tissue in *Mimulus glabratus* and *Cardamine bonariensis* surpasses those referred by the Mercosur Technical Regulation, WHO and FAO (2008) as corresponds.

Sensitive Areas. The Atacocha mine does not overlap with any recognized protected or sensitive areas.

Social

The direct area of influence of the mine encompasses the following rural communities:

- Comunidad de San Francisco de Asís de Yarusyacán,
- Comunidad de Cajamarquilla,
- Comunidad de San Antonio de Malauchaca, and
- Comunidad de Ticlacayán.

17.2.1.2 Environmental Studies and Management Plans

SLR has been provided with the following documents and reports to conduct its review:

- Regulatory technical report regarding the evaluation of the second modification of the EIA for the expansion of the Atacocha mineral processing plant to 5.000 tonnes per day (SENACE, 2018)
- Environmental Management Strategy included in the second modification of the EIA for the expansion of the Atacocha mineral processing plant to 5.000 tonnes per day (SRK Consulting, 2018)
- Regulatory report regarding the evaluation of the Second Supporting Technical Report (Segundo Informe Técnico Sustentatorio in Spanish) for Introduction of Technical Improvements to the Concentrator Plant (SENACE, 2020)
- Regulatory report regarding the evaluation of the Third Supporting Technical Report (Tercer Informe Técnico Sustentatorio in Spanish) for Introduction of Technical Improvements to the Concentrator Plant (SENACE, 2021)
- Environmental Management Plan included in the Third Supporting Technical Report
- Quarterly environmental monitoring reports for 2022 and 2023
- Sustainability reports for Atacocha for 2021 and 2022
- Emergency response plan for Atacocha

Same as El Porvenir, Atacocha is managed according to the environmental and closure considerations presented in four type of documents, which must be approved by directorial resolutions (RD for its acronym in Spanish) from the Peruvian government (see Section 17.2.3):

- Environmental Adjustment and Management Plan
- EIA and subsequent modifications
- Supporting Technical Reports (ITS for its acronym in Spanish)



- Mine Closure Plan

Various Environmental Impact Assessments (EIA) and modifications have been submitted and approved between 2005 and 2018. The most recent modifications involve the implementation of a new power transmission line from El Porvenir mine site to the Atacocha mine site, and the expansion of the Atacocha processing plant capacity. Three Supporting Technical Reports have been prepared to date in addition to the EIAs.

The key project effects and associated management strategies, as described in the EIA modification from 2018, are presented in Table 17-5. An Environmental Management Plan including a monitoring program was prepared as part of the Environmental Impact Assessment. The most recent version is part of the Third Supporting Technical Report from 2021. The monitoring program includes air quality and gas emissions, non-ionizing radiation, noise, surface water quality, groundwater quality, springs water quality, effluent discharges water quality, vibrations, soil quality, terrestrial biology (vegetation and wildlife) and aquatic biology.

The environmental monitoring program established at Atacocha and the environmental audits performed annually (aiming to identify critical environmental risks in the operations) are the main tools of the Atacocha's Environmental Management System to track the implementation of high environmental standards and the continuous compliance with the environmental commitments. The environmental audit matrix includes the evaluation of legal requirement audit results, monitoring activities and environmental incidents.

The monitoring program includes the following:

- Air quality at four locations
- Non-ionizing radiation at one location
- Ambient noise at four locations
- Vibrations at three locations
- Surface water quality in receiving water bodies at eight locations
- Groundwater quality at five locations
- Industrial effluent discharge water quality at one location
- Treated wastewater effluent water quality at two locations
- Monitoring of flora at 10 locations
- Monitoring of fauna at 39 locations (11 for mammals, 10 for birds, nine for reptiles and amphibians, and nine for insects)
- Soil quality at eight locations

The environmental monitoring is conducted by an external consultant (SGS del Perú) responsible for preparing quarterly reports for Nexa. The results of the monitoring program are reported quarterly to OEFA and ANA.

The conclusions presented by SGS del Perú in the quarterly reports prepared for Nexa in 2023 are summarized as follows:

- Water quality for industrial effluent discharge was in compliance with maximum permissible limits established in Peruvian norm D.S. No. 010-2010-MINAM.





- Water quality for treated wastewater discharge from domestic use was in compliance with maximum permissible limits established in Peruvian norm D.S. No. 003-2010-MINAM.
- The water quality values measured in receiving water courses (Atacocha Creek, Huallaga River and Lalaquia Creek) are compared against the Peruvian Environmental Quality Standards for water quality established in norm D.S. No. 004-2017-MINAM. The measured values for total metals met the applicable standards for water quality except occasional exceedances for Manganese and Lead at three locations. Exceedances in pH values were identified at all water quality monitoring locations both upstream and downstream of the operations.
- Water quality monitored at two springs was in compliance Peruvian norm D.S. No. 004-2017-MINAM.
- Groundwater quality measured values are compared against the Brazilian Environmental Quality Standards for groundwater quality (norm CONAMA No. 396) because there are no such standards defined by the Peruvian legislation. Groundwater quality values were below the reference values from CONAMA No. 396.
- The non-ionizing radiation values measured at one location are compared against the Peruvian Environmental Quality Standards for non-ionizing radiation established in norm D.S. No. 010-2005-PCM. Non-ionizing radiation was in compliance with the applicable standards.
- Air quality was in compliance with Peruvian norms D.S. No. 074-2001-PCM, R.M. No. 315-96-EM/VMM, D.S. No. 003-2008-MINAM and D.S. No. 003-2017-MINAM.
- Ambient noise was in compliance with Peruvian norm D.S. No. 085-2003-PCM.
- Vibrations were below the reference values from the Peruvian Environmental Guideline for Drilling Blasting in Mining Operations.

Table 17-5: Summary of Key Environmental Effects and Management Strategies

Environmental Component	Potential Impact	Management Strategies
Topography and landscape	Relief alteration Changes in landscape's visual quality	Pre-planning to minimize impact Management of construction activities to minimize impacts (delimitations of work areas, minimization of stripping and earth works, regular inspection) Controlled perforation and blasting Design and monitoring of slope stability Re-conformation of the landscape Revegetation



Environmental Component	Potential Impact	Management Strategies
Soils	Changes to soil uses Changes to soil quality	Rehabilitation of temporary areas used during construction Inherent design measures to minimize soil disturbance Development of topsoil deposits Revegetation Appropriate slope design to prevent landslides Appropriate management of industrial and domestic waste Appropriate management of oils and fuels Appropriate management of hazardous waste Development of spills management plan Prohibition to circulate outside established roads
Surface water	Changes to surface water flows Changes to surface water quality	Environmental controls for construction activities Diversion of non-contact water Collection of contact water and maximization of water re-use in the mine operation Water quality treatment prior to discharging excess contact water to the Huallaga River Sewage treatment Implementation of oil and grease traps Sediment and erosion control measures Regular inspection and maintenance of water management facilities and associated infrastructure Monthly monitoring program for surface flows and water quality sampling (including effluent discharges) Additional geochemistry testing to verify acid generation and leaching potentials of waste rock
Groundwater	Changes to phreatic level Changes to groundwater quality	Reduction of deep infiltration through design features such as geomembrane liners and construction of underdrain systems Monthly monitoring program for water levels and water quality sampling
Air quality	Changes from particulate and gas emissions	Appropriate planning of work fronts to reduce truck circulation frequency and route distances Irrigation of access roads with tanker trucks Controlled perforation and blasting Traffic speed and load control Covered hoppers Regular preventive maintenance of vehicles and motorized equipment Prohibition to circulate outside established roads Revegetation Quaternary air quality monitoring
Noise and vibration	Disturbances resulting from changes to ambient noise levels and generation of vibrations	Use of hearing protection devices Appropriate planning of vehicle circulation Appropriate planning and scheduling of blasting activities Regular vehicle maintenance Control measures to attenuate noise at the sources Quaternary noise and vibrations monitoring

Environmental Component	Potential Impact	Management Strategies
Fish	Changes in abundance and diversity of aquatic species	Inherent design measures to minimize negative impacts to aquatic habitat Meeting water quality standards at points of effluent discharge to the environment Prohibition to dispose of solid or liquid waste in natural waterbodies Prohibition to capture fish in the mine concession area Personnel training Bi-annual monitoring (dry and wet season)
Vegetation	Changes to vegetation cover and diversity of terrestrial flora Changes to sensitive species of wild flora	Fencing of work areas Inherent design measures to minimize disturbance area Revegetation Environmental controls for protection of local sensitive ecosystems (bofedales) Prohibition to collect flora and cut trees Personnel training Rescue of relocation of species as required Bi-annual monitoring (dry and wet season)
Wildlife	Changes in abundance and diversity of terrestrial fauna Alterations to habitat of terrestrial fauna	Inspection prior to construction activities Appropriate fencing and signalling Traffic speed limits Prohibition to capture and or extract fauna Prohibition to hunt Personnel training Rescue of relocation of species as required Bi-annual monitoring (dry and wet season)

17.2.1.3Key Environmental Issues

SLR is not aware of any recent or ongoing environmental issues taking place associated with the Atacocha operations. In the SLR QP's opinion, there are no environmental issues that could materially impact the ability to extract the Mineral Resources and Mineral Reserves based on the review of the available documentation.

17.2.1.4Environmental Management System

Refer to Section 17.1.1.4 of this TRS.

17.2.2 Tailings Disposal, Water Management and Monitoring

17.2.2.1Environmental Geochemistry

Geochemistry information provided for review included two reports from 2015 on laboratory analysis conducted with rock samples taken from the San Gerardo open pit (formerly named Glory Hole), and one report from 2018 on hydrogeochemical modelling based on five samples to characterize the waste rock to be deposited in the Atacocha waste dump.



From the 2015 reports, two samples presented low acid generating potential and one sample presented high acid generating potential. From the 2018 report, the most representative lithologies are non acid generating and show low metal leaching potential. However, sandstones with high sulphide content have potential to be acid generating, and dacites showed inconclusive results.

The detailed design report for phase 5 of the Atacocha waste dump (Ausenco, 2018b), refers to results of static and kinetic testing from 2017 indicating that the waste rock is potentially acid generating.

According to the second modification of the Environmental Impact Assessment (EIA) of the expansion of the Atacocha processing plant (2018), geotechnical analysis from eight samples obtained from the San Gerardo open pit and in pit waste dumps showed uncertain acid generation potential due to the variability of the analysis results. The 2018 EIA also states that there was no acid generation from samples analyzed during a complementary evaluation.

17.2.2.2 Tailings Management

The Atacocha TSF dam has been raised in stages by the downstream method, with a 2H:1V overall downstream slope and a 1.5H:1V upstream slope, which is inherently safer than upstream raising with tailings. SLR is not aware of any issues regarding crest settlements (and none were noted in the monthly dam safety surveillance reports provided to SLR).

SRK (2017) describes the mine waste rock as uncertain with regard to acid generation potential, whereas Ausenco (2018) refers to geochemistry testing that shows the waste rock as acid generating. It is also understood that the first stage of dam raising included a geosynthetic clay liner (GCL) on both the upstream and downstream faces of the dam, and around the perimeter of the TSF (SRK, 2017). Lining both faces of the dam is not conventional and may be an indication of concerns that the mine rock is potentially acid generating (PAG). GCL lining on geogrid support layers around the TSF indicates that karst terrain likely controls TSF seepage and warranted serious concern.

Although the rock from the San Gerardo open pit was characterized as either non-potentially acid generating (non-PAG) or with uncertain acid generation potential, Nexa decided to assume that the latter is PAG rock. According to a teleconference held with Nexa staff on March 14, 2024, the rock used to raise the dam involves both PAG rock and non-PAG rock taken from the San Gerardo open pit. The PAG rock is encapsulated within non-PAG rock when the material is placed for dam raising. Based on the geochemistry evaluation conducted for the San Gerardo open pit, Nexa reportedly understands the location of PAG and non-PAG blocks within the pit, which allows Nexa to segregate the material to be used for dam construction according to the geochemical characterization.

It is noted that Hatch (2024) recommended to avoid PAG material for the construction of the tailings dam in Atacocha, as this may lead to water seepage with low pH and dissolved metal content issues, which would result in seepage flows that need to be collected, treated, and monitored. Additional laboratory testing in support of geochemical characterization of waste rock is recommended to achieve a better understanding of acid generation potential. Hatch also recommended conducting additional tests for tailings characterization because the humidity cell tests were only conducted for 20 weeks instead of a minimum of 40 weeks. This means that the data are less useful for assessing potential water quality issues, which may take longer to manifest in the test.





Given that the Atacocha dam has already been raised to the permitted crest elevation of 4,128 MASL, additional testing and characterization will be conducted by Nexa as part of the permitting process to obtain regulatory approval for a dam crest elevation of 4,155 MASL.

Tailings disposal at Atacocha is performed in subaerial conditions which allows a beach with a gentle slope towards the water or supernatant pond (settling pond). Tailings deposition planning considers deposition from spigots along the dam crest in such a way that a tailings beach forms in front of the embankment. The minimum beach width targeted by Nexa for operations in the OMS manual is 100 m.

Dam surveillance at Atacocha consists of instrumentation measurements and field inspections. Field inspections (regular routine inspections) are carried out by Nexa personnel responsible for its operation, and monthly by an external consultant (Geoconsultoría). Piezometric data are downloaded monthly. The data are reviewed by an external consultant (Geoconsultoría) on a monthly basis. It is noted that Geoconsultoría has been conducting the monthly reviews for Nexa for various years now, which provides consistency to the review.

Nexa utilizes an Integrated Dam Management System (referred to as SIGBar) which provides guidelines for document management, monitoring, evaluation, risk analysis, compliance with standards and legislation, training of personnel, operation of structures and other provisions. An OMS manual is available that describes roles and responsibilities of personnel assigned to the operation and maintenance for the TSF. It includes an emergency response procedure and strategy. A dam breach analysis was completed in 2022 considering crest elevation 4,128 MASL to inform the emergency preparedness and response plan. Nexa reportedly considered the results of the dam breach analysis to inform the hazard potential classification of the TSF dam. SLR is not aware of a TARP being established for the instrumentation system.

According to the OMS manual, the Atacocha tailings dam design takes into consideration international standards (such as Canadian Dam Association, ICOLD, ICMM) in terms of geotechnical stability and flood management. According to a teleconference with Nexa staff on March 14, 2024, a hazard consequence classification of 'High' has been adopted for the Atacocha TSF dam. However, Nexa decided to be more conservative and follow the design criteria of 'Extreme'. As a result, maximum credible earthquake for seismicity and probable maximum flood for hydrology apply as design criteria. Nexa's governance practices for Atacocha aim to follow international standards and common practices by having appointed an Engineer of Record, implementing quality assurance during construction, preparing a monthly dam safety evaluation report, and conducting regular geotechnical monitoring.

SLR understands that annual dam safety inspections were temporarily interrupted due to the COVID pandemic that started in 2020 but have now been resumed and an annual dam safety inspection report for 2023 is being prepared by Geoconsultoría. It is noted that no annual inspection reports were included within the documentation provided to SLR for review for this TRS. Two recent monthly inspection reports by Geoconsultoría for December 2023 and January 2024 were provided to SLR. Geoconsultoría stated in both reports that the safety condition of the dam is satisfactory, based on monitoring data and absence of signs of instability. The SLR QP has relied on the statements and conclusions of reports provided by Nexa and its consultants and provides no conclusions or opinions regarding the stability or performance of the dams and impoundments listed in this TRS.

The following recommendations are proposed for the Atacocha TSF:

- Develop TARPs for the piezometers for inclusion in the OMS manual and monitoring plan.





- Capacity assessments of the TSF completed on a bi annual basis with topographic and bathymetric surveys.
- Complete long term geochemical kinetic testing of the tailings.
- Monitor the water quality from the TSF subsurface drains.

17.2.3 Environmental Permitting

17.2.3.1 Current Permits, Approvals and Authorizations

The Atacocha operation is managed according to the environmental and closure considerations presented in three types of documents, which must be approved by directorial resolutions from the Peruvian government:

- EIA and subsequent amendments and modifications
- Supporting Technical Reports (ITS for its acronym in Spanish)
- Mine Closure Plan

SLR understands that Atacocha has the permits required to continue the mining operations in compliance with applicable Peruvian permitting requirements. The permits are RDs issued by the Peruvian authorities upon approval of mining environmental management instruments filed by the mining companies such as EIAs, ITSs, and Mine Closure Plans. The approved permits address the authority's requirements for operation of the Atacocha open pit mine, TSF and effluents discharge.

Nexa maintains an up-to-date record of the legal permits obtained to date, documenting the approving authority, validity period and expiry dates, status (current, canceled or superseded), and indicating if renewal is required or not.

The Atacocha RDs on environmental certifications, water use and mine closure are listed in Table 17-6. According to the record of the legal permits provided by Nexa in February 2024, the approved environmental certifications (i.e., EIA and ITS) do not have expiry dates and therefore renewal dates are not applicable.

Table 17-6: Permits and Authorizations

	Governmental Consent	Resolution	Approval Date
Environmental certification			
1	Atacocha's Adaptation and Environmental Management Program (PAMA)	DR 89-97-EM-DGM	06/03/1997
2	First Amendment to Atacocha's PAMA	DR 313-2002-EM-DGAA	22/10/2002
3	Second Amendment to Atacocha's PAMA	DR 154-2004-MEM-AAM	20/04/2004
4	EIA for the Tailing Deposit denominated "Depósito de Relaves Vaso Cajamarquilla"	DR 234-2005-MEM-AAM	08/06/2005
5	Amendment to the EIA for the Tailing Deposit denominated "Depósito de Relaves Vaso Cajamarquilla".	DR 242-2007-MEM-AAM	19/07/2007





	Governmental Consent	Resolution	Approval Date
6	EIA for the Tailing Deposit denominated "Depósito de Relaves Vaso Atacocha".	DR 361-2007-MEM-AAM	30/10/2007
7	Amendment to the EIA for the Tailing Deposit denominated "Depósito de Relaves Vaso Atacocha"	DR 380-2012-MEM-AAM	19/11/2012
8	Amendment to the EIA for the expansion of the capacity of the beneficiation plant of the beneficiation concession "Chicrin No. 2" up to 5,000 tpd.	DR 284-2012-MEM-AAM	05/09/2012
9	EIA for the 50 kV power transmission line SE El Porvenir - SE Chicrin	DR 347-2013-MEM-AAM	13/09/2013
10	Technical Report (ITS) for the exploitation of San Gerardo.	DR 170-2014-MEM-DGAAM	10/04/2014
11	Technical Report (ITS) for the tailings integration project.	DR 527-2014-MEMDGAAM-V	20/10/2014
12	Detailed Technical Report (MTD)	DR 243-2016-MEMDGAAM	11/08/2016
13	Second Amendment to the EIA for the expansion of the capacity of the beneficiation plant of the beneficiation concession "Chicrin No. 2" up to 5,000 tpd.	DR 119-2018-SENACE-JEF/DEAR	21/08/2018
14	Technical Report (ITS) for the Pumping System from El Porvenir TSF to Atacocha TSF, and Atacocha Diversion Channel	DR 28-2020-SENACE-PE/DEAR	10/02/202
15	Technical Report (ITS) for Auxiliary Components	DR 92-2021-SENACE-PE/DEAR	21/06/2021
16	Detailed Environmental Management Plan	DR 120-2023/MINEM/DGAAM	23/06/2023
Mine closure plan			
1	Mine Closure Plan	DR 198-2009-MEM-AAM	8/07/2009
2	First Amendment to the Mine Closure Plan	DR139-2012-MEM-AAM	03/05/2012
3	First Mine Closure Plan Update	DR 387-2012-MEM-AAM	22/11/2012
4	Second Amendment to the Mine Closure Plan	DR 98-MEM-DGAAM	04/04/2016
5	Third Amendment to the Mine Closure Plan	DR 136-2020/MINEM-DGAAM	09/10/2020
6	Fourth Amendment to the Mine Closure Plan	DR 278-2022/MIMEM-DGAAM	29/09/2022
Beneficiation plant and tailings disposal facilities			
1	Beneficiation Concession Title	R 192-74-DGM-DC	02/10/1974





	Governmental Consent	Resolution	Approval Date
2	Authorization to operate the facilities to expand the production capacity of the beneficiation plant up to 3,500 tpd.	Resolution s/n	28/11/2000
3	Authorization to operate the tailings deposit denominates "Vaso Atacocha" at 4,069 MASL	R 892-2008-MEM-DGM	21/02/2008
4	Authorization to construct the facilities to extend the Capacity of the tailings deposit denominates "Vaso Atacocha" at 4,081 MASL	R 689-2008-MEM-DGM-V	18/11/2008
5	Authorization to construct the facilities extend the capacity of the tailings deposit denominates "Vaso Atacocha" at 4,093 MASL	R 996-2009-MEM-DGM-V	23/12/2009
6	Authorization to construct the facilities to expand the production capacity of the beneficiation plant up to 4,380 tpd.	R 411-2010-MEM-DGM-V	8/11/2010
7	Authorization to operate the facilities to expand the production capacity of the beneficiation plant up to 4,380 tpd.	R 191-2011-MEM-DGM-V	14/06/2011
7	Authorization to construct the facilities to modify the beneficiation concession without changing the production capacity.	R 326-2011-MEM-DGM-V	25/08/2011
8	Authorization to construct the facilities to expand the tailings deposit denominates "Vaso Atacocha" at 4,105 MASL	R 92-2012-MEM-DGM-V	15/03/2012
9	Authorization to operate new infrastructure related to the beneficiation concession without expanding the authorized production capacity	R 137-2013-MEM-DGM-V	25/03/2013
10	Authorization to operate new infrastructure related to the beneficiation concession without expanding the authorized production capacity.	R 207-2013-MEM-DGM-V	10/05/2013
11	Authorization to operate the tailings deposit denominates "Vaso Atacocha" at 4,105 MASL	R 236-2013-MEM-DGM-V	31/05/2013
12	Authorization to construct the facilities to expand the tailings deposit denominates "Vaso Atacocha" at 4,128 MASL	R 375-2013-MEM-DGM-V	19/09/2013
13	Precisions to the R 375-2013-MEM-DGM-V	R 417-2013-MEM-DGM-V	4/11/2013
14	Authorization to construct the facilities to transport the tailing generated in the beneficiation concession denominates "Chicrín No. 2" to the beneficiation concession denominates owned by the mine "El Porvenir".	R 594-2014-MEM-DGM-V	31/12/2014





	Governmental Consent	Resolution	Approval Date
15	Authorization to operate the facilities to transport the tailings generated in the beneficiation concession denominated “Chicrín No. 2” to the beneficiation concession denominated owned by the mine “El Porvenir”.	R 267-2015-MEM-DGM-V	3/07/2015
16	Authorization to construct the facilities to expand the production capacity of the beneficiation plant up to 5,000 tpd	R 120-2016-MEM-DGM-V	4/04/2016
17	Authorization to operate the beneficiation plant with a processing capacity of 4,600 tpd.	R 754-2016-MEM-DGM-V	22/11/2016
18	Authorization to construct the facilities to expand the tailing facilities denominated “Vaso Atacocha” at 4,110 MASL	R 210-2006-MEM-DGM-V	4/05/2016
19	Authorization to exploit Glory Hole as open pit	R 1158-2017-MEM-DGM/V	18/12/2017
20	Authorization to modify construction of Vaso Atacocha	R 64-2018-MEM-DGM	01/02/2018
Water Supply			
1	Water license for mining purposes	AR 20-99-CTARP-INRENAATDRP	12/03/1999
2	Water license for mining purposes	AR 134-2011-ANA-ALAPASCO	26/05/2011
3	Water license for human consumption purposes	AR 21-99-CTARP-DRAINRENA-ATDRP	12/03/1999
4	Water license for human consumption purposes	AR 12-2006-AG-DRAP/ATDRP	3/04/2006
5	Water license for energy purposes	AR 19-99-CTARP-INRENAATDRP	12/03/1999
Effluent Discharge to the Environment			
1	Authorization to discharge treated domestic waste waters from Campamentos Chicrín Bajo y Chicrín Artesanos	R 303-2016-ANA-DGCRH	30/12/2016
2	Authorization to discharge treated industrial waste waters from pond E09	R 69-2015-ANA-DGCRH	6/03/2015
3	Authorization to discharge treated industrial waste waters from Tailings Dam Atacocha	R 68-2015-ANA-DGCRH	6/03/2015

17.2.3.2Future Permits and Authorizations

The main future permits to be obtained by Nexa for the implementation of the Cerro Pasco Complex integration include (Hatch, 2024):

- Modification of the EIA for Atacocha (environmental certification)
- Amendment to the Atacocha Mine Closure Plan to reflect the integration of both mining units and the modification of the EIA
- Water use authorization



Renewal of industrial effluent discharge authorization

The effluent discharge authorization involves carrying out an assessment of the treatment system for discharge at monitoring station E09.

An independent technical evaluation of key components of the Cerro Pasco Complex Integration project was completed in early 2024 considering both El Porvenir and Atacocha. It included, among others, the TSFs, social risks and permitting (Hatch, 2024). No fatal flaws were found by Hatch. The evaluation resulted in a number of findings and recommendations to be considered by Nexa to derisk the Cerro Pasco Complex Integration project.

Nexa should track closely the action items identified for obtention of new permits and renewal of expired permits required for the Cerro Pasco Complex Integration project and follow up on the status of progress regularly to prevent possible delays in the submission of permitting applications. Completion of permitting approvals within the project schedule developed by Nexa is critical to the success of the Cerro Pasco Complex Integration. There is a level of uncertainty regarding the amount of time required by the authorities for review and approval of permitting applications. In order to mitigate the risk of delayed approval, Nexa should initiate the first steps of the approval process for the main permits as early as possible (for example, the engineering design and the baseline field work) in order to build a buffer in the schedule.

17.2.3.3Permitting Schedule

The main permits required for the implementation of the Cerro Pasco Complex Integration project are the modification of the EIA and the associated modification of the Mine Closure Plan for Atacocha. The modification of the EIA from beginning to end, culminating with the approval, is anticipated to take approximately three years. This period includes the field work (collection of baseline data), development of supporting studies, the preparation of the EIA report, the submission of the report to SENACE, and the evaluation period involving the review from SENACE followed by Nexa addressing the comments resulting from the review. The review process is anticipated to take approximately one year but it could take less or longer.

Nexa initiated work on the EIA amendment during Q4 2023. Its approval by late Q1 or early Q2 2027 represents the critical path for the Cerro Pasco Complex Integration project from an environmental permitting perspective. Other environmental management instruments such as new ITS submissions and the Mine Closure Plan amendment have a shorter process of completion to receive approval from the regulators.

There is a high level of uncertainty associated with the actual duration of the review and approval period due to staffing issues SENACE and adjustments to its review and approval processes. As a mitigation measure, Nexa has included additional time in its permitting schedule for the Cerro Pasco Complex Integration project to carry a contingency for the permitting process. In addition, SLR understands that the storage capacity of the El Porvenir TSF will provide additional contingency by allowing to continue disposal of tailings at the El Porvenir TSF for approximately six months beyond the timeline set for approval of the EIA amendments for the two mining units. The storage capacity of the Atacocha TSF does not have influence in the critical path for permitting because the two facilities have not been integrated and discharge of tailings from the El Porvenir plant to the Atacocha TSF is not yet possible.

17.2.4 Social or Community Requirements

17.2.4.1Social Setting

The Atacocha mine is located in the central Andes mountains region of Peru, specifically in the district of San Francisco de Asís de Yarusyacán, in the province of Pasco, Peru. The mine is situated 17 km from the town of Cerro de Pasco. Its area of influence encompasses the rural communities and populated centers listed at the end of Section 17.2.1.1.

17.2.4.2Key Social Issues

The social issues for the Cerro Pasco Complex are discussed in Section 17.1.4.2. SLR understands that the Atacocha mine has experienced blockades and social conflicts with communities from and beyond its area of influence, which has led to short suspensions of its operations. Recent events include blockades conducted by residents from Anexo Joraoniyoc (part of Comunidad Campesina de San Franciso de Asis de Yarusyacan) in March 2023 and February 2024 as reported online by Energiminas.

17.2.4.3Social Management System

The social management system is discussed in Section 17.1.4.3. SLR understands that the Social Management Plan for Atacocha was developed with input (i.e., interviews and surveys) from local authorities and stakeholders. The objectives of the Social Management Plan for Atacocha are (RPA, 2019):

- Maximize positive social impacts and prevent or minimize negative social impacts resulting from the operational activities, thereby contributing to the welfare of society through dialogue and respect for people, society and the environment.
- Develop and maintain constructive relationships between the mining company, the population and interest groups in the area of influence.
- Channel and handle appropriately and timely questions, complaints, concerns and queries related to Atacocha’s activities.
- Contribute to developing human and social capital in direct area of influence.

17.2.4.4Community Engagement and Agreements

In 2004, Atacocha acquired rights to land from the community of Cajamarquilla via an agreement to construct tailings facilities and ancillary infrastructure. The agreement included various commitments and obligations, including financial compensation for rights to the land. Subsequently (2006, 2008, and 2012), the original agreement was amended and ratified by the community, and compliance with the commitments and obligations assumed by Atacocha in the original agreement and its amendments was confirmed. The agreements are in effect for the entire deposit's end of life. Similarly, Atacocha acquired and subsequently renewed a right-of-way agreement with the community of Ticlacayán for its hydraulic infrastructure, routing water from the Huallaga River to two hydroelectric facilities at Marcopampa and Chaprín. The most recent renewal is for 20 years and will be in effect until 2033. Atacocha's financial commitments under these agreements are summarized in Table 17-7.



Table 17-7: Summary of the Atacocha’s Commitments Acquired by the Right of Land and Right of Way Agreements Celebrated with the Communities of Cajamarquilla and Tlclacayán

Agreements and amendments	Objectives	Community	Commitments acquired by Atacocha	Date/Term
Right of land celebrated with the community of Cajamarquilla (10/20/2004)	Right of land (13 hectares) for the construction of the Cajamarquilla's tailings deposit and auxiliary infrastructure	The community authorizes Right of land (13 hectares) for the construction and operation of the Cajamarquilla's tailings deposit and auxiliary infrastructure	Payment of 730,605.74 Soles, in works established in the Original Agreement and in its three (03) amendments.	Until the end of life of the deposit
First amendment (10/04/2006)	Each document records the progress in the fulfillment of the Commitments acquired by Atacocha. In the Third amendment, clause 5.1 the Community ratifies the fulfillment of all the commitments and obligations assumed by the Atacocha in the Original Agreement and its amendments.			
Second amendment (06/03/2008)				
Third amendment (10/23/2012)				
Renewal of the right of way celebrated with the community of Tlclacayán and its amendments (04/15/2013)	Renewal of the right of way celebrated with the community of Tlclacayán for Atacocha's hydraulic infrastructure to conduct water from the Huallaga river to the hydroelectric schemes Marcopampa and Chaprín for the period of 4/15/2013 - 4/15/2033	The community recognizes the agreement for the right of way for Atacocha's hydraulic infrastructure to conduct water from the Huallaga River to the hydroelectric schemes Marcopampa and Chaprín for the period 1951 – 2008, its renewal for the period 2009 ongoing, and the renewal for the period of 4/15/2013 - 4/15/2033	Payment of 1 600,000.00 Soles, at the signing of the contract. In addition: 120,000 Soles performing works in the 7 neighbourhoods of the Community; 100,000 Soles for the electric power services; 680,000 Soles, for the development of projects in the Community (in two years); 1 000,000 Soles for work per concept of Taxes; Contracting of the communal enterprise in works realized by Atacocha; Hire people from the community in the different jobs that are generated	20 Years

Source: SRK (2017).

As indicated in Section 17.1.4.4, Nexa has a grievance mechanism for receiving local community questions, concerns, and complaints. In 2023, Atacocha received 74 questions and 35 concerns and complaints. They were related to subcontractors, project updates, compensation, and environmental concerns (Nexa Resources Peru, 2024).

17.2.4.5Indigenous Peoples

Refer to Section 17.1.4.5 of this TRS.



17.2.4.6Local Procurement and Hiring

Atacocha has experienced an increase in local hiring from communities within its area of influence. In 2023, Atacocha employed 496 local workers from which 76 were employed by the Atacocha mine directly, and the remaining 420 workers were employed by its subcontractors (Nexa Resources Peru, 2024).

In 2023 Atacocha spent approximately S/2,662,945 sol on local purchases and support to community businesses (Nexa Resources Peru, 2024).

Further details about local hiring and procurement are presented in Section 17.1.4.6.

17.2.5 Mine Closure Requirements

17.2.5.1Mine Closure Plan and Regulatory Requirements

The Mine Closure Plan is periodically updated over the LOM. A conceptual Mine Closure Plan was prepared in 2006 for the Mine components within the context of the Peruvian legislation and has subsequently been amended or updated five times. The Mine Closure Plan addresses temporary, progressive, and final closure actions, and post-closure inspection and monitoring. Under Article 20 of the Peruvian mine closure regulations, the first update of the Mine Closure Plan must be submitted to the Peruvian Ministry of Energy and Mines three years after approval of the initial Mine Closure Plan, and every five years thereafter. Two years before final closure, a detailed version of the Mine Closure Plan will have to be prepared and submitted to the Peruvian Ministry of Energy and Mines for review and approval. The following is a summary of the Atacocha Mine Closure Plan updates and modifications to date:

- Initial Closure Plan approved in 2007 by R.D. No. 319-2007-MEM/AAM and prepared according to the modification of Supreme Decree D.S. No. 033-2005-EM (Mine Closure Law).
- Feasibility Level Mine Closure Plan approved in 2009 by R.D. No. 198-2009-MEM-AAM.
- First amendment to the Mine Closure Plan approved in 2012 by R.D. No. 139-2012-MEM/AAM.
- Update of the Mine Closure Plan approved in 2012 by R.D. No. 387-2012-MEM/AAM.
- Second amendment to the Mine Closure Plan approved in 2016 by R.D. No. 098-2016-MEM-DGAAM.
- Third amendment to the Mine Closure Plan approved in 2020 by R.D. No. 136-2020/MINEM-DGAAM.
- Fourth amendment to the Mine Closure Plan approved in 2022 by R.D. No. 278-2022/MINEM-DGAAM

The regulatory reports regarding the evaluation of the Second and Fourth amendments to the Mine Closure Plan (MINEM, 2016 and MINEM, 2022) were available for review.

The fourth amendment to the Mine Closure Plan indicated that progressive closure extends until 2017 and includes two years of final closure (2028 and 2029), and five years of post-closure (2030 to 2034). Post-closure monitoring, assumed to extend for five years after closure, will include monitoring of physical, geochemical, hydrological, and biological stability.

The specific objectives of the Atacocha mine Closure Plan are as follows:



- Health and safety – Securing public health and safety during execution of closure and post closure activities, recovering the original environmental quality of the surroundings and developing feasible rehabilitation works from a biological, technical and financial perspective.
- Physical stability – Long term closure design and measures adopting proper factors of safety for events with long recurrence periods.
- Geochemical stability – Long term closure design and measures to prevent acid rock drainage that could impact natural waterbodies.
- Land use – Proper uses following completion of rehabilitation activities in order to preserve the habitats for flora and fauna in the mine area of influence.
- Waterbodies use – Maintain equilibrium in the micro basins located in the mine area, preserving water quantity and quality, and implementing adequate water management.
- Social objectives – Minimize socio economic impacts as much as possible by executing social programs that preserve the way of life of local communities.

Maximizing the number of mine components that can be subject to a walk-away closure scenario is one of the main closure criteria for Atacocha.

The minimum closure activities to be considered are:

- Demobilization of machinery and equipment
- Dismantling
- Demolition and salvage
- Physical stabilization
- Geochemical stabilization
- Water management
- Re-establishing the landscape contour
- Social programs
- Post closure maintenance and monitoring

Where possible, the surface water drainage pattern would need to be re-established to a condition similar to the original hydrological system.

During site construction activities, topsoil is being stored separately to be used later for re vegetation purposes.

Waste materials will be decontaminated (if required), recycled when cost effective, and disposed at a licensed facility. Facilities containing petroleum products, chemicals, solid waste, hazardous waste, and/or contaminated soil or materials will be dismantled and managed according to regulatory requirements. All hazardous waste will need to be managed according to existing laws and regulations and will be transported off site.

The Mine Closure Plan concentrates on the decommissioning and closure of primary facilities and elements of infrastructure at Atacocha, which include:

- San Gerardo open pit;
- Underground mine and associated portal, ventilation shafts, support facilities and underground infrastructure;





- Waste rock dumps;
- Tailings storage facilities;
- Ore and topsoil stockpiles;
- The old (Chicrín No. 1, not active) and current (Atacocha, or Chicrín No. 2, active, including ore sorting, crushing, flotation circuit, thickener and filters, repulping pond) processing plants;
- Industrial water systems (intake, storage, distribution and waste water treatment);
- Quarries;
- Laydown areas and warehouses;
- Mechanical and maintenance shops;
- The fuel storage tank farm, secondary containments, and fueling station;
- Solid waste landfill;
- Hazardous waste storage facility area;
- The diesel power plant, power distribution substation, and power transmission lines;
- Mine access roads;
- Huallaga River derivation tunnel;
- Mine camp and administrative buildings; and
- Potable water and septic systems.

A summary of the main proposed closure activities is presented in Table 17-8.

Table 17-8: Summary of Main Closure Activities

Mine Component		Closure Activities
Mine	Open pits	Slope stability analysis and slope contouring if required (physical stability) Fencing Removal of equipment Dismantling and demolition of structures
	Underground mine	Plugging or filling of mine openings Dismantling and demolition of metallic and concrete structures Construction of drainage channels Placing of topsoil Re-vegetation
Waste disposal facilities	Waste dumps Landfills	Slope contouring (physical stability) Cover installation and revegetation Post-closure water monitoring Implementation of dykes for surface water runoff control



Mine Component		Closure Activities
	Tailings storage facilities (Atacocha & El Porvenir)	Leveling and recontouring Cover installation and re-vegetation Construction of perimeter channels
Other infrastructure	Ore stockpile Shotcrete plant Process plant Shops Power transmission lines Hazardous waste storage areas Laydown areas Access roads	Removal of low-grade ore Dismantling, demolition, salvaging and disposal of structures Removal of equipment Removal of contaminated soils Transportation to authorized disposal areas Cleaning and purification of tanks and deposits Recontouring of terrain, re-vegetation and habitat rehabilitation
Staff facilities	Mine camp Administrative buildings Potable water and septic systems	Mobilization of equipment, machinery and personnel De-energization Dismantling and removal of structures and equipment to authorized disposal areas Dismantling and demolition of concrete structures Recontouring of terrain and re-vegetation
Borrow Areas	Quarries	Cut and fill (physical stability) Fencing Construction of drainage channels Re-vegetation

It is noted that the design criteria for the Atacocha TSF closure planning have been defined according to Peruvian Standards, which are less stringent than Canadian dam safety guidelines.

A comprehensive dam safety review is recommended in support of operation in future years and in order to finalize the detailed closure plan prior to moving into the closure stage.

Physical, chemical, biological and social stability conditions following closure will be verified through implementation of the post closure maintenance and monitoring program. Monitoring will also support the evaluation and verification of compliance with closure activities, and the identification of deviations leading to the adoption of corrective measures. The monitoring activities will be carried out considering the Peruvian Environmental Quality Standards and Maximum Permissible Limits, as well as criteria set in the Mine Closure Plan for physical, chemical, biological and social stability.

Post closure monitoring activities involve the following:

- Physical – Displacements and settlements on slopes; the monitoring frequency will be quarterly during the first two years and biannually the following three years.
- Geochemical – Surface water quality monitoring in order to evaluate the effectiveness of the measures established; the monitoring frequency will be biannually for five years.
- Hydrological – Technical inspections programmed to identify possible erosions, settlements, collapses and obstructions; the monitoring frequency will be biannually for five years.

- Biological – Verify the effectiveness of the designed coverage and rehabilitation systems, evaluate the success of the systems of re vegetation and evaluate the need of complementary sowing, fertilization and weed control; the monitoring frequency will be biannually for five years (dry and wet season).
- Social – Development of a set of actions that will allow to verify the efficiency and effectiveness of the social programs at mine closure in accordance with established objectives, and adoption of corrective measures as required.

17.2.5.2 Closure Cost Estimate and Financial Assurance for Closure

A closure cost estimate was developed and included in the Mine Closure Plans. The total value estimated in 2022 for the remaining LOM presented in the fourth amendment to the Mine Closure Plan is as follows (excluding local taxes):

- Progressive Closure (until 2027) US\$17,309,137
- Final Closure (2028 and 2029) US\$42,538,865
- Post-Closure (2030 to 2034) US\$ 2,850,228
- Total US\$62,698,230

According to Supreme Decree D.S. N° 262-2012-MEM/DM, the financial assurance is calculated based on inflation and discount rates in order to estimate the net present value (NPV) for the mine closure cost. The total financial assurance (progressive closure, final closure, and post closure) calculated in 2022 considering inflation rate and discount rate is US\$34,869,854 (including local taxes). A detailed breakdown of the cost estimate is provided in the fourth amendment to the Atacocha Mine Closure Plan. The closure cost estimate was not reviewed by SLR for this TRS.

17.2.6 Qualified Person's Opinion on the Adequacy of Current Plans to Address any Issues Related to Environmental Compliance, Permitting and Local Individuals or Groups

In the SLR QP's opinion, the Environmental Management Plan developed for Atacocha is adequate to address potential issues related to environmental compliance according to the commitments captured in the regulatory permitting approvals.

No issues or concerns associated with environmental permitting planning were identified by the SLR QP based on the documentation provided by Nexa to SLR for review, and a meeting held with Nexa staff in support of this TRS. Nexa's Environmental Management Superintendent for El Porvenir and Atacocha understands well the environmental permitting requirements and has developed a tracking matrix that identifies the key components of each permit, corrective actions to be implemented to be in compliance, and the status of implementation of each action. All action items are qualified according to a ranking of criticality established (low, medium and high) for continuity of the operation.

In the SLR QP's opinion, the plans developed as part of the Social Management System are adequate to pursue positive relations with the communities located in the area of influence, promote social benefits, and contribute to reduce social risk for the Atacocha operations.



18.0 Capital and Operating Costs

18.1 Capital Costs

The capital costs required to achieve the Cerro Pasco Complex Mineral Reserve LOM production were estimated by Nexa and reviewed by SLR. Since El Porvenir and Atacocha are operating mines, all capital costs are categorized as sustaining. Sustaining capital costs have been estimated by Nexa based on historical and actual costs, plus the estimated capital costs for the underground development, infrastructure and equipment required to complete the Cerro Pasco Complex integration. Based on the SLR QP’s review, the sustaining capital costs are estimated to the equivalent of an Association for the Advancement of Cost Engineering (AACE) Class 2 estimate with an accuracy range of -10% to +15%. The sustaining capital costs include:

- Mine development
- Processing plants improvements.
- Mining equipment overhaul and replacement.
- Underground infrastructure and surface facilities.
- Tailings storage facilities.
- Other projects/assets sustaining costs.

All costs in this section are expressed in Q4 2023 US dollars. The summary breakdown of the estimated sustaining capital costs required to achieve the Mineral Reserve LOM production are presented in Table 18-1.

Table 18-1: Sustaining Capital Costs Summary - Cerro Pasco Complex

Cost Component	Value (US\$ millions)
El Porvenir Mine Development	166
El Porvenir Processing Plant Improvements	19
El Porvenir Mining Equipment	17
El Porvenir Infrastructure	48
El Porvenir Tailings Storage Facilities	132
El Porvenir Other Projects / Assets Sustaining Capital	18
Atacocha Mine Development	137
Atacocha Processing Plant Improvements	3
Atacocha Mining Equipment	6
Atacocha Infrastructure	22
Atacocha Tailings Storage Facilities	35
Atacocha Other Projects / Assets Sustaining Capital	20
Total Sustaining Capital Costs	622

Notes: Sum of individual values may not match total due to rounding.





18.2 Operating Costs

The operating costs were estimated based on the actual operating expenditures and current operating budget for both El Porvenir and Atacocha mines, and the forecasted operating costs, considering the operating synergies once the integration process is completed. The costs were estimated by Nexa and reviewed by SLR. Both El Porvenir and Atacocha mines have been in operation for a number of years; therefore, the level of project definition for the operating cost estimates is high. The operating costs are estimated to the equivalent of an AACE Class 2 estimate with an accuracy range of -5% to +10%, although it is noted that AACE does not typically apply to operating costs.

The operating expenses estimated for mining, processing, and G&A activities to support the production of the Cerro Pasco Mineral Reserves over the LOM are summarized in Table 18-2. Operating costs total US\$1,412 million over the LOM, averaging US\$152million per year between years 2024 and 2033, which are years at full production.

The mining costs include all labour, supplies, consumables, and equipment maintenance to complete open pit mining related activities, such as drilling, blasting, loading, and hauling; and underground mining related activities, such as stopping, development, shaft and hoist, and shotcrete. The processing costs include all labour, supplies, consumables to complete processing related activities at the plants. The administrative expense includes all labour, supplies, consumables, and equipment maintenance to complete administrative, finance, human resources, environmental, safety, supply chain, security, site services, camp and kitchen, and travel related activities.

Table 18-2: Operating Costs Estimate - Cerro Pasco Complex

Cost Component	LOM Total (US\$ millions)	Average Annual ^{1,2} (US\$ millions)	LOM Average (US\$/t milled)
Atacocha Plant (Open Pit material) ¹			
Open Pit Mining (Atacocha Open Pit)	85	21	19.52
Processing - Atacocha Plant	58	15	13.29
G&A - Open Pit	52	13	11.85
El Porvenir Plant (Underground material) ²			
Underground Mining (El Porvenir & Atacocha)	797	86	39.25
Processing - El Porvenir Plant	266	28	13.07
G&A - Underground	154	16	7.56
Combined Site Operating Costs	1,412	152	57.18

- Notes:
- 1. For Open Pit fully operational years (2024 - 2027)
 - 2. For Underground fully operational years (2025 - 2032)
 - 3. Sum of individual values may not match total due to rounding.





19.0 Economic Analysis

The economic analysis contained in this TRS is based on the Cerro Pasco Complex Mineral Reserves on a 100% basis, economic assumptions, and capital and operating costs provided by Nexa corporate finance and technical teams and reviewed by SLR. All costs are expressed in Q4 2023 US dollars. Unless otherwise indicated, all costs in this section are expressed without allowance for escalation, currency fluctuation, or interest.

A summary of the key criteria is provided below.

19.1 Economic Criteria

19.1.1 Physicals

- Mine life: 10 years (between 2024 and 2033).
 - o Atacocha Open Pit: 4 years (between 2024 and 2027)
 - o Atacocha and El Porvenir Underground: 10 years (between 2024 and 2033)
- LOM production plan (on a 100% ownership basis) as summarized in Table 19-2.
- LOM processing of 24.70 Mt, grading 3.61% Zn, 1.22% Pb, 0.23% Cu, 67.76 g/t Ag, and 0.06 g/t Au.
 - o Atacocha Plant (open pit material): 4.38 Mt, grading 0.99% Zn, 1.15% Pb, 0.03% Cu, 34.94 g/t Ag, and 0.27 g/t Au
 - o El Porvenir Plant (underground material): 20.32 Mt, grading 4.17% Zn, 1.24% Pb, 0.28% Cu, 74.83 g/t Ag, and 0.02 g/t Au
- LOM total contained metal of: 891 kt Zn, 302 kt Pb, 57.5 kt Cu, 53.8 Moz Ag, and 50.6 koz Au.
- Metallurgical recoveries at the LOM average of:
 - o Atacocha Plant: 78.5% Zn, 83.0% Pb, 0% Cu, 3.3% Ag in Zn, 76.7% Ag in Pb, and 67.2% Au in Pb.
 - o El Porvenir Plant: 89.0% Zn, 79.5% Pb, 14.3% Cu, 15.2% Ag in Zn, 66.4% Ag in Pb, 29.4% Au in Pb, 2.0% Ag in Cu, 8.6% Au in Cu.
- LOM realized metal payables (%) of: 84.0% Zn, 94.3% Pb, 95.0% Cu, 84.0% Ag, and 77.1% Au.
- LOM payable metal of: 663 kt Zn, 228 kt Pb, 7.6 kt Cu, 37.6 Moz Ag, and 23.4 koz Au.

19.1.2 Revenue

- All revenues are received in US\$.
- Revenue is estimated based on the following LOM weighted average metal prices derived from Nexa's Internal Projection forecasts: US\$1.24/lb Zn (US\$2,741/t Zn), US\$0.92/lb Pb (US\$2,032/t Pb), US\$3.54/lb Cu (US\$7,809/t Cu), US\$21.72/oz Ag, and US\$1,798/oz Au.
- Total gross revenue from concentrates of US\$3,000 million.





- Net Revenue includes the benefit of Cerro Pasco's zinc concentrate processed at Nexa's Cajamarquilla (CJM) zinc refinery in Peru. This integration with Nexa's internal refinery provides the benefit of additional US\$94.66/t Zn premium selling price, and zinc smelting at cost (rather than at commercial third-party terms).
- Transportation, Treatment, and Refining charges as defined in Table 19-1.

Table 19-1: Transportation, Treatment, and Refining charges assumptions

Transportation, Treatment and Refining charges	Units	LOM average
Transportation - Zn Concentrate Integrated - UG	US\$/t conc	46.65
Transportation - Zn Concentrate Integrated - OP	US\$/t conc	45.52
Transportation - Pb Concentrate - UG	US\$/t conc	45.21
Transportation - Pb Concentrate - OP	US\$/t conc	43.75
Transportation - Cu Concentrate - UG	US\$/t conc	39.21
TC Zn Concentrate - EP Plant (UG)	US\$/t conc	310.56
TC Zn Concentrate - ATA Plant (OP)	US\$/t conc	315.36
TC Pb Concentrate - EP Plant (UG)	US\$/t conc	182.96
TC Pb Concentrate - ATA Plant (OP)	US\$/t conc	179.48
TC Cu at Cu Concentrate	US\$/t conc	195.21
RC Cu at Cu Concentrate	US\$/t conc	50.00
RC Ag at Cu Concentrate	US\$/oz	0.50
RC Au at Cu Concentrate	US\$/oz	8.00
RC Ag at Pb Concentrate	US\$/oz	1.50
RC Au at Pb Concentrate	US\$/oz	10.00
RC Ag at Zn Concentrate	US\$/oz	-

- There are no third-party royalties applicable to the Cerro Pasco Complex operations.
- Net revenue after selling costs and royalties of US\$2,758 million.
- Average net smelter return of US\$112/t processed.
- Revenue is recognized at the time of production.

19.1.3 Costs

- Mine life: 10 years.
- El Porvenir sustaining and expansion capital (excluding closure costs) over the LOM totals US\$400 million.
- Atacocha sustaining and expansion capital (excluding closure costs) over the LOM totals US\$222 million.
- El Porvenir concurrent reclamation between 2024 and 2033 of US\$7.9 million.
- El Porvenir mine closure costs between 2034 and 2037 of US\$14.6 million.





- El Porvenir post-closure costs between 2038 and 2042 of US\$2.3 million.
- Atacocha concurrent reclamation between 2025 and 2033 of US\$16.2 million.
- Atacocha open pit mine closure costs between 2029 and 2032 of US\$5.0 million.
- Atacocha underground mine closure costs between 2034 and 2037 of US\$35.1 million.
- Atacocha post-closure costs between 2038 and 2042 of US\$2.8 million.
- Total average unit operating costs US\$57.18/t ore processed.
 - o Open pit mining operating costs: US\$3.33 /t mined (or US\$19.52/t processed).
 - o Underground mining operating costs: US\$39.25/t mined (or US\$39.25/t processed)
 - o Processing operating costs – Atacocha: US\$13.29/t ore processed
 - o Processing operating costs – El Porvenir: US\$13.07/t ore processed.
 - o G&A – Atacocha open pit: US\$11.85/t ore processed
 - o G&A – El Porvenir underground: US\$7.56/t ore processed.
- LOM site operating costs of US\$1,412 million.
- Other Off-site operating costs: US\$2.44/t ore processed.
- Costs were estimated considering an exchange rate of S/.3.67:US\$1.00.

19.1.4 Taxation and Royalties

- Corporate income tax rate in Peru is 29.50%.
- Special Mining Tax Contribution (IEM) varies over the LOM between 2% and 3.6% based on the marginal rate.
- Government Mining Tax Royalty varies over the LOM between 1% and 4% based on the marginal rate.
- Employees’ profit sharing participation: 8%.
- There are no third-party royalties applicable to the Cerro Pasco Complex.
- SLR has relied on Nexa’s taxation model for calculation of taxes applicable to the cash flow.

19.2 Cash Flow Analysis

SLR prepared a LOM unlevered after-tax cash flow model to confirm the economics of the Cerro Pasco Complex over the LOM (between 2024 and 2033). Economics have been evaluated using the discounted cash flow method by considering LOM production at a 100% basis, annual processed tonnages, and gold and silver grades. The associated process recoveries, metal prices, operating costs, treatment, refining and selling charges, sustaining capital costs, and reclamation and closure costs, and taxes and government royalties were also considered.

The base discount rate assumed in this TRS is 7.22% as per Nexa’s corporate guidance, based on Weighted Average Cost of Capital (WACC) analysis. Discounted present values of annual cash flows are summed to arrive at the Cerro Pasco Base Case NPV.





The economic analysis at the LOM weighted average prices of US\$1.24/lb Zn, US\$0.92/lb Pb, US\$3.54/lb Cu, US\$21.72/oz Ag, and US\$1,798/oz Au, confirmed that the Cerro Pasco Mineral Reserves are economically viable.

The pre-tax NPV at a 7.22% base discount rate is US\$364 million and the after-tax NPV at a 7.22% discount is US\$162 million. The undiscounted pre-tax cash flow is US\$568 million, and the undiscounted after-tax cash flow is US\$290 million.

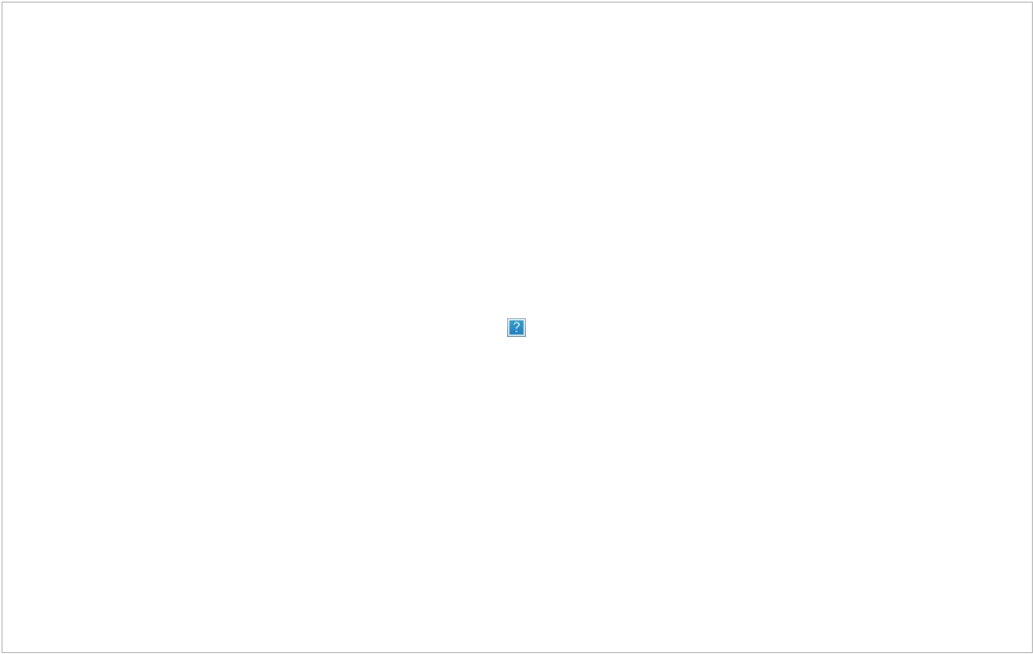
The annual after-tax cash flow summary is presented in Table 19-2.





Table 19-2: Annual After-Tax Cash Flow Summary





19-6





19.3 Sensitivity Analysis

Project risks can be identified in both economic and non-economic terms. Key economic risks were examined by running cash flow sensitivities:

- • Metal prices
- • Head grades
- • Metallurgical recoveries
- • Operating costs
- • Capital costs (Sustaining and Closure)

After-tax NPV_{7.22%} sensitivities over the base case have been calculated for -20% to +20% for head grade, -5% to +5% for overall recoveries, -20% to +20% for metal prices, and -10% to +15% for operating and capital costs variations to determine Cerro Pasco’s most sensitive parameter. The sensitivities are shown in Figure 19-1 and Table 19-3. The sensitivity analysis at Cerro Pasco shows that the after-tax NPV at a 7.22% base discount rate is most sensitive to metal prices, head grade, and metallurgical recoveries, followed by operating costs and capital costs.





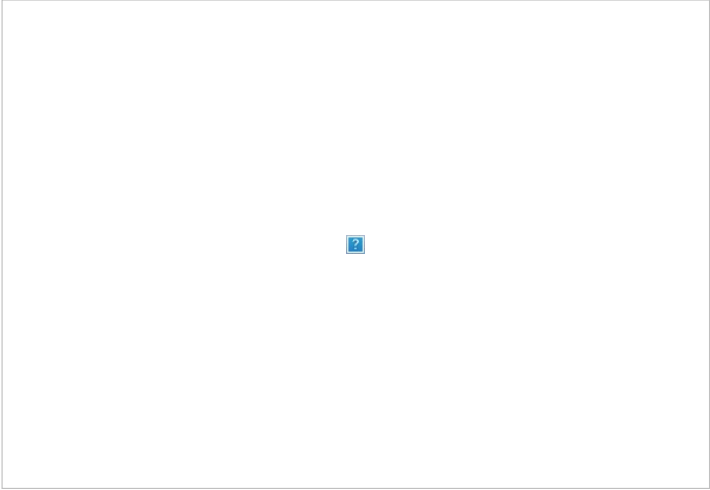
Table 19-3: After-Tax Sensitivity Analyses - Cerro Pasco Complex

Variance	Head Grade (% Zn)	NPV at 7.22% (US\$ million)
80%	2.89%	(117)
90%	3.25%	31
100%	3.61%	162
110%	3.97%	289
120%	4.33%	414
Variance	Recovery (% Zn)	NPV at 7.22% (US\$ million)
94%	83.6%	89
97%	86.1%	126
100%	88.6%	162
103%	91.0%	198
106%	93.5%	234
Variance	Metal Prices (US\$/lb Zn)	NPV at 7.22% (US\$ million)
80%	\$0.99	(188)
90%	\$1.12	(3)
100%	\$1.24	162
110%	\$1.37	319
120%	\$1.49	472
Variance	Operating Costs (US\$/t)	NPV at 7.22% (US\$ million)
85%	\$51.46	270
93%	\$54.32	216
100%	\$57.18	162
118%	\$61.47	82
135%	\$65.76	1
Variance	Capital Costs (US\$000)	NPV at 7.22% (US\$ million)
85%	\$657	220
93%	\$693	191
100%	\$730	162
118%	\$785	119
135%	\$839	76





Figure 19-1: After-Tax Sensitivity Analysis





20.0 Adjacent Properties

As indicated in Figure 20-1, El Porvenir and Atacocha are surrounded by other mineral properties. The following companies that hold properties in the vicinity are subsidiaries of the Volcan Group:

- Compañía Minera Vichaycocha.
- Empresa Exploradora de Vinchos.
- Empresa Minera Paragsha.
- Minera San Sebastián AMC S.C.R.L.

The Volcan Group operates the Cerro de Pasco Mine in the nearby city of Cerro de Pasco. Nexa maintains a group of mining concessions located within the boundaries of some of the Volcan Group's properties.

Other local property holders include:

- Sociedad Minera El Brocal
- David Prospero Rudas y otros.
- Corporación Minera Centauro S.A.C. (Centauro).

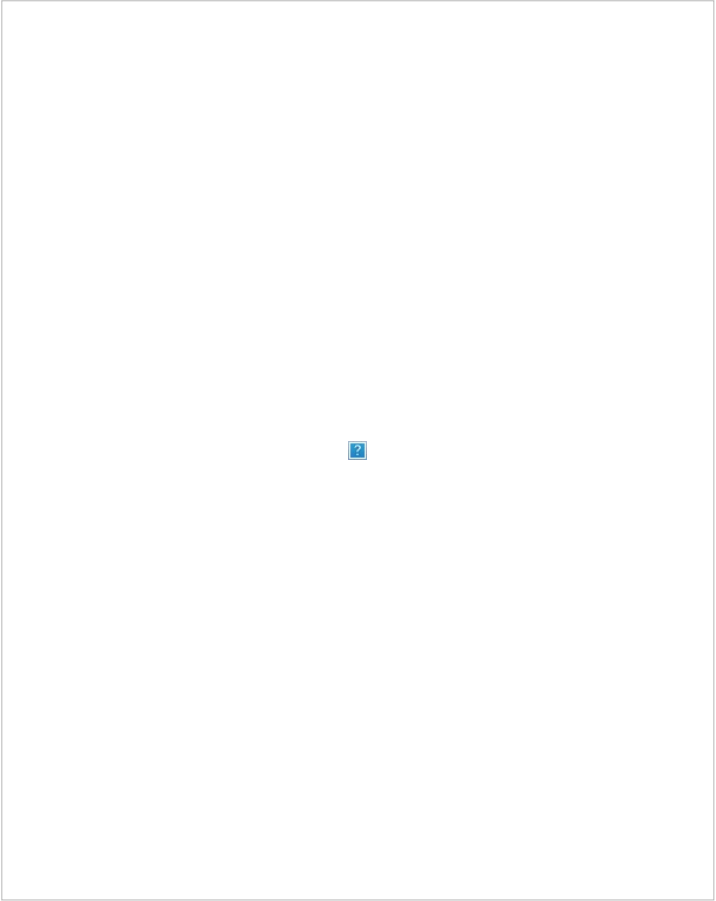
Centauro is a Peruvian capital corporation that focuses on exploration, mining, and processing of polymetallic minerals, such as Au, Ag, and Cu.

SLR has not independently verified this information and this information is not necessarily indicative of the mineralization at El Porvenir.





Figure 20-1: Adjacent Properties





21.0 Other Relevant Data and Information

No additional information or explanation is necessary to make this TRS understandable and not misleading.





22.0 Interpretation and Conclusions

22.1 Geology and Mineral Resources

- The Mineral Resource estimate was prepared by Nexa. The resource estimate has been audited and accepted by the QP.
- Exclusive of Mineral Reserves, the estimated EOY2023 Measured and Indicated Mineral Resources attributable to Nexa comprise:
 - o El Porvenir underground (83.48% attributable): 3.24 Mt at 3.29% Zn, 0.21% Cu, 62.2 g/t Ag, and 0.97% Pb containing 106.6 kt of Zn, 6.8 kt of Cu, 6,485 koz of Ag, and 31.1 kt of Pb.
 - o Atacocha underground (75.96% attributable): 2.71 Mt at 3.35% Zn, 0.33% Cu, 55.0 g/t Ag, and 0.94% Pb containing 90.8 kt of Zn, 9.0 kt of Cu, 4,792 koz of Ag, and 25.4 kt of Pb.
 - o San Gerardo open pit (75.96% attributable): 4.31 Mt at 1.12% Zn, 29.8 g/t Ag, 0.89% Pb, and 0.22 g/t Au containing 48.4 kt Zn, 4,128 koz Ag, 38.4 kt Pb, and 31.1 koz Au.
- In addition, the El Porvenir EOY2023 Inferred Mineral Resources attributable to Nexa total 9.23 Mt at 3.83% Zn, 0.24% Cu, 82.9 g/t Ag, and 1.32% Pb.
- Atacocha EOY2023 Inferred Mineral Resources attributable to Nexa total 6.12 Mt at 4.09% Zn, 0.56% Cu, 77.3 g/t Ag, and 1.21% Pb for Atacocha underground, and 1.29 Mt at 1.27% Zn, 32.7 g/t Ag, 1.15% Pb, and 0.22 g/t Au for San Gerardo open pit.
- El Porvenir and Atacocha feature skarn and hydrothermal vein/breccia-style mineralization. El Porvenir also has stratabound deposits, while Atacocha has porphyry mineralization. Controls on mineralization are lithological, mineralogical, and structural.
- The El Porvenir and Atacocha database closure date was January 31, 2023. Between then and the effective date of this report, 252 drill holes and 1,727 channels were completed at El Porvenir and 32 channels and 18 DDH were completed at Atacocha. SLR does not consider this to have a material impact on the estimated Mineral Resources.
- Protocols for drilling, sampling, analysis, verification, and security meet industry standard practices. The drill hole database was verified by SLR and is suitable for Mineral Resource estimation.
- The Mineral Resource estimates are completed to industry standards using reasonable and appropriate parameters and are acceptable for conversion to Mineral Reserves.
- Nexa has defined several polymetallic prospects located near the deposits, which warrant additional exploration, including the Integration Zone between the El Porvenir and Atacocha underground mines.

22.2 Mining and Mineral Reserves

- The Cerro Pasco Complex consists of the El Porvenir underground mine, the Atacocha underground mine, and the San Gerardo open pit mine.
 - o Production is currently from the San Gerardo mine, which feeds the Atacocha processing plant that has a nominal throughput of 4,400 tpd, and the El Porvenir





underground mine, which feeds the El Porvenir processing plant that has a nominal throughput of 6,500 tpd.

- o The Atacocha underground mine was placed in care and maintenance in 2020 to focus all production at the San Gerardo open pit mine. Atacocha is planned to resume production in 2027 when the San Gerardo pit has reached the end of its mine life.
- o The Atacocha Mine will be integrated with the El Porvenir Mine and both will feed the El Porvenir processing plant.
- The Mineral Reserve estimates were prepared by Nexa and reviewed and accepted by SLR.
 - o On an 83.48% Nexa attributable ownership basis, El Porvenir underground Mineral Reserves total 12.2 Mt averaging 4.11% Zn, 0.23% Cu, 72.9 g/t Ag, and 1.20% Pb.
 - o On a 75.96% Nexa attributable ownership basis, Atacocha underground Mineral Reserves total 4.3 Mt averaging 4.33% Zn, 0.40% Cu, 79.8 g/t Ag, and 1.34% Pb.
 - o On a 75.96% Nexa attributable ownership basis, San Gerardo open pit Mineral Reserves total 3.3 Mt at an average grade of 0.99% Zn, 34.9 g/t Ag, 0.27 g/t Au, and 1.15% Pb.
- The assumptions, parameters, and methodology used to estimate Mineral Reserves meet industry standard practices and are appropriate for the style of mineralization and proposed mining methods.
- The underground mines are planned to be mined using CAF and SLS mining methods. Backfill in the form of unconsolidated backfill from waste development and hydraulic fill from tailings will be used for both mining methods.
- Underground mine design and support recommendations have been developed using industry standard geotechnical data and analysis methods.
- The dilution factors assumed for SLS are low when compared to surveyed stopes and planned designs reconciliation data provided by Nexa.
 - o SLR has investigated the effect of higher dilution and notes that approximately 2% of the total Mineral Reserves would be impacted. This is not considered to be a material difference.
- Mining of the San Gerardo open pit is planned using conventional open pit mining methods with drill and blast operations using excavators and trucks.
- Open pit NSR block value calculations are based on historical performance of the concentrator, historical operating costs and current smelter contracts.
- Open pit calculated block model NSR values are evaluated against the internal break-even value. Blocks classified as Measured or Indicated Mineral Resources with an NSR value above the internal break-even value are included in the Mineral Reserve.



22.3 Mineral Processing

22.3.1 El Porvenir

- The El Porvenir concentrator processed 2,220,011 tonnes of ore in 2023 with Cu, Pb, and Zn grades of 0.16%, 1.37% and 2.86% respectively. Recoveries to their respective concentrates were 10.1% Cu, 82.1% Pb, and 88.0% Zn.
- The head grades of Zn, Cu, Au, and Ag have been consistent for the period from 2018 through 2023, while Pb has increased from 0.98% to 1.37%. Pb, Ag, and Au recoveries have increased and the recovery of Ag and Au to the Pb concentrate has increased over the period. Cu grades and recoveries have decreased significantly over the period.
- The average head grades of Zn, Pb, and Cu during 2022 and 2023 were 2.83%, 1.36%, and 0.16%, respectively, and the recoveries of Zn, Pb, and Cu for the period were 87.49%, 81.65%, and 8.67%, respectively.
- Nexa began developing a geometallurgical model for El Porvenir in 2017. The objectives of the work were to develop a geometallurgical model able to predict the recovery of lead, zinc, copper, arsenic, and manganese, concentrate grades, as well as abrasiveness (abrasion index (Ai)) and hardness (Bond ball mill work index (BWi)), and therefore throughput, based on ore source within the deposit.
- Prior to the present Phase 6 study, five phases of geometallurgical studies were carried out. Identified risks include the presence of high-hardness material in intrusive materials and limestone, as well as high abrasiveness in sandstone and clastic materials.
- The potential penalty elements that should be monitored in the Cu Concentrate include As, Sb, Bi, Cd, and combined Pb+Zn. The potential penalty elements in the Pb concentrate are low lead concentrate grade, bismuth, and fluorine. The potential penalty elements in the Zn concentrate are copper and manganese.

22.3.2 Atacocha

- The Atacocha concentrator processed 1,397,192 tonnes of ore in 2023 with Pb and Zn grades of 0.93% and 0.77%, respectively. Recoveries to their respective concentrates were 85.7% Pb and 75.9% Zn.
- Head grades of ore being treated in the Atacocha concentrator have changed since the introduction of open pit ore in early 2016. Head grades of Zn have decreased from 1.8% to 0.77%, Cu has decreased from 0.11% to 0.04%, and Pb has decreased from 1.31% to 0.93% from 2016 to 2023. Since 2019, the copper grades have been too low to allow a separate copper concentrate to be produced.
- The average grades of Zn and Pb during 2022 and 2023 were 0.84% and 0.95%, respectively, and the recoveries of Zn and Pb for the period were 76.57% and 83.64%, respectively. The recoveries used for the cut-off grade and resource model at these grades were 70.44% for Zn and 84.06% for Pb, which compares well to the operating data for Pb, the Zn values being somewhat conservative.
- A metallurgical testing program was carried out to characterize the geometallurgical behaviour of the Atacocha San Gerardo ore according to the 2022-2023 mining plan.
- Prior to the present study, three phases of geometallurgical studies were carried out, increasing the available geometallurgical data progressively to reduce the risk in metallurgical predictions.

- Risks identified include the presence of high hardness and abrasive material in intrusive material and hydrothermal breccias, as well as areas of low Au recovery associated with Au disseminations in pyrite in mainly marble-type material.
- The potential penalty elements in the Pb concentrate are arsenic and fluorine. The potential penalty elements in the Zn concentrate are manganese, silica, and cadmium.

22.4 Infrastructure

22.4.1 Integration of Atacocha and El Porvenir

- The Cerro Pasco integration project aims to maximize the synergy of the Atacocha and El Porvenir mines.
- El Porvenir started in 1950 and is an operating underground mine with multiple accesses including a shaft (Picasso shaft) for ore and people transportation.
- Atacocha started in 1937 comprising an underground mine and an open pit mine. The open pit mine, San Gerardo is currently in operation, and the underground mine has been on care and maintenance since 2020.
- Access to Atacocha underground is by multiple surface tunnels, that are in good condition despite the production suspension.
- Atacocha is currently connected to El Porvenir through two active tunnels: at 4070 and 3300 levels, with traffic of heavy mine equipment, conventional trucks, and mining crews, linking Atacocha surface to El Porvenir underground.
- The integration plan comprises restarting of Atacocha underground, development of additional connections between El Porvenir and Atacocha, expand the Picasso shaft capacity, closure of the Atacocha processing plant in 2027, and construction of a new pipeline to pump El Porvenir mine tailings to the Atacocha tailing dam.
- A combination of transportation methods, including road access, aircraft via Huánuco, and rail to Cerro de Pasco are used to supply the Atacocha and Porvenir mines.
- Off-site infrastructure includes facilities for the transfer of concentrate from truck to rail at Cerro de Pasco to transport concentrate for export by train to the port of Callao. Mine access is via a 13 km dirt road northeast from Cerro de Pasco, and paved road from Lima to Cerro de Pasco (approximately 315 km).
- The main road from Lima to Cerro de Pasco is used for personnel transportation, supply of food, reagents, spare parts, mining supplies, and diesel fuel. Huánuco airport can be used for personnel transportation and emergency situations.
- The power supply for the Atacocha and El Porvenir mines comes from two sources: the national power grid via 50/13.8 kV main substations located near each of the mines and the La Candelaria Hydroelectric Plant, which consists of three turbines (0.5 MVA, 1.2 MVA, and 3.5 MVA), and is connected to the Atacocha and El Porvenir main substations by a 4.6 km long 50 kV transmission line.
- Power is generated at 4,660 kV at the La Candelaria Hydroelectric Plant. All other project loads are fed at 13.8 kV from the main substation through overhead power lines. These power lines are used to deliver power to various locations to support activities during operation of the Complex.



- The El Porvenir TSF receives tailings generated by both the El Porvenir and Atacocha concentrator plants. A portion of tailings is used for hydraulic backfill at El Porvenir. The El Porvenir TSF was originally constructed in the 1970s, and the current elevation of the dam crest is 4,066 MASL. The downstream toe is inferred from available plans to be at 3,920 MASL, resulting in a current dam height of 146 m.
- Nexa is planning to improve the water management system through construction of a perimeter channel (i.e., upstream water diversion) to intercept clean (non-contact water) surface runoff water before it flows into the TSF. Diverted water will be discharged downstream of the TSF in the Lloclla River gorge.

22.4.2 El Porvenir

- The El Porvenir site comprises an underground mine, TSF, waste rock stockpiles, an ore processing facility with associated laboratory and maintenance facilities, and maintenance buildings for underground and surface equipment.
- Additional facilities and structures include an office building, change house facilities, main shaft, ventilation shaft, backfill plant, explosives storage area, hydroelectric power generating plant, power lines and substation, fuel storage tanks, a warehouse and laydown area, and an accommodation camp.

22.4.3 Atacocha

- Atacocha site operations comprise an underground mine, open pit mine, and a process plant facility.
- Supporting on-site infrastructure include maintenance facilities; maintenance buildings for underground and surface equipment, laboratory, and tailings pumping station. Facilities and structures supporting operations include warehouses and laydown areas, offices, dry facilities, hydroelectric generating station, power lines and substation, fuel storage tanks, and accommodations camp.
- A network of site roads that are approximately 6 m wide and total 15 km in length are used by authorized mine personnel and equipment, including ore and waste haul trucks, concentrate haul trucks, support and light duty vehicles to provide access to on-site infrastructure.

22.5 Environment, Permitting, and Social Considerations

- No environmental issues were identified from the documentation available for review that could materially impact the ability to extract the Mineral Resources and Mineral Reserves. SLR understands that El Porvenir and Atacocha have the permits required to continue the mining operations in compliance with applicable Peruvian permitting requirements. Of note, expired authorizations under the renewal process do not interrupt the continuity of the operations (for example, the authorization for discharge of industrial effluent for El Porvenir has been filed by Nexa but it is pending approval by the environmental authority).
- Approval of environmental permits required for the Cerro Pasco Complex Integration is critical for its implementation. Nexa's Environmental Management Superintendent for El Porvenir and Atacocha understands well the environmental permitting requirements and has developed a tracking matrix that identifies the key components of each permit, corrective actions to be implemented to be in compliance, and the status of



implementation of each action. All action items are qualified according to a ranking of criticality established (low, medium and high) for continuity of the operation. The matrix includes the planning for the future environmental permits required for implementation of the Cerro Pasco Complex Integration.

- The monitoring program at El Porvenir includes meteorology, air quality, non ionized radiation, noise, surface water quality, groundwater quality (only one location), spring water quality, effluent discharges, fauna and flora, and TSF physical stability. El Porvenir reports the results of its monitoring program to the authorities according to the frequency stated in the approved resolutions. SLR is not aware of any non-compliance issues raised by the authorities.
- The monitoring program at Atacocha includes effluent discharges, gas emissions, air quality, non-ionizing radiation, noise, surface water quality, groundwater quality, springs water quality, vibrations, soil quality, terrestrial biology (vegetation and wildlife) and aquatic biology, and TSF physical stability. Atacocha reports the results of its monitoring program to the authorities according to the frequency stated in the approved resolutions. SLR is not aware of any non-compliance issues raised by the authorities.
- Nexa utilizes an Integrated Dam Management System (referred to as SIGBar) for the El Porvenir TSF and the Atacocha TSF, which provides guidelines for document management, monitoring, evaluation, risk analysis, compliance with standards and legislation, training of personnel, operation of structures and other provisions.
- SLR's social review indicates that, at present, Nexa's operations at El Porvenir make a positive contribution to sustainability and community well-being. From the review and SLR's site visit, Nexa appears to have the necessary governance documents and tools to manage social risks associated with the Cerro Pasco Complex operations. A grievance mechanism and Community Relations Plans are in place and implemented by the social teams for each of El Porvenir and Atacocha.
- An independent technical evaluation of key components of the Cerro Pasco Complex Integration project completed in early 2024 by a third party did not find any fatal flaws. The evaluation included the TSFs, social risks and permitting. It resulted in a number of findings and recommendations to be considered by Nexa to derisk the Cerro Pasco Complex Integration project.
- Community discontent represents a future risk for the Cerro Pasco Complex operations. The Cerro Pasco Complex Integration project may increase expectations from the local communities in terms of contracting of local services, employment, training and community investment opportunities. The modification of the Environmental Impact Assessment required for Atacocha and El Porvenir imply processes of consultation and Citizen Participation, which could delay the approval process in the event of social disagreement.
- Although there is no written commitment from Nexa to ensure local procurement, the company retains services from local businesses and from contractors that employ local workforce.
- In 2023, Nexa experienced an increase in local hiring for El Porvenir and Atacocha. Nexa has declared local hiring commitments with eight local communities and has specific local hiring targets with two of them.
- Atacocha acquired rights to land from the community of Cajamarquilla via an agreement to construct tailings facilities and ancillary infrastructure. The agreement included various

commitments and obligations, including financial compensation for rights to the land. Atacocha also acquired and subsequently renewed a right-of-way agreement with the community of Ticiacayán associated with hydraulic infrastructure. Community agreements related to rights to land from the community have also been signed for El Porvenir with Comunidad San Francisco de Asís de Yarusyacán y Comunidad Cajamarquilla.

- Independent conceptual Mine Closure Plans have been developed for El Porvenir and Atacocha within the context of Peruvian legislation and are periodically updated. The most recent modification to the Mine Closure Plan for El Porvenir and update to the closure cost estimate was completed in 2020. The most recent modification to the Mine Closure Plan for Atacocha and update to the closure cost estimate was completed in 2022.

22.6 Capital and Operating Costs and Economics

- Capital and operating cost estimates were prepared based on historical operating performance and the current operating budget for 2024, and the forecasted cost estimates for the integration project. SLR considers these capital and operating cost estimates to be reasonable, provided the operation and production targets are realized.
- The LOM production schedule in the cash flow model, covering a 10-year mine life, is based on the December 31, 2023 Mineral Reserves.
- All costs in this report are expressed in Q4 2023 US dollars.
- The economic analysis at average LOM prices of US\$1.24/lb Zn (US\$2,741/t Zn), US\$0.92/lb Pb (US\$2,032/t Pb), US\$3.54/lb Cu (US\$7,809/t Cu), US\$21.72/oz Ag, and US\$1,798/oz Au, demonstrated that the Cerro Pasco Mineral Reserves are economically viable.
- On a 100% ownership basis, the pre-tax NPV at a 7.22% base discount rate is US\$364 million and the after-tax NPV at a 7.22% discount is US\$162 million. The undiscounted pre-tax cash flow is US\$568 million, and the undiscounted after-tax cash flow is US\$290 million.
- There is good potential to extend the mine life through continued conversion of Inferred Resources, with improved economic results.

22.7 Risks

- Underground geotechnical risks:
 - o The impact of faults on the slope stability and ELOS have not been accounted for in the geotechnical empirical analyses. SLR has evaluated the potential underestimate of ELOS (see Section 12.3.2), however, dilution in areas affected by faults may increase compared to that currently anticipated. Mitigation can be applied by installing ground support in the faulted walls and/or by reducing the slope size in those locations, which would impact productivity rates. It is considered that this a low-moderate risk and that these mitigations can be applied during production, so a change to the mine plan/schedule is not required at this stage.
 - o The project is lacking a geotechnical block model. This is best practice and should be implemented. While its absence is considered a low risk, a geotechnical block model allows for a better understanding of the spatial distribution of the geotechnical



conditions and would assist in short-medium term mine planning (and also links back to the point on faults above).

- San Gerardo open pit risks:
 - o Pit slope design outside of the domain sectors was assumed to be 45 degrees for design, this assumption is considered low risk based on the wall height of the north and west satellite pits.
 - o Open pit mining operating costs are defined as constant values for mine planning. However, there is a variable component associated with the haulage distance of the open pit mining costs that requires a truck haulage distance forecast in the LOM plan. There is a low risk that the estimated mining cost will increase over the LOM due to increased truck haulage distances.
- Process risks:
 - o There is a risk of lower metal grades and recoveries than planned and the recovery of deleterious elements in the concentrates that may draw penalties.
 - o The potential penalty elements in the Pb concentrate are arsenic and fluorine. The potential penalty elements in the Zn concentrate are manganese, silica, and cadmium.
 - o Geometallurgical testing has identified the presence of high-hardness material in intrusive materials and limestone, as well as high abrasiveness in sandstone and clastic materials may result in increased operating power and wear material consumption and costs.
 - o Geometallurgical work has identified areas of low Au recovery associated with Au disseminations in pyrite in mainly marble-type material.
- Infrastructure risks:
 - o The age of the current infrastructure and the cost of maintenance is a moderate risk.
 - o Cost and schedule risk for the design and construction of integration infrastructure including the new tailing pumping station and pipeline from El Porvenir to the Atacocha TSF.
- Risks associated with environmental permitting and community relations:
 - o The modifications to the EIA required for both El Porvenir and Atacocha as part of the Cerro Pasco Complex Integration project involve a period of review and approval by the environmental authority. There is a high level of uncertainty associated with the actual duration of the review and approval period due to staffing issues at the SENACE and adjustments to its review and approval processes. As a mitigation measure, Nexa has included additional time in its permitting schedule for the Cerro Pasco Complex Integration project to carry a contingency for the permitting process.
 - o Community discontent represents a future risk for the Cerro Pasco Complex operations since it can lead to blockades and in turn could result in operation interruptions and reputational damage. There is precedent for such conflict given that blockades organized by communities have taken place in the past and, as recently as 2023, led to short suspensions of operations. As mitigation measures, Nexa is mainly working towards addressing and closing commitments with the communities in a more efficient manner, and is revisiting its social management





approach to be more proactive in preventing potential issues or addressing them early to avoid escalation.



23.0 Recommendations

23.1 Geology and Mineral Resources

- 1 Investigate if capping levels should be applied based on high-grade and low grade domains for Zn, Pb, Cu, and Ag for some domains of San Gerardo open pit.
- 2 Fine-tune the estimation workflow and dynamic anisotropy angles calculation to minimize visual grade artifacts observed in some domains (such as “de2” for El Porvenir and “sge” for Atacocha UG). Consider utilizing hangingwall, footwall, and reference surface data to refine local angle precision, alongside auxiliary dip and dip direction charts to identify and rectify any inconsistencies.
- 3 Consider incorporating the blast hole samples to define the LTM mineralization boundaries given that the GCM performs systematically better than the LTM for the San Gerardo open pit.
- 4 Increase the number of density samples to allow more accurate block density estimates.
- 5 Adjust the density estimation methodology to only interpolate where supported by sufficient samples.
- 6 Improve the Mineral Resource classification post-processing, aiming to clean up the remaining isolated blocks of Measured or Indicated classification, such as in the domain “vcn32” of El Porvenir.
- 7 Investigate relaxing the maximum of two composites per drill hole restriction in domain extremities and sparsely drilled areas.
- 8 For the Mineral Resource classification, consider excluding drilling intersections that are sub-parallel to tabular mineralized domains as they significantly reduce drill hole spacing calculations in an artificial manner.
- 9 Use the production data to monitor the selected drill spacing for the minor continuity zones to determine if sufficient confidence is provided to support detailed mine planning, as these domains show less grade and geological continuity.
- 10 In future models, incorporate a structural model to help properly define the estimation trends.
- 11 Improve the field duplicate rates of channels by revising the sampling protocol of duplicates in channels.
- 12 Increase the frequency of monitoring Inspectorate El Porvenir laboratory (Inspectorate EP) results on a batch basis to preliminarily identify and address instances of failure that may require re-analysis.
- 13 Keep monitoring CRMs and other controls to prevent and/or mitigate trends, biases, or other issues which may require sample re-analysis. Continue with periodic external checks across laboratories to ensure the primary laboratory's performance remains satisfactory.
- 14 Ensure all the samples analyzed by ALS are re-assayed using the relevant analytical method when exceeding the detection limit (i.e., samples >10,000 ppm Zn), to prevent few instances detected of incomplete results in the assay database.

- 15 Investigate and address sample discrepancies identified during the data verification process, particularly those related to Au values. These discrepancies, however, are minor and have negligible impact on the overall assessment.
- 16 Maintain standardization of the format and database structure.
- 17 Complete the 2024 exploration program, consisting of an 8,500 m drill program to explore new targets and continue with advanced exploration. The 2024 exploration program budget is approximately US\$2.1 million.
- 18 Improve the reconciliation between the underground production volumes and the mineralization wireframes, to better understand the differences between the along-strike mineralization, and to better quantify the proportion of the discrepancy resulting from the opportunistic mining of ore from across-strike structures.
- 19 To better define mineralized extents, consider completing closer spaced exploration and infill drilling ahead of production, including at orientations better designed to intercept across-strike mineralized structures.

23.2 Mining and Mineral Reserves

1. Review the underground mine designs and mining sequence and incorporate sill pillars where required.
2. Continue underground geotechnical data capture, specifically seismic monitoring around pillars between stopes.
3. Develop an underground geotechnical block model to better spatially define the geotechnical variation.
4. Re-appraise stope stability and ELOS using an updated empirical method, such as the Villaescusa approach, which updates the Potvin approach, particularly the stress factor (A) for the underground.
5. Assess the impact of faults on the stope stability and ELOS, such as using the approach developed by Suorineni, which applies a fault factor to the analyses depending on the intersection geometry between the faults and the planned stope walls for the underground.
6. Implement reconciliation analysis between underground designed stopes and surveyed mined-out stopes to estimate overbreak and underbreak quantities to better define dilution and mining recovery factors.
7. Apply external underground dilution factors as ELOS during the optimization process to capture dilution grade.
8. Develop grade control practices particularly for planned underground SLS stopes to minimize dilution due to orebody irregularities.
9. Add a yearly truck haulage distance forecast to the open pit LOM plan.

23.3 Mineral Processing

- 1 Investigate the addition of instrumentation and process controls to both El Porvenir and Atacocha concentrators including a SCADA system to retrieve and store process data to support daily operations and planning.
- 2 Continue with the geometallurgical program at El Porvenir and Atacocha.

- 3 Perform a geological assessment of the Au association to galena and Au associated with pyrite based on deposit genesis and geometallurgical test results for San Gerardo.
- 4 Carry out a geological assessment for San Gerardo to identify areas associated with oxides in Phase 2 of mining, which represent a risk to the recovery of Pb, Zn, and Au.
- 5 Evaluate the behaviour of low recovery material near upcoming mining phases in the San Gerardo pit.
- 6 Perform recovery studies by size with plant feed material to quantify losses in recoveries of valuable metals by size fraction in both mines.
- 7 The steel consumption estimation model for El Porvenir was derived in 2018, based on circuit data and operating variables reported by Nexa to date. Update these models by incorporating the operational changes made to date in the grinding circuits of both El Porvenir and Atacocha concentrators.

23.4 Infrastructure

- 1 Place priority on the ongoing maintenance of older site infrastructure including piping, electrical, roads, and buildings.
- 2 Remove abandoned infrastructure such as old pipelines as it is replaced by new, to facilitate future maintenance.

23.5 Environment, Permitting, and Social Considerations

- 1 Track closely the action items identified for obtention of new permits and renewal of expired permits required for the Cerro Pasco Complex Integration project and follow up on the status of progress regularly to prevent possible delays in the submission of permitting applications. There is a level of uncertainty regarding the amount of time required by the authorities for review and approval of permitting applications. In order to mitigate the risk of delayed approval, initiate the first steps of the approval process for the main permits as early as possible (for example, the engineering design and the baseline field work).
- 2 Due to uncertainty regarding the potential for acid generation of the waste rock, geochemical evaluation (including static and kinetic geochemical testing on waste rock samples) should be carried out prior to the next Atacocha dam raise (not permitted yet), and prior to closure to inform closure planning and water quality predictions for post-closure. Carry out additional static and kinetic geochemical testing on waste rock and tailings samples to confirm or revise the geochemical characterization. Robust water quality monitoring should continue during operations to verify compliance with the national environmental standards and the appropriateness of the waste rock disposal and water management procedures that are in place.
- 3 Expand the groundwater quality monitoring program at El Porvenir to include additional stations for collection of groundwater quality samples (and subsequent analysis). At a minimum, consideration should be given to the installation of one station upstream of the El Porvenir TSF.
- 4 Consider conducting a Dam Safety Review (DSR) for El Porvenir TSF and the Atacocha TSF in support of mining operation and ore processing in future years, and in order to finalize the detailed mine closure plan prior to moving into the closure stage.
- 5 The following recommendations are proposed for the Atacocha TSF:



- a) Develop TARPs for the piezometers for inclusion in the OMS manual and monitoring plan.
 - b) Capacity assessments of the TSF completed on a bi annual basis with topographic and bathymetric surveys.
 - c) Complete long term geochemical kinetic testing of the tailings.
 - d) Monitor the water quality from the TSF subsurface drains.
- 6 The same recommendations listed above are proposed for the El Porvenir TSF. In addition, implement a groundwater monitoring program at the El Porvenir TSF to determine levels of metals and sulphates. Monitoring stations should be implemented both upstream and downstream of the El Porvenir TSF.
- 7 Implement a water balance for ongoing operations to be updated by Mine personnel using meteorological and water monitored data on a regular basis (at least monthly). The water balance is an important tool to track trends and conduct short term predictions through simulation of variable operating and/or climatic scenarios to support decision making associated with tailings pond operation (e.g., maintaining adequate freeboard at all times).
- 8 Develop an integrated water balance that reflects the interaction between the El Porvenir and Atacocha operations from a water balance perspective to identify and predict possible scenarios of interruption of mine operations due to water management issues and/or dam safety concerns (e.g., not maintaining adequate dam freeboard).
- 9 El Porvenir and Atacocha have significant social commitments as the needs and expectations of local communities/stakeholders are high. Managing commitments requires an adequate tracking tool and implementation plan to honour commitments. SLR recommends that Nexa considers adopting a robust tracking tool to track commitments and allocate adequate resources to use it and keep it up to date, including an escalation process for overdue commitments. This action will avoid mismanagement of commitments, prevent potential conflicts, and demonstrate Nexa's efforts to maintain good relationships with host communities.
- 10 Review the current social area of influence for both El Porvenir and Atacocha to confirm or update its delineation in case new local communities or Indigenous communities should be added (e.g., Anexo Joraoniyoc, which belongs to Comunidad Campesina de San Francisco de Asis de Yarusyacan for the Atacocha mine site). This is a key action to identify potential impacts and develop social management plans for the newly added communities in the revised area of influence. The determination of the social area of influence is a dynamic matter that requires regular review. SLR understands that Nexa is already planning to review the current social area of influence and it held a meeting on this topic with the environmental authority as one of the initial steps.





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25.0 Reliance on Information Provided by the Registrant

This TRS has been prepared by SLR and by Nexa. The information, conclusions, opinions, and estimates contained herein are based on:

- Information available to SLR at the time of preparation of this TRS.
- Assumptions, conditions, and qualifications as set forth in this TRS.
- Data, reports, and other information supplied by Nexa and other third-party sources.

For the purpose of this TRS, the QP has relied on ownership information provided by Nexa in a legal opinion by the Legal Corporate Manager and Institutional Affairs of Nexa Peru dated March 6, 2024 entitled “PE_ATA_EP_REL_ANUAL_PM_2023 Legal Opinion” (Bardales Rojas, 2024). The QP has not researched property title or mineral rights for Cerro Pasco as we consider it reasonable to rely on Nexa’s legal counsel who is responsible for maintaining this information.

SLR has relied on Nexa for guidance on applicable taxes, royalties, and other government levies or interests, applicable to revenue or income from the Cerro Pasco Complex in the Executive Summary and Section 19. As the Complex has been in operation for over ten years, Nexa has considerable experience in this area.

The Qualified Persons have taken all appropriate steps, in their professional opinion, to ensure that the above information from Nexa is sound.

Except as provided by applicable laws, any use of this TRS by any third party is at that party’s sole risk.





26.0 Date and Signature Page

This report titled “Technical Report Summary on Cerro Pasco Complex Integration, Pasco Province, Peru” with an effective date of December 31, 2023 was prepared and signed by:

Dated at Toronto, ON
March 27, 2024

(Signed) *SLR Consulting (Canada) Ltd*

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Dated at Lima, Peru
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Technical Report Summary on the Vazante Polymetallic Operations, Minas Gerais, Brazil
SLR Project No: 233.03245.R0000

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FINAL

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CONTENTS	
1.0 EXECUTIVE SUMMARY	1-14
1.1 Summary	1-14
1.2 Economic Analysis	1-20
1.3 Technical Summary	1-23
2.0 INTRODUCTION	2-1
2.1 Site Visits	2-1
2.2 Sources of Information	2-1
2.3 List of Abbreviations	2-3
3.0 PROPERTY DESCRIPTION	3-1
3.1 Location	3-1
3.2 Land Tenure	3-3
3.3 Encumbrances	3-13
3.4 Royalties	3-13
4.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY	4-1
4.1 Accessibility	4-1
4.2 Climate	4-1
4.3 Local Resources	4-1
4.4 Infrastructure	4-1
4.5 Physiography	4-2
5.0 HISTORY	5-1
5.1 Prior Ownership	5-1
5.2 Exploration and Development History	5-1
5.3 Historical Resource Estimates	5-6
5.4 Past Production	5-6
6.0 GEOLOGICAL SETTING, MINERALIZATION, AND DEPOSIT	6-1
6.1 Regional Geology	6-1
6.2 Local Geology	6-4
6.3 Property Geology	6-8
6.4 Hydrothermal Alteration	6-14
6.5 Mineralization	6-16
6.6 Deposit Descriptions	6-18
6.7 Deposit Types	6-26
7.0 EXPLORATION	7-1
7.1 Exploration	7-1
7.2 Drilling	7-20
7.3 Geotechnical and Hydrogeology	7-42
8.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY	8-1



8.1	Sample Preparation and Analysis	8-1
8.2	Quality Assurance and Quality Control (QA/QC)	8-5
9.0	DATA VERIFICATION	9-1
10.0	MINERAL PROCESSING AND METALLURGICAL TESTING	10-1
10.1	Summary	10-1
10.2	Recent Test Work	10-1
10.3	Current Performance	10-5
10.4	Deleterious Elements	10-5
11.0	MINERAL RESOURCE ESTIMATES	11-1
11.1	Summary	11-1
11.2	Hypogene Mineralization (Willemite)	11-3
11.3	Supergene Mineralization (Calamine)	11-58
11.4	Aroeira Tailings	11-90
12.0	MINERAL RESERVE ESTIMATES	12-1
12.1	Summary	12-1
12.2	Dilution	12-2
12.3	Mining Extraction	12-3
12.4	Geotechnical and Hydrological Studies	12-4
12.5	Cut-Off Value	12-10
12.6	Reconciliation	12-12
13.0	MINING METHODS	13-1
13.1	Mine Design	13-1
13.2	Mining Method	13-3
13.3	Life of Mine Plan	13-9
13.4	Infrastructure	13-11
13.5	Mine Equipment	13-21
14.0	PROCESSING AND RECOVERY METHODS	14-1
14.1	Summary	14-1
14.2	Plant C	14-4
14.3	Plant W	14-4
14.4	Zinc Concentrate Dewatering	14-5
14.5	Tailings Dewatering	14-5
14.6	Concentrate Handling	14-5
14.7	Concentrate Sales and Processing	14-6
14.8	Energy, Water, and Process Materials Requirements	14-6
14.9	Manpower	14-6
15.0	INFRASTRUCTURE	15-1
15.1	Infrastructure	15-1
16.0	MARKET STUDIES	16-1



16.1	Markets	16-1
16.2	Contracts	16-4
17.0	ENVIRONMENTAL STUDIES, PERMITTING, AND PLANS, NEGOTIATIONS, OR AGREEMENTS WITH LOCAL INDIVIDUALS OR GROUPS	17-1
17.1	Environmental Aspects	17-1
17.2	Mine Waste and Water Management	17-8
17.3	Project Permitting	17-12
17.4	Social or Community Requirements	17-15
17.5	Mine Closure Requirements	17-20
18.0	CAPITAL AND OPERATING COSTS	18-1
18.1	Capital Costs	18-1
18.2	Operating Costs	18-1
19.0	ECONOMIC ANALYSIS	19-1
19.1	Economic Criteria	19-1
19.2	Cash Flow	19-3
19.3	Sensitivity Analysis	19-6
20.0	ADJACENT PROPERTIES	20-1
21.0	OTHER RELEVANT DATA AND INFORMATION	21-1
22.0	INTERPRETATION AND CONCLUSIONS	22-1
22.1	Geology and Mineral Resources	22-1
22.2	Mining and Mineral Reserves	22-1
22.3	Mineral Processing	22-2
22.4	Environment & Social	22-3
22.5	Costs and Economic Analysis	22-4
23.0	RECOMMENDATIONS	23-1
23.1	Geology and Mineral Resources	23-1
23.2	Mining and Mineral Reserves	23-1
23.3	Mineral Processing	23-2
23.4	Environment & Social	23-2
23.5	Cost and Economic Analysis	23-3
24.0	REFERENCES	24-1
25.0	RELIANCE ON INFORMATION PROVIDED BY THE REGISTRANT	25-1
26.0	DATE AND SIGNATURE PAGE	26-1





TABLES

Table 1-1:	Cash Flow Summary	1-22
Table 1-2:	Summary of Mineral Resources as of December 31, 2020	1-25
Table 1-3:	Summary of Mineral Reserves as of December 31, 2020	1-27
Table 1-4:	Sustaining Capital Cost Estimate	1-31
Table 1-5:	Operating Cost Estimate	1-31
Table 3-1:	List of Mining Concessions, Mining Applications, and Right to Apply for Mining Concessions	3-4
Table 3-2:	List of Exploration Licenses	3-6
Table 3-3:	List of Surface Rights	3-10
Table 5-1:	Summary of Exploration and Development History	5-2
Table 5-2:	Summary of Open Pit Mine Production	5-7
Table 5-3:	Summary of Underground Mine Production	5-8
Table 7-1:	Summary of Ground Based Geophysical Surveys	7-11
Table 7-2:	Summary of Regional Exploration Drilling	7-22
Table 7-3:	Summary of the Open Pit, Underground, and Tailings Sample Drill Hole and Sampling Data as at April 30, 2020	7-23
Table 7-4:	Summary of Extension Drilling Completed by Year	7-25
Table 7-5:	Summary of Zinc Mineralization, Extremo Norte and Lumiadeira/Sucuri Deposits	7-35
Table 7-6:	Summary of Zinc Mineralization, Aroeira Tailings Drill Holes	7-36
Table 7-7:	Example of Zinc Mineralization, Calamine Drilling	7-37
Table 8-1:	Summary of Analytical Procedures for the Vazante Laboratory	8-4
Table 8-2:	Summary of QA/QC Protocols	8-5
Table 8-3:	Summary of QA/QC Samples Processed from July 1, 2019 to April 15, 2020	8-6
Table 8-4:	Summary of QA/QC Samples from the Calamine 2017, 2018, and 2019 Drilling Programs	8-8
Table 10-1:	Pilot Study Aroeira Tailings Sample Composition	10-2
Table 10-2:	Vazante Historical Performance	10-5
Table 11-1:	Summary of Mineral Resources as of December 31, 2020	11-2
Table 11-2:	Summary of Drill Hole and Channel Sample Databases, Vazante and Extremo Norte	11-4
Table 11-3:	Summary Of Uncapped, Clustered Raw Sample Statistics, Willemite Mineralization	11-16
Table 11-4:	Summary of Capped, Declustered Sample Statistics, Willemite Mineralization	11-23
Table 11-5:	Summary of Capped, Composite Sample Statistics, Willemite Mineralization	11-24
Table 11-6:	Summary of Variogram Parameters, Willemite Mineralization	11-30
Table 11-7:	Block Model Definition, Vazante and Extremo Norte Deposits	11-33
Table 11-8:	List of Block Model Attributes, Vazante and Extremo Norte Deposits	11-34
Table 11-9:	Search Parameters and Estimation Strategies, Primary Mineralized Wireframe, Vazante Deposit	11-35





Table 11-10:	Comparison of Composite Sample Grades with Estimated Block Model Grades, Willemite	11-36
Table 11-11:	Resource NSR Data- Willemite Mineralization	11-51
Table 11-12:	Average NSR Factors For the Willemite Mineralization	11-53
Table 11-13:	Mineral Resources for the Vazante and Extremo Norte Mineralization as of December 31, 2020	11-57
Table 11-14:	Summary of Previous Mineral Resources as of December 31, 2019	11-57
Table 11-15:	Summary of Drill Hole Database, Calamine Mineralization	11-59
Table 11-16:	Summary of Uncapped, Clustered Raw Sample Statistics, Calamine Mineralization	11-68
Table 11-17:	Summary of Capped, Declustered Sample Statistics, Calamine Mineralization	11-69
Table 11-18:	Summary of Capped, Composite Sample Statistics, Calamine Mineralization	11-70
Table 11-19:	Summary of Bulk Density Measurements, Supergene Mineralization	11-73
Table 11-20:	Summary of Variogram Parameters, Supergene Mineralization	11-74
Table 11-21:	Initial Block Model Definition, Supergene Mineralization	11-75
Table 11-22:	List of Initial Block Model Attributes, Calamine Mineralization	11-75
Table 11-23:	List Of Re-Blocked Block Model Attributes, Supergene Mineralization	11-76
Table 11-24:	Search Parameters and Estimation Strategies, Supergene Mineralization	11-77
Table 11-25:	Comparison of Composite Sample Grades with Estimated Block Model Grades, Supergene Mineralization	11-78
Table 11-26:	Block Model NSR Data- Calamine Mineralization	11-84
Table 11-27:	Average NSR Factors for the Supergene Mineralization	11-86
Table 11-28:	Summary of the Whittle Input Parameters	11-87
Table 11-29:	Mineral Resources For the Calamine Mineralization as of December 31, 2020	11-89
Table 11-30:	Summary of Drill Hole Database, Tailings Mineralization	11-91
Table 11-31:	Summary of Uncapped, Clustered Raw Sample Statistics, Aroeira Tailings	11-97
Table 11-32:	Summary of Capped, Composite Statistics, Aroeira Tailings	11-99
Table 11-33:	Summary of Variogram Parameters, Aroeira Tailings	11-101
Table 11-34:	Initial Block Model Definition, Aroeira Tailings	11-102
Table 11-35:	List of Initial Block Model Attributes, Aroeira Tailings	11-102
Table 11-36:	List of Re-Blocked Block Model Attributes, Aroeira Tailings	11-103
Table 11-37:	Search Parameters and Estimation Strategies, Aroeira Tailings	11-104
Table 11-38:	Comparison of Composite Sample Grades with Estimated Re-Blocked Model Grades, Aroeira Tailings	11-105
Table 11-39:	Block Model NSR Data- Aroeira Tailings	11-111
Table 11-40:	Average NSR Factors for the Aroeira Tailings	11-113
Table 11-41:	Mineral Resources for the Aroeira Tailings as of December 31, 2020	11-114
Table 12-1:	Summary of Mineral Reserves as of December 31, 2020	12-1





Table 12-2: Mine Dilution	12-2
Table 12-3: Mining Quality Control 2020	12-3
Table 12-4: Mining Extraction Factors	12-4
Table 12-5: Rock Mass Quality	12-5
Table 12-6: Modified Stability Number	12-5
Table 12-7: Rock Mass Classification	12-6
Table 12-8: NSR Data	12-11
Table 12-9: Average NSR Factors	12-12
Table 12-10: Reconciliation Data	12-13
Table 12-11: Recovered Compared to Reserve Model	12-13
Table 13-1: Stope Average Widths (2019 YE)	13-1
Table 13-2: Range of Mineralization Dips	13-3
Table 13-3: LOM Production	13-9
Table 13-4: Mine Ventilation Air Flow	13-18
Table 13-5: Mine Equipment	13-21
Table 13-6: Equipment Statistics	13-21
Table 13-7: Personnel	13-22
Table 17-1: Operating Licences	17-12
Table 17-2: Licences for Water Management and Water Use	17-13
Table 18-1: Sustaining Capital Cost Estimate	18-1
Table 18-2: Operating Cost Estimate	18-2
Table 19-1: After-Tax Cash Flow Summary	19-4
Table 19-2: Cash Flow Analysis	19-6
Table 19-3: After-Tax Sensitivity Analysis	19-7

FIGURES

Figure 3-1: Location Map	3-2
Figure 3-2: Location of Mining Concessions and Mineralization	3-5
Figure 3-3: Location of Exploration Concessions	3-9
Figure 3-4: Location of Surface Rights Titles	3-12
Figure 5-1: Underground Mine Development 1982 to 2019, Vazante and Extremo Norte Mines	5-6
Figure 5-2: Summary of Open Pit and Underground Mine Production	5-10
Figure 6-1: Regional Geology	6-2
Figure 6-2: Geological Map of the Amazonian Shield	6-3
Figure 6-3: Regional Geological Map of the Brasilia Fold Belt	6-5





Figure 6-4: Local Geology of the Vazante Mine Area	6-6
Figure 6-5: Generalized Stratigraphic Column of the Vazante Area	6-7
Figure 6-6: Property Geology	6-9
Figure 6-7: Examples of Phyllites of the Serra Do Garrote Formation	6-10
Figure 6-8: Intraclast Breccias with Subangular Clasts in Dolomite Matrix, with Stromatactis Filled with Dolomite	6-11
Figure 6-9: Images of Gray, Massive Dolomite Containing Birds-Eyes (A), and Bird's Eyes Structures (B)	6-11
Figure 6-10: View of a Metapelite Featuring Two Metamorphic Foliations Oriented Oblique to Each Other	6-12
Figure 6-11: View of Pink-Coloured Dolomite with Algal Mats and Primary Bedding (A) and Containing Meta-Marl Intercalations (B)	6-13
Figure 6-12: Example of Dolomite Breccia with Intense Veinlet Development	6-14
Figure 6-13: Typical Example of Alteration Style and Mineralogy	6-15
Figure 6-14: View of the Geology, Alteration, and Mineralization	6-17
Figure 6-15: Cross Section of the Lumiadeira Area, Vazante Mine	6-19
Figure 6-16: Cross Section of the Sucuri Area, Vazante Mine	6-20
Figure 6-17: Proposed Paragenetic History of the Extremo Norte Deposit	6-22
Figure 6-18: Proposed Genetic Model for the Extremo Norte Deposit	6-23
Figure 6-19: View of In-Situ Calamine Mineralization	6-24
Figure 6-20: Example of Calamine Mineralization in Drill Core	6-25
Figure 7-1: Location Plan, Rock Chip Samples	7-3
Figure 7-2: Location Plan, Panning Concentrate Samples	7-4
Figure 7-3: Location Plan, Stream Sediment Samples	7-5
Figure 7-4: Location Plan, Soil Samples	7-6
Figure 7-5: Regional Magnetic Data for the Vazante Mine Area	7-8
Figure 7-6: Regional Gamma Spectroscopy Data for the Vazante Mine Area	7-9
Figure 7-7: Zinc Occurrences of the Vazante Mine Area	7-14
Figure 7-8: Hydrothermal Breccia and Zinc Sulphide Mineralization from the Sungem Target	7-15
Figure 7-9: Vein-Hosts Sphalerite in Veins Associated with Hydrothermal Dolomite and Quartz, Mata Preta Prospect	7-16
Figure 7-10: Location of the Mata Preta Prospect and Potential Mineralized Corridor	7-17
Figure 7-11: Three Dimensional Model of the Mata Preta Prospect Showing Multi Element Geochemical Anomalies	7-18
Figure 7-12: Compilation of Historical Results, Carrapato Trend	7-19
Figure 7-13: Exploration Potential of the Carrapato Trend	7-19
Figure 7-14: Location of Regional Exploration Drill Holes	7-21
Figure 7-15: Location of Drill Holes and Channel Samples, Vazante and Extremo Norte Deposits	7-24





Figure 7-16: View of Vazante Core Logging Facilities	7-27
Figure 7-17: View of the Vazante Operation Tailings Storage Facilities	7-28
Figure 7-18: View of the Tailings Sampling Drilling Equipment	7-28
Figure 7-19: Collar Locations for the Antiga and Aroeira Tailings Drill Holes	7-29
Figure 7-20: Representative Cross Section of the Extremo Norte Deposit	7-31
Figure 7-21: Representative Cross Section of the Vazante Deposit	7-32
Figure 7-22: Representative Cross Section of the Aroeira Tailings Sampling Program	7-33
Figure 7-23: Representative Cross Section of the Calamine Mineralization	7-34
Figure 8-1: Comparison of Bulk Density Measurements	8-2
Figure 8-2: Zinc Blank Sample Control Chart, July 1, 2019 to April 15, 2020	8-6
Figure 8-3: Zinc Standard Reference Material (BRMVZSTD007) Control Chart, July 1, 2019 to April 15, 2020	8-7
Figure 8-4: Zinc Pulp Duplicate Sample Control Chart, July 1, 2019 to April 15, 2020	8-7
Figure 8-5: Zinc Replicate Sample Control Chart, July 1, 2019 to April 15, 2020	8-8
Figure 10-1: Rougher Variability Test Work Results	10-3
Figure 11-1: Drill Hole and Channel Sample Locations, Vazante and Extremo Norte Deposits	11-5
Figure 11-2: Relative Value by Metal, Willemite Mineralization	11-7
Figure 11-3: View of the Mineralized Wireframe Outlines, Willemite Mineralization	11-8
Figure 11-4: Sample Cross Section of the Mineralized Wireframes, Vazante Mine	11-9
Figure 11-5: Plan View of the Topographic Surfaces	11-11
Figure 11-6: Plan and Longitudinal Views of the Underground Development	11-12
Figure 11-7: Longitudinal View of the Mined Excavations, Vazante Mine	11-14
Figure 11-8: Longitudinal View of the Mined Excavations, Extremo Norte Mine	11-15
Figure 11-9: Raw Assay Histogram and Probability Plots for Zinc Within the Primary Mineralized Wireframe, Vazante Deposit	11-17
Figure 11-10: Raw Assay Histogram and Probability Plots for Zinc Within the Secondary Mineralized Wireframe, Vazante Deposit	11-18
Figure 11-11: Raw Assay Histogram and Probability Plots for Zinc Within the Tertiary Mineralized Wireframe, Vazante Deposit	11-19
Figure 11-12: Raw Assay Histogram and Probability Plots for Zinc Within the Primary Mineralized Wireframe, Extremo Norte Deposit	11-20
Figure 11-13: Raw Assay Histogram and Probability Plots for Zinc Within the Secondary Mineralized Wireframe, Extremo Norte Deposit	11-21
Figure 11-14: Raw Assay Histogram and Probability Plots for Zinc Within the Secondary Mineralized Wireframe, Extremo Norte Deposit	11-22
Figure 11-15: Relationship of Measured Bulk Density with Zinc, Lead, and Iron Grades, Vazante Deposit	11-25
Figure 11-16: Relationship of Measured Bulk Density with Zinc, Lead, and Iron Grades, Extremo Norte Deposit	11-26





Figure 11-17: Contoured Zinc Grades, Vazante Deposit	11-28
Figure 11-18: Example Variograms for Zinc Grades Contained Within the Primary Mineralized Wireframe Domain, Vazante Deposit	11-29
Figure 11-19: Example Variograms for Zinc Grades Contained Within the Primary Mineralized Wireframe Domain, Extremo Norte Deposit	11-30
Figure 11-20: Swath Plots for Zinc, Primary Mineralized Wireframes, Vazante Deposit	11-38
Figure 11-21: Swath Plots for Zinc, Primary Mineralized Wireframes, Extremo Norte Deposit	11-39
Figure 11-22: Quantile-Quantile Plots of the Zinc Grades, Vazante Deposit	11-40
Figure 11-23: Quantile-Quantile Plots of the Zinc Grades, Extremo Norte Deposit	11-41
Figure 11-24: Scatter Plots of the Zinc Grades, Vazante Deposit	11-43
Figure 11-25: Scatter Plots of the Zinc Grades, Extremo Norte Deposit	11-44
Figure 11-26: Normal Scores Histogram Plots of the Zinc Grades, Vazante Deposit	11-46
Figure 11-27: Normal Scores Histogram Plots of the Zinc Grades, Extremo Norte Deposit	11-47
Figure 11-28: View of the Final Mineral Resource Classification, Primary Mineralized Wireframe, Vazante Deposit	11-49
Figure 11-29: View of the Final Mineral Resource Classification, Primary Mineralized Wireframe, Extremo Norte Deposit	11-50
Figure 11-30: Zinc Grade-Recovery Curve for the Willemite Mineralization	11-52
Figure 11-31: Lead Grade-Recovery Curve for the Willemite Mineralization	11-53
Figure 11-32: View of the Mineral Resource Reporting Panels, Vazante Deposit	11-55
Figure 11-33: View of the Mineral Resource Reporting Panels, Extremo Norte Deposit	11-56
Figure 11-34: Drill Hole Locations, Calamine Mineralization	11-61
Figure 11-35: Inclined View of the Lithology Model (Overburden Removed), Calamine Mineralization	11-62
Figure 11-36: Sample Cross Section of the Lithology and Weathering Models, Calamine Mineralization	11-63
Figure 11-37: View of the Mineralized Wireframe Outlines, Calamine Mineralization	11-65
Figure 11-38: Relative Value by Metal, Calamine Mineralization	11-66
Figure 11-39: Plan View of the Topographic Surface, Supergene Mineralization	11-67
Figure 11-40: Raw Assay Histogram and Probability Plots for Zinc Within the Calamine Mineralized Wireframes	11-69
Figure 11-41: Histogram of Sample Lengths Within the Calamine Mineralized Wireframes	11-70
Figure 11-42: Examples of Mineralization Styles and Material Types, Supergene Mineralization	11-72
Figure 11-43: Omni Directional Variogram, Zinc, Supergene Mineralization	11-74
Figure 11-44: Swath Plot for Zinc, Calamine	11-79
Figure 11-45: Quantile-Quantile Plot of the Zinc Grades, Supergene	11-80
Figure 11-46: Scatter Plot of the Zinc Grades, Supergene	11-81
Figure 11-47: Normal Scores Plot of the Zinc Grades, Supergene	11-82





Figure 11-48: View of the Final Classified Mineral Resources, Supergene	11-83
Figure 11-49: Zinc Grade-Recovery Curve for the Supergene Mineralization	11-85
Figure 11-50: Lead Grade-Recovery Curve for the Supergene Mineralization	11-86
Figure 11-51: Plan View of the Open Pit Surface, Supergene Mineral Resources	11-88
Figure 11-52: Drill Hole Location Map, Tailings Sampling Programs	11-92
Figure 11-53: Inclined View of the Planned vs Completed Drill Holes, Aroeira Tailings	11-93
Figure 11-54: Plan View of the Drill Hole Locations and Mineralized Wireframe, Aroeira Tailings	11-94
Figure 11-55: View of the Aroeira Tailings Storage Area as of December 8, 2020	11-96
Figure 11-56: Frequency Histogram of the Zinc Uncapped Raw Sample Statistics, Aroeira Tailings	11-97
Figure 11-57: Frequency Histogram of the Lead Uncapped Raw Sample Statistics, Aroeira Tailings	11-98
Figure 11-58: Frequency Histogram of the Silver Uncapped Raw Sample Statistics, Aroeira Tailings	11-98
Figure 11-59: Histogram of Sample Lengths, Aroeira Tailings Samples	11-99
Figure 11-60: Distribution of Dry Bulk Density Measurements, Aroeira Tailings	11-100
Figure 11-61: Example Variograms for Zinc Grades Contained Within the Aroeira Tailings Mineralized Wireframe Domain	11-101
Figure 11-62: Swath Plot for Zinc, Aroeira Tailings	11-106
Figure 11-63: Quantile-Quantile Plot of the Zinc Grades, Aroeira Tailings	11-107
Figure 11-64: Scatter Plot of the Zinc Grades, Aroeira Tailings	11-108
Figure 11-65: Normal Scores Plot of the Zinc Grades, Aroeira Tailings	11-109
Figure 11-66: Excavation of the Aroeira Tailings	11-110
Figure 11-67: Zinc Grade-Recovery Curve for the Aroeira Tailings	11-112
Figure 11-68: Lead Grade-Recovery Curve for the Aroeira Tailings	11-113
Figure 12-1: Empirical Support Chart	12-6
Figure 12-2: ELOS Graph for Vazante Mine	12-8
Figure 12-3: Stope Stability Graph	12-9
Figure 13-1: Mine Longitudinal Section Showing Resource Thickness Contours	13-2
Figure 13-2: VRM and SLOS Longhole Stope Layouts	13-5
Figure 13-3: VRM Longhole Stope Sequence Schematic	13-6
Figure 13-4: Cut and Fill Stoping Schematic	13-8
Figure 13-5: Mine Production Profile for LOM	13-10
Figure 13-6: Mine Development Profile for LOM	13-10
Figure 13-7: Mine Deepening Project Longitudinal Section	13-12
Figure 13-8: Mine Dewatering Rate	13-13





Figure 13-9: Historical Rain and Dewatering Rates	13-13
Figure 13-10: Cumulative Development versus Pumping Rate	13-14
Figure 13-11: Mine Longitudinal Section Showing Extent of Mine Workings and Water Table Levels	13-15
Figure 13-12: Registered Sinkholes (January 2006 to July 2020)	13-16
Figure 13-13: Registered Sinkholes (2001 to 2020)	13-17
Figure 13-14: Vazante LOM Airflow	13-19
Figure 13-15: Extremo Norte LOM Airflow	13-20
Figure 13-16: Mine Ventilation Schematic Diagram	13-20
Figure 14-1: Process Block Flow Diagram	14-2
Figure 14-2: Simplified Process Flow Sheet	14-3
Figure 15-1: Vazante Mine Surface Infrastructure	15-2
Figure 15-2: Site Plan	15-3
Figure 15-3: General Site Layout, Process Plant Area	15-4
Figure 15-4: General Site Layout, Administration Area	15-5
Figure 15-5: Aroeira Tailings Storage Facility Plan View and Dam Typical Cross-Section	15-9
Figure 15-6: Pilha Garrote Dry Stack Tailings Storage Facility Plan View and Typical Cross Section	15-10
Figure 16-1: Zinc Price Outlook (2020-2025)	16-2
Figure 16-4: Lead Price Outlook (2020-2025)	16-3
Figure 16-5: Silver Price Outlook (2020-2025)	16-4
Figure 19-1: After-Tax NPV Sensitivity Graph	19-8





1.0 EXECUTIVE SUMMARY

1.1 Summary

SLR Consulting Ltd. (SLR) was retained by Nexa Resources S.A. (Nexa) to prepare an independent Technical Report Summary on the Vazante Polymetallic Operations (the Vazante Operation), located in the state of Minas Gerais, Brazil. The purpose of this Technical Report Summary is to support the disclosure of Mineral Resource and Mineral Reserve estimates for the Vazante Operation as of December 31, 2020. This Technical Report Summary conforms to United States Securities and Exchange Commission’s (SEC) Modernized Property Disclosure Requirements for Mining Registrants as described in Subpart 229.1300 of Regulation S-K, Disclosure by Registrants Engaged in Mining Operations (S-K 1300) and Item 601 (b)(96) Technical Report Summary. SLR visited the property from November 19 to 23, 2018. SLR has prepared this amended Technical Report Summary to provide additional information about metallurgical recoveries and lead and silver markets, and to disclose the accuracy of the cost estimates. SLR notes that the effective date of the technical information contained herein remains December 31, 2021.

Nexa is a publicly traded company on the Toronto Stock Exchange (TSX) and the New York Stock Exchange (NYSE). Nexa is a reporting issuer in all provinces and territories of Canada and is under the jurisdiction of the Ontario Securities Commission.

Nexa is a large-scale, low-cost, integrated zinc producer with over 60 years of experience developing and operating mining and smelting assets in Latin America. Nexa has a diversified portfolio of polymetallic mines (zinc, lead, copper, silver, and gold) and also greenfield projects at various stages of development in Brazil and Peru. In Brazil, Nexa owns and operates two underground mines, Vazante and Morro Agudo (Zn and Pb). It also operates two zinc smelters in Brazil (Três Marias and Juiz de Fora). In Peru, Nexa operates the El Porvenir (Zn, Pb, Cu, and Ag), Cerro Lindo (Zn, Cu, Pb, and Ag), and Atacocha (Zn, Cu, Pb, Au, and Ag) mines, as well as the Cajamarquilla zinc smelter near Lima. Nexa’s development projects in Peru include Magistral, Shalipayco, Florida Canyon (JV with Solitario), Hilarión, and Pukaqaqa. In Brazil, Nexa is developing the Aripuanã Zinc Project (Zn, Pb, Cu, Au, and Ag), which is currently under construction.

Nexa’s wholly owned Vazante Operation is located approximately 8.5 km from the municipality of Vazante, in Minas Gerais State, Brazil. The Vazante Operation comprises the Vazante underground zinc-lead-silver mine (the Vazante Mine) and the Extremo Norte underground zinc-lead-silver mine (the Extremo Norte Mine), both featuring zinc silicate ore and lead/silver associated with sulphides. Mechanized open pit mining commenced in 1969, and underground mining at the Vazante Mine commenced in 1983. Access is through two portals for the Vazante Mine and one portal for the Extremo Norte Mine. As development progresses at the Extremo Norte Mine, a connecting drift will be established from the Vazante Mine to the Extremo Norte Mine. The Vazante Operation ore is treated at a concentrate plant that has a processing capacity of approximately 4,400 tonnes per day (tpd) or 1.6 million tonnes per annum (Mtpa). The Vazante Operation produces separate zinc silicate and lead sulphide concentrates. The zinc concentrate is processed at Nexa’s Três Marias smelter in Brazil approximately 250 km from the Vazante Operation, while the lead concentrate is sold on the open market. In 2020 the Vazante Operation produced 147,990 tonnes of zinc contained in zinc concentrate and 1,333 tonnes of lead contained in lead concentrate.

1.1.1 Conclusions

SLR offers the following conclusions by area.

1.1.1.1 Geology and Mineral Resources

- Mineral Resources have been estimated for three styles of mineralization – hypogene (willemitite) mineralized zones, where mining currently takes place; supergene (calamine) mineralization, located near surface; and tailings contained within the Aroeira Tailings Storage Facility (TSF).
- As prepared by Nexa and adopted by SLR, the Vazante Measured and Indicated Mineral Resources, effective as of December 31, 2020 and exclusive of Mineral Reserves, comprise 6.3 million tonnes (Mt) at grades of 6.88% Zn, 0.16% Pb, and 7.1 g/t Ag, containing 432.3 kt Zn, 10.2 kt Pb, and 1.44 million ounces (Moz) Ag. In addition, Inferred Mineral Resources comprise 13.8 Mt, at grades of 6.86% Zn, 0.18% Pb, and 9.5 g/t Ag, containing 950.2 kt Zn, 25.5 kt Pb, and 4.2 Moz Ag. Mineral Resources are reported on a 100% Nexa attributable ownership basis.





- Mineral Resources have been classified in accordance with the definitions for Mineral Resources in S-K 1300, which are consistent with Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves dated May 10, 2014 (CIM (2014) definitions).
- The geological data and procedures are adequate for the estimation of Mineral Resources and comply with industry standards.
- The “Reasonable Prospects for Economic Extraction” requirement of S-K 1300 resource definitions is satisfied by:
 - o Reporting panels that have been created so as to achieve the required spatial continuity, cut-off grade, and minimum width criteria for the underground hypogene mineralization.
 - o Open pit shells for the supergene mineralization.
 - o The use of the original topographical surface as a constraint for the tailings mineralization.
- Location data for the supergene and tailings drill holes is stored in a surface UTM coordinate system, while the hypogene drill data has been converted to an underground mine grid coordinate system.

1.1.1.2 Mining and Mineral Reserves

- The Vazante Operation deposits support an average production rate of 1.5 Mtpa over the LOM, producing from 69,000 t Zn per year to 135,000 t Zn per year contained in zinc concentrate depending on head grade.
- Deposit geometry and geomechanical properties are amenable to bulk longhole mining methods. The sublevel stoping (SLS) methods used at the Vazante Mine consist of a combination of downholes or vertical retreat mining (VRM) where stopes are backfilled with run of mine rock and up-holes or sublevel longhole open stopes (SLOS) which are not backfilled.
- As prepared by Nexa and adopted by SLR, the Vazante Proven and Probable Mineral Reserves, effective as of December 31, 2020, comprise 16.7 Mt at grades of 8.61% Zn, 0.23% Pb, and 13.7 g/t Ag, containing 1.44 Mt Zn, 38,000 t Pb, and 7.37 Moz Ag. Mineral Reserves are reported on a 100% Nexa attributable ownership basis.
- Mineral Reserves have been classified in accordance with the definitions for Mineral Reserves in S-K 1300, which are consistent with CIM (2014) definitions.
- Dilution and extraction estimates include:
 - o Dilution – planned dilution for SLS assumes an estimate of the equivalent length of slough (ELOS, m) depending on the dip of the stope, ranging from zero metres to 0.75 m in the hanging wall and zero metres to 0.25 m in the footwall.
 - o Pillars are also used to control stope dilution. These include the use of sill pillars between mining sublevels, island pillars located at the centre of stopes, and rib pillars positioned at the extremities of the stopes to reduce the potential for excess sloughing from the hanging wall contact and control dilution from adjacent filled stopes.
 - o Extraction – initial selection of resources by stope optimization and design, plus additional factors of 83% to 98% by mining method, and 35% to 60% for pillar recovery.
- The Vazante Operation requires extreme dewatering to operate, with pumping capacity increasing over time as total mine workings increase in size. The pumping rates in 2020 averaged approximately 12,500 m³/h, which while in excess of recent modelling, is well within the installed pumping capacity of the Vazante Operation (20,000 m³/h).
- The second of a two-phase Mine Deepening Project (MDP) is underway with the water pumping capacity to increase at the bottom of the mine from 10,000 m³/h to 15,000 m³/h to be completed in 2022.





1.1.1.3 Mineral Processing

- Recovery of zinc from silicate minerals is not common, however, processing via flotation works in a manner similar to recovery of zinc from sulphides. Recovery of zinc metal from zinc silicate concentrates, however, is quite different compared to recovery from sulphides, requiring hydrometallurgical processing at a dedicated facility such as Nexa's Três Marias smelter.
- Zinc recovery has been shown to be related to head grade. The head grade of the processing plant feed is forecast to decrease over the remainder of the LOM, therefore, recovery and zinc concentrate production are also forecast to decrease over the remainder of the LOM, even though the ore processing rate is forecast to continue at current rates until the final year in the LOM.
- In the SLR Qualified Person's (QP) opinion, the use of past operating performance to derive a head grade versus recovery relationship for zinc (and lead) is reasonable and adequate to predict future plant performance for future head grades and ore types similar to those processed in the past few years.
- Plant feed is supplemented from time to time with small amounts of willemite tailings recovered from the Aroeira TSF and blended with the fresh ore, however, Nexa is considering increasing the tailings reprocessing rate to up to 10% of plant feed. Pilot plant test work using column flotation has been conducted to assess the possibility of processing tailings separately to improve zinc recovery and results have been positive. Variability test work on samples of tailings from the Aroeira TSF is underway to help evaluate the variability of metallurgical response of the tailings.
- Nexa has identified calamine resources in the Extremo Norte deposit area and along the strike length, as well as in historical tailings (the Aroeira TSF), and potential calamine resources in other historical tailings deposits. Nexa is conducting test work on calamine mineralization from the Extremo Norte area to try to improve on historical calamine processing performance, which was characterized as challenging with zinc recovery of only 50%.
 - o Bench-scale open circuit rougher-scavenger test work using conventional mechanical cells achieved approximately 23% Zn in concentrate at a recovery of up to 70%. An open circuit cleaner test produced a concentrate grading 39% Zn (the target zinc grade for concentrate being processed at Nexa's Três Marias smelter) and a recovery of 63%.
 - o Pilot plant test work at the Vazante Operation using conventional mechanical cells demonstrated that overall zinc recovery of up to 50% at concentrate grades over 37% was possible. The majority of zinc losses (approximately 60%) were to the fines fraction (< 38 µm) removed prior to flotation and occurring mainly as hemimorphite. Nexa noted that the use of column cells rather than mechanical cells could provide some improvement in yield due to the large proportion of fines in the feed, and that further assessment of collectors and fatty acids was necessary to improve the recovery of hemimorphite.

1.1.1.4 Environment & Social

- No environmental issues were identified from the documentation available for review that could materially impact the ability to extract the Mineral Resources and Mineral Reserves. The Vazante Operation has all the environmental operational licences required for operation according to Brazilian legislation. The approved licences address the authority's requirements for mining extraction and operation activities. The Vazante Operation has not applied for new permits and SLR is not aware of any new projects or modification to the existing operations triggering permitting processes. Four active Operation Licences are in the process of renewal through Council of Environmental Policy (COPAM) No. 104/1988/059/2016.
- The environmental programs defined in the Environmental Control Plans, Plano de Controle Ambiental (PCAs) are an integral part of the Environmental Management System for adoption of measures aimed at the prevention, mitigation, and control of potential environmental impacts resulting from mining activities. Results of the environmental programs including monitoring of water quality, air quality and noise are documented in annual reports submitted to the authorities (SUPRAM-NOR). The SLR QP is not aware of non-compliance issues raised by the authorities. In the SLR QP's opinion, the environmental management programs for Vazante are adequate to address potential issues related to environmental compliance.





- Nexa utilizes an Integrated Dam Management System (referred to as SIGBar) which provides guidelines for document management, monitoring, evaluation, risk analysis, compliance with standards and legislation, training of personnel, operation of structures and other provisions.
- Tailings are currently disposed of as filtered tailings at the Pilha Garrote dry stack tailings storage facility (DSTSF). The Aroeira TSF, the former primary location for tailings disposal until August 2019, will remain operational as a water storage facility.
- Regular dam safety inspections have visually confirmed that the tailings beach of the Aroeira TSF between the dam and the tailings pond is greater than 40 m.
- Dam monitoring consists of instrument measurements and field inspections. Dam monitoring data is reviewed by an external consultant (Geoconsultoria) on a monthly basis. Fortnightly inspections are completed by Nexa personnel and every six months by Geoconsultoria. The latest review by Geoconsultoria that was reviewed by SLR was dated 30 August 2019 (Relatório Técnico CM18-RT57 Rev.0). Geoconsultoria's report states the dam safety condition is "Satisfactory" without the presence of erosions, cracks, or other features indicative of instability.
- A Mine Closure Plan has been developed for all the Vazante Operation components within the context of Brazilian legislation and consideration to the VMH guideline for decommissioning (Guideline PG-VM-HSMQ-040 Revision 2.2). The most recent Mine Closure Plan and cost estimate were completed in January 2018.
- A social baseline description, assessment of socio-economic impacts, and identification of socio-economic environment programs have been completed as part of the environmental impact assessments carried out to mitigate negative impacts and maximize positive benefits of the Vazante Operations. These components are generally consistent with social impact assessment practices. Nexa has developed and utilizes a number of social management programs and tools to help it work with the nearby communities (risk analysis matrices, stakeholder tracking, social characterization plan and local development plan). In the SLR QP's opinion the grievance mechanism in place and the social management programs and tools for the Vazante Operations, are adequate to address potential issues related to local communities.
- Nexa hires from the local workforce when possible, both for skilled and unskilled workers. Outreach to the local community is conducted through social and employment programs.
- No social issues were identified from the documentation available for review. The review of social aspects indicates that, at present, Nexa's operations at the Vazante Operation are a positive contribution to sustainability and community wellbeing. Nexa has established and continues to implement its various corporate policies, procedures, and practices in a manner consistent with relevant International Finance Corporation (IFC) Performance Standards (PSs). Nexa has, and continues to make, a positive contribution to the communities most affected by the site operations and has done a thorough job in documenting potential effects on stakeholders and protecting the rights, health, and safety of its employees.

1.1.1.5 Costs and Economic Analysis

- The LOM operating cost forecast reflects the existing operating status of the Vazante Operation. SLR has reviewed recent operating costs and is of the opinion that the forecast is appropriate for the Vazante Operation. Nexa also needs to continue assessing operating efficiencies and approaches in efforts to improve operating costs in the different cost centres.
- The economics of the Vazante Operation are robust over the LOM, confirming that the Mineral Reserves are economically viable. The economic analysis indicates an after-tax net present value (NPV), at a 9% base discount rate, of \$652 million.

1.1.2 Recommendations

SLR offers the following recommendations by area.





1.1.2.1 Geology and Mineral Resources

- 1. The coordinates for all supergene related drill holes be converted into the local mine grid coordinates so that the results from all Mineral Resource estimation activities can then be integrated with any underground mining activities that have been or are planned to be carried out in this area.
- 2. The drill hole dips for the drill holes examined be confirmed by direct visual inspection of the departing drill hole orientation at the drilling face.
- 3. The drill hole data relating to the tailings mineralization be converted into the mine grid coordinate system to more easily integrate the information for the underground mine.

1.1.2.2 Mining and Mineral Reserves

- 1. In SLR's opinion high mine dilution at the Vazante Operation is caused in part by the current cable bolting procedure, whereby bolts are installed from the undercut level and fanned into the hanging wall of the stope. The cable bolt coverage of the stope should be improved by drilling the cable bolt holes from a hanging wall access, where the cost can be justified. Additionally, SLR also recommends assessing the production drilling design to reduce the potential for dilution.
- 2. SLR observed secondary breaking on surface during the 2018 site visit. The stope drill patterns should be reviewed with the intent of reducing the level of stope dilution through adjustment of the drill pattern. This may require drilling an additional hole on the hanging wall contact, between the current burden spacing. A reduced explosive charge per hole, using a lower density explosive, would aid to effectively trim the hanging wall contact thereby providing a much cleaner break. The reduced blast vibration impact (a lower peak particle velocity (ppv)) would lead to a lower degree of overbreak on the hanging wall and less dilution.
- 3. Dilution will be an issue in the narrow cut and fill stopes, which are not yet reflected in Mineral Reserves, as the four metre minimum mining width will impact upon every lift taken. A stope width review should be carried out for the planned cut and fill stopes to determine whether the current equipment fleet matches the orebody dimensions.
- 4. Narrow vein equipment should be assessed as soon as possible to have it readily available at the time narrower areas are encountered in the lower levels of the mine.
- 5. A trial test stope using a smaller drill unit in the upper section of the mine should be completed to assess the efficacy and optimize the drilling layouts, as a prerequisite to eventual application of the method on a larger scale in the lower levels of the mine, when a larger portion of the mine production comes from this area.
- 6. The use of a "shanty back" configuration on the hanging wall side of the drift should be evaluated to reduce dilution.
- 7. Given the extreme dewatering that is required to permit ongoing mining, hydrologic monitoring is considered a critical element of operations. Continued calibration of flows is recommended to predict, plan, and install required pumping capacities for the Vazante Operation.
- 8. The water table levels should be monitored as planned to help foresee any potential issues and assess mitigation measures that may be required.
- 9. The use of cemented rock fill (CRF) is recommended to enable mining of certain pillars where this is economical. A trade-off analysis would be required in each case.
- 10. The reconciliation results and the stope performance analysis should be used to evaluate stope designs to determine where improvements in mine planning would be most advantageous.

1.1.2.3 Mineral Processing

- 1. Continue the variability test work and process development on samples of Aroeira willemite tailings to assess the variability of metallurgical response and provide an estimate of overall recovery from the willemite portion of the tails that can be used in economic studies of the installation of a dedicated tailings processing circuit.





2. Calamine processing test work: continue process development test work to improve recovery, including the evaluation of collectors for improved recovery of hemimorphite, and consider options that may help to improve recovery from calamine mineralization such as:
 - o Separate processing of calamine and willemite mineralization.
 - o A coarser primary grind for calamine mineralization and evaluation of the effect of a coarser primary grind on the proportion of fines in the flotation feed and zinc (and zinc mineral) deportment to fines.
 - o Separate processing of the fines fraction to recover hemimorphite in a purpose-built fines processing circuit, which could also be used for processing historical calamine tailings.
3. Consider developing a combined strategy for processing historical tailings and calamine ore, since the two feeds, or portions of the feeds (e.g., calamine fines) may require similar equipment for processing; this strategy could then help with test work planning, production, and financial planning.

1.1.2.4 Environment & Social

1. Although it is not a requirement in the Operation Licences, SLR recommends considering the implementation of a monitoring program for flora and fauna for the Vazante Operation.
2. The Golder closure report (No. RT-006_169-525-2593_03-J 75, dated January 2018) recommends that a more detailed assessment be made of the impact of ore processing on the potential for release of sulphates from the tailings at the Pilha Garrote DSTSF.
3. The placement and compaction of the filtered and cyclone tailings during the wet season should be considered.
4. Dust generation from the Pilha Garrote DSTSF during the dry season must be considered.
5. The water balance for the Aroeira TSF must be reviewed through additional water balance modelling to determine the impact of use as a water management facility, increased mine dewatering and surface runoff from the Pilha Garrote DSTSF. Different climate scenarios should be simulated to account for years with annual precipitation below and above the statistical average (i.e. dry and wet years). The water balance modelling should be used to investigate changes in water availability for ore processing and changes in effluent discharge rates to the Santa Catarina River.

1.1.2.5 Cost and Economic Analysis

1. Continuously monitor costs and exchange rates and lock in costs as soon as possible to eliminate economic uncertainty.
2. Continue efforts towards improving efficiencies and approaches to mining and development operations as opportunities arise in these areas.

1.2 Economic Analysis

The economic analysis contained in this Technical Report Summary is based on Vazante’s Mineral Reserves, economic assumptions provided by Nexa, and the capital and operating costs as presented in Section 18 of this Technical Report Summary.

1.2.1 Economic Criteria

1.2.1.1 Revenue

- Revenue is estimated based on the following LOM average metal prices:
 - o Zinc price: US\$2,491/t Zn
 - o Lead price: US\$1,960/t Pb
 - o Silver price: US\$17.01/oz Ag





- Net Revenue includes the benefit of zinc smelting at cost (rather than at commercial third-party terms), due to integration with Nexa's Três Marias refinery.
- Logistics, Treatment and Refining charges:
 - o LOM average Transportation/Logistics charges:
 - \$ Zinc concentrate to Três Marias refinery: US\$16.7/t concentrate
 - \$ Lead concentrate to Asia: US\$278.7/t concentrate
 - o Treatment Charges (TC):
 - \$ LOM average TC for lead concentrate: US\$200.4/t concentrate
 - \$ LOM average refined zinc conversion costs at Três Marias: US\$477/t
 - o Refining Charges:
 - \$ Silver in lead concentrate: US\$1.00/oz Ag
- LOM Net Revenue after Treatment and Refining charges is US\$2,627 million.

1.2.1.2 Taxation and Royalties

- Corporate income tax rate in Brazil is 34%.
- CFEM royalty rate: 2%.
- SLR has relied on a Nexa taxation model for calculation of income taxes applicable to the cash flow.

1.2.2 Cash Flow

SLR reviewed the Vazante Operation LOM after-tax cash flow model to confirm the economics of the LOM plan. The model does not account for the following components:

- Financing costs
- Insurance
- Overhead cost for a corporate office

A cash flow summary is presented in Table 1-1.

Table 1-1: Cash Flow Summary
Nexa Resources S.A. - Vazante Polymetallic Operations

Parameter	Units	Undiscounted	Discounted at 9%
Mill Feed, Total	Mt	16.7	
LOM	years	11	
Revenues	US\$M	2,639	1,782
Royalties	US\$M	12.1	8
Net Revenues	US\$M	2,627	1,775
Operating Costs			
Mining	US\$M	448	296
Processing and Tailings	US\$M	223	144
G&A	US\$M	85	54
Total Operating Cost	US\$M	755	495
Sales Costs	US\$M	71	47
Other operating results	US\$M	59	29
EBITDA	US\$M	1,742	1,204
Capital Costs			
Capital Costs (net of taxes)	US\$M	83	63
Sustaining Capital (net of taxes)	US\$M	146	111
Closure & Other	US\$M	38	14
Working Capital	US\$M	8	0
Total Capital Costs	US\$M	275	189
Pre-tax Cash Flow	US\$M	1,467	1,017
Income Tax	US\$M	514	365
After-tax Cash Flow	US\$M	954	652
Pre-tax NPV			
NPV 8%	US\$M		1,055
NPV 9%	US\$M		1,017
NPV 10%	US\$M		981
After-tax NPV			
NPV 8%	US\$M		677
NPV 9%	US\$M		652
NPV 10%	US\$M		628





Note:

- 1. Numbers may not add due to rounding.

1.2.3 Sensitivity Analysis

Key economic risks were examined by running cash flow sensitivities on after-tax NPV at a 9% discount rate. The following items were examined:

- Metal prices
- Head grade
- Metallurgical recovery
- Operating costs, and
- Capital costs

The after-tax NPV is most sensitive to head grade, then to metal prices, followed by recovery, operating costs, and capital costs.

1.3 Technical Summary

1.3.1 Property Description

Title to the Vazante Operation is held by Nexa Recursos Minerais S.A. (Nexa Brazil) and Mineração Soledade Ltda, a subsidiary of Nexa Brazil. Nexa Brazil holds two Mining Concessions and one Group of Mine Concessions, with the Group of Mine Concessions comprising six Mining Concessions. Surrounding the Mineral Resource/Mineral Reserve area, Nexa Brazil also holds 62 Exploration Licenses, three Rights to Apply for Mining Concession, two Mining Concessions, and one Mining Concession Application in addition to the core tenements.





1.3.2 Accessibility, Climate, Local Resources, Infrastructure, and Physiography

The Vazante Operation is located in the western portion of the state of Minas Gerais, Brazil at a latitude of approximately 17 57’ 33” S and a longitude of approximately 46° 49’ 42” W, within Zone 23S of the Universal Transverse Mercator coordinate system (Córrego Alegre Datum) at approximately 306,000 mE and 8,016,000 mN. The Vazante Operation is located approximately 8.5 km east of the town of Vazante, 253 km southeast of Brasília, and 370 km northwest of Belo Horizonte.

The region is classified as warm, sub-humid with four to five dry months annually. Average temperatures vary between 13°C and 27°C in the winter and between 18°C and 30°C in the summer. The historical average annual rainfall is 1,441.5 mm, with more than 80% occurring during the rainy season, which runs from October to March. The predominant wind directions are northeast to southwest. The topography in the Vazante Operation area is characterized by gently rolling hillsides with incised streams and rivers. The elevations of the Vazante Operation area ranges from approximately 690 metres above mean sea level (masl) to 970 masl.

The main economic activities of the region include cattle raising, farming, and mining. Most of the mine employees reside in Vazante, which has a population of approximately 20,600, and commute to the mine site daily. Goods and services in support of mining operations are generally sourced from Belo Horizonte. The region is well serviced with electricity supplied from the national grid as well as modern telecommunications. Basic medical services are available in the town of Vazante, with higher levels of medical services available in Paracatu, Brasília, or Belo Horizonte.

1.3.3 History

Mineralization in the Vazante Operation area was initially discovered by Angelo Solis in 1933 who acquired the first mineral titles to the area. The mineral rights to the Vazante Mine portion of the Vazante Operation land holdings were first acquired by Companhia Mineira de Metais (CMM) in 1956. CMM later became Votorantim Resources in 2005 and more recently Nexa Resources S.A. in 2014. The original land titles for the Vazante Operation were added and expanded over the years by means of direct land acquisition (claim staking) and various option agreements and purchases. The Extremo Norte Mine portion of the current Vazante Operation land holdings was acquired by purchase in 2007.

1.3.4 Geological Setting, Mineralization, and Deposit

The geology of the Vazante Operation area consists of a sequence of pelitic carbonate rocks belonging to the Serra de Garrote and Serra do Poço Verde formations of the Vazante Group. The currently known mineralization has been traced along a strike length of approximately 10.5 km, extending from the southern end of the Vazante Mine to the northern limits of the Extremo Norte Mine.

The zinc-lead-silver mineralization at the Vazante Operation is hosted by the Vazante Shear Zone which has been traced by drilling and sampling along a strike length of approximately 12 km. The Vazante Shear Zone has a general strike of azimuth 50° and dips approximately 60° to the northwest at surface. The hanging wall lithologies of the Vazante Shear Zone are comprised of dolostone and sericitic phyllite, slates and marl units of the Serra do Poço Verde Formation while the footwall lithologies to the Vazante Shear Zone are dominated by dark grey dolostones of the Upper Morro do Pinheiro Member. Drilling information indicates that the dip of the zinc mineralized zone gradually decreases with depth in the southern portions of the structure.

The zinc mineralization at the Vazante and Extremo Norte mines is composed largely of hypogene zones that are composed mainly of willemite (Zn₂SiO₄) veins, veinlets, and stockworks that are hosted by sphalerite-rich carbonate. The mineralization typically contains willemite (50% to 70%), dolomite (10% to 30%), siderite (10% to 20%), quartz (10% to 15%), hematite (5% to 10%), zinc-rich chlorite (5% to 10%), barite (<5%), franklinite (<5%), and zincite (<5%), with subordinate concentrations of magnetite and apatite (Monteiro et. al., 2006). Lead and silver are also recovered from the hypogene mineralization is produced from the Vazante Operation. While no detailed studies regarding the specific lead and silver bearing minerals have been carried out on samples of the hypogene mineralization, several detailed mineralogical studies have been conducted using concentrate samples. SLR notes that the majority of the lead mineralization in the concentrates has been found to be related to galena (PbS), with lesser amounts of lead being contained in cerussite (Pb(CO₃)). Mineralogical studies have indicated that the silver values are contained in the minerals acanthite (Ag₂S) and jalpaite (Ag₂CuS₂).





Supergene zones of zinc-rich mineralization have been developed in the near-surface portions of the hypogene mineralized zones. These supergene zones are referred to as the calamine zones at the Vazante Operation. The calamine mineralization is composed principally of smithsonite (ZnCO_3) that includes subordinate amounts of hemimorphite ($\text{Zn}_4(\text{Si}_2\text{O}_7)(\text{OH})_2\cdot\text{H}_2\text{O}$) and quartz. The calamine mineralized zones were derived from weathering of the primary willemite mineralization.

1.3.5 Exploration

Zinc was first discovered at the Vazante Operation in 1951 when areas of gossan and calamine mineralization were discovered in surface outcrops. Since 1951, exploration has largely consisted of geological mapping and geophysical surveying, with minor amounts of geochemical sampling programs being carried out to locate outcropping mineralized zones. In the Vazante Operation area, exploration programs (including drilling) have strategically been carried out in support of extensions of mining operations, including the possibility of deepening of the mine infrastructure.

The Nexa geological team has continued to conduct exploration activities in the immediate environs of the Vazante Mine as well as in the neighbouring regions. The regional exploration programs have discovered several occurrences of zinc mineralization including Vazante Norte, Carrapato, Vazante Sul, and Sugem.

1.3.6 Mineral Resource Estimates

The Mineral Resources comprise three styles of mineralization. The first style of mineralization is represented by the hypogene (willemite) mineralized zones that are found in the underground portions of the Vazante and Extremo Norte deposits. The second style of mineralization is represented by the supergene (calamine) mineralized zones found in the Cava 3A, Matas dos Paulistas, and Braquiara areas of the Extremo Norte and Vazante deposits. This supergene (calamine) mineralization is referred to at the Vazante Operation as calamine mineralization and comprises a mixture of smithsonite and hemimorphite minerals. The third type of mineralization comprises tailings that are contained within the Aroeira TSF. The material found in the Aroeira TSF comprise a mixture of hypogene (willemite) and supergene (calamine) minerals.

The 2020 year end (YE) Mineral Resources as of December 31, 2020 for the Vazante Operation are presented in Table 1-2. Mineral Resources have been classified in accordance with the definitions for Mineral Resources in S-K 1300, which are consistent with CIM (2014) definitions. The Mineral Resources are exclusive of Mineral Reserves. The Mineral Resource statements for the underground hypogene (willemite) mineralization are prepared within reporting panels that have been created so as to achieve the required spatial continuity, cut-off grade, and minimum width criteria. The Mineral Resource statements for the supergene (calamine) mineralization are prepared using an open pit shell. The Mineral Resource statements for the tailings are reported using the original topographic surface as a constraint.





Table 1-2: Summary of Mineral Resources as of December 31, 2020
Nexa Resources S.A. - Vazante Polymetallic Operations

Category	Area	Tonnes (000t)	Grade			Contained Metal		
			(% Zn)	(% Pb)	(g/t Ag)	(000 t Zn)	(000 t Pb)	(000 oz Ag)
Measured	Vazante & Extremo							
	Norte	3,400	6.91	0.18	8.4	235	6.2	918
	Calamine	0	0	0	0	0	0	0
	Tailings	0	0	0	0	0	0	0
Subtotal, Measured		3,400	6.91	0.18	8.4	235	6.2	918
Indicated	Vazante & Extremo							
	Norte	2,000	5.84	0.13	7.6	117	2.6	489
	Calamine	880	9.13	0.16	1.2	80.3	1.4	34
	Tailings	0	0	0	0	0	0	0
Subtotal, Indicated		2,880	6.85	0.14	5.6	197.3	4	523
Meas. & Ind.	Vazante & Extremo							
	Norte	5,400	6.52	0.16	8.1	352	8.8	1,407
	Calamine	880	9.13	0.16	1.2	80.3	1.4	34
	Tailings	0	0	0	0	0	0	0
Subtotal, M&I		6,280	6.88	0.16	7.1	432.3	10.2	1,441
Inferred	Vazante & Extremo							
	Norte	9,040	7.79	0.17	11	704	14.9	3,190
	Calamine	870	9.92	0.09	1.1	86.3	0.8	31
	Tailings	3,939	4.06	0.25	7.8	159.9	9.8	995
Subtotal, Inferred		13,849	6.86	0.18	9.5	950.2	25.5	4,216

Notes:

1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources which are consistent with CIM (2014) definitions.
2. Mineral Resources are reported on a 100% Nexa attributable ownership basis.
3. Mineral Resources are estimated at various NSR cut-off values appropriate to the mineralization style.
4. Mineral Resources are estimated using average long term metal prices of Zn: US\$2,869.14/t (US\$1.30/lb), Pb: US\$2,249.40/t (US\$1.02/lb), and Ag: US\$19.38/oz.
5. Metallurgical recoveries are accounted for in the NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at the LOM average hypogene head grades are 83.6% for Zn, 22.3% for Pb, and 42.0% for Ag. An average long term Brazilian Real (R\$)/US\$ exchange rate of 4.84 was used.
6. A minimum mining width of 3.0 m was used to create Mineral Resource reporting shapes for the willemite mineralization.
7. Mineral Resources are exclusive of Mineral Reserves.
8. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
9. Numbers may not add due to rounding.

The SLR QP is of the opinion that, with consideration of the recommendations summarized in this section, any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.

1.3.7 Mineral Reserve Estimates

The Vazante Operation Mineral Reserves are based in three main orebodies: Lumiadeira, Sucuri, and Extremo Norte. The main commodities produced are zinc, lead, and silver. The Mineral Reserve estimate for the Vazante Operation as of December 31, 2020 is presented in Table 1-3.





Table 1-3: Summary of Mineral Reserves as of December 31, 2020
Nexa Resources S.A. - Vazante Polymetallic Operations

Deposit/Category	Tonnes (000 t)	Grade			Contained Metal		
		(% Zn)	(% Pb)	(g/t Ag)	(000 t Zn)	(000 t Pb)	(000 oz Ag)
Lumiadeira							
Proven	3,410	8.93	0.22	20.78	304.5	7.6	2,278
Probable	3,260	8.86	0.22	18.44	289.0	7.2	1,933
Proven & Probable	6,670	8.90	0.22	19.64	593.5	14.8	4,211
Sucuri							
Proven	3,408	8.41	0.26	13.74	286.8	9.0	1,505
Probable	1,225	7.17	0.26	11.40	87.9	3.2	449
Proven & Probable	4,633	8.09	0.26	13.12	374.7	12.3	1,954
Extremo Norte							
Proven	1,621	7.25	0.24	6.57	117.5	4.0	342
Probable	3,760	9.34	0.18	7.11	351.0	6.9	860
Proven & Probable	5,381	8.71	0.20	6.95	468.6	10.9	1,202
Total							
Proven	8,439	8.40	0.24	15.20	708.8	20.6	4,125
Probable	8,245	8.83	0.21	12.23	727.9	17.4	3,241
Proven & Probable	16,684	8.61	0.23	13.73	1,436.7	38.0	7,367

Notes:

1. The definitions for Mineral Reserves in S-K 1300 were followed for Mineral Reserves which are consistent with CIM (2014) definitions.
2. The Mineral Reserve estimate is reported on a 100% Nexa attributable ownership basis.
3. Mineral Reserves are estimated at a cut-off NSR value of US\$47.49/t processed.
4. Mineral Reserves are estimated using average LOM metal prices of US\$2,494.90/t Zn, US\$1,956.00/t Pb and US\$16.85/oz Ag.
5. Metallurgical recoveries are accounted for in the NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at the LOM average head grades are 83.6% for Zn, 22.3% for Pb, and 42.0% for Ag. An average long term Brazilian Real (R\$)/US\$ exchange rate of 4.84 was used.
6. A minimum mining width of 4.0 m was used.
7. Bulk density is 3.1 t/m³.
8. Numbers may not add due to rounding.

Contained metal in the Mineral Reserves consists of 1.44 Mt Zn, 38,000 t Pb, and 7.37 Moz Ag.

The SLR QP is not aware of any risk factors associated with, or changes to, any aspect, of the modifying factors such as mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate.





1.3.8 Mining Methods

The Vazante Operation consists of two mechanized underground mines, the Vazante Mine and Extremo Norte Mine, currently operating at a rate of approximately 1.5 Mtpa. The mineralized zones dip between 45° and 70° and the mine extends over a strike length of five kilometres. With the addition of the North Extension, this will increase to approximately 10 km. The Vazante Mine currently extends over a vertical depth of 300 m from surface to the 326 level. The Vazante Mine is being deepened by 186 m to the planned 140 level. There are former open pits along portions of the strike of the Vazante deposit.

There are two access ramps to the Vazante Mine and one to the Extremo Norte Mine. Mine headings range from 5 m high by 4.5 m wide ore drives to 6 m high by 5 m wide main ramps.

The Vazante Operation is designed based upon mechanized longitudinal longhole stoping for areas with a dip greater than 45°. Longhole stopes are developed with footwall access drives parallel to the orebody. Crosscuts are driven from the footwall drive and then the ore is developed along strike. Sublevels are typically 30 m apart though the distance varies depending on the orebody. Long holes are often a combination of downholes or VRM and uppers or sublevel longhole open stopes (SLOS). Both longhole methods employ a retreat sequence along strike. The SLOS stopes are not backfilled whereas the VRM stopes are backfilled.

1.3.9 Processing and Recovery Methods

The Vazante Operation currently processes ore in which the main zinc mineral is willemite, a zinc silicate mineral (Zn₂SiO₄). During earlier Vazante operations the predominant zinc mineralization occurred as calamine, which consists of both smithsonite (ZnCO₃) and hemimorphite (Zn₄Si₂O₇(OH)₂.H₂O). Processing consists of crushing, grinding, and flotation, resulting in the production of a zinc silicate concentrate and small quantities of lead sulphide concentrate. Calamine ore has not been produced or processed since 2008. Treatment of calamine ores was more challenging than willemite ores with zinc recovery from calamine ores typically only approximately 50%, while zinc recovery from willemite ores typically ranges from approximately 81% to 91%. Recent zinc recovery to concentrate (2017 to 2020) has ranged from 84% to 87%.

Zinc is the primary metal of economic importance, with minor quantities of lead as galena and associated silver minerals allowing for the production of relatively small amounts of lead concentrate as well. The Vazante Operation produces approximately 350,000 tonnes per annum (tpa) to 370,000 tpa of zinc concentrate and approximately 4,000 tpa to 5,000 tpa of lead concentrate that contains silver. Due to the ore mineralogy, zinc concentrate produced at the Vazante Operation is elevated in silica, calcium, magnesium, and carbonates resulting from the presence of carbonate gangue (predominantly dolomite). Nexa's Três Marias zinc smelter includes a processing circuit specifically configured to process the zinc silicate concentrate produced at the Vazante Operation and as a result, all of the concentrate produced at the Vazante Operation is processed at the Três Marias smelter where zinc metal is produced. The lead concentrate produced at the Vazante Operation is sold on the open market.

1.3.10 Infrastructure

The surface and underground infrastructure of the Vazante Operation include:

- Seven historic open pit mines that have exploited the near-surface calamine mineralization.
- Two underground mines (Vazante and Extremo Norte) that together extend for a strike length of approximately nine kilometres and to a depth of approximately 550 m from surface.
- An ore blending and reclaim facility.
- Two processing plants, Plant W and Plant C. Plant W has a nominal throughput capacity of 1.2 Mtpa and Plant C has a nominal throughput capacity of 0.4 Mtpa.
- Several TSFs (two active).
- A core logging and sampling facility.
- Warehousing.
- An assay laboratory.
- A millwright and electrical shop.
- An administrative building.
- A first aid station.





The power supply to the Vazante Operation is provided by two independent 138 kV transmission lines that feed the site and that can provide up to 55 MW.

1.3.11 Market Studies

The Vazante Operation produces separate zinc silicate and lead sulphide concentrates. All the zinc concentrate is processed at Nexa’s Três Marias smelter in Brazil approximately 250 km from the Vazante Operation, while the lead concentrate is sold on the open market. The principal commodities produced from these concentrates are zinc, lead, and silver, which are freely traded at prices and terms that are widely known so that prospects for sale of any production are virtually assured. Zinc represents 97% of Vazante’s gross revenue, while lead and silver contribute 3% of the revenue.

Nexa provided information regarding sales contracts for lead concentrate produced at the Vazante Operation. According to this information, sales contracts are in place with concentrate traders for the sale of the lead concentrate. SLR has reviewed the terms of the contracts in place and considers them to be consistent with current industry norms.

Market information is based on the industry scenario analysis prepared by Nexa’s Market Intelligence team in July 2020 based on information sourced from different banks and independent financial institutions, economy and politics research groups, and metals consultants. SLR has reviewed the market studies and analyses and is of the opinion that the results support the assumptions in this Technical Report Summary.

1.3.11.1 Zinc Concentrate

Due to the ore mineralogy, zinc concentrate produced at the Vazante Operation is elevated in silica, calcium, magnesium, and carbonates resulting from the presence of carbonate gangue (predominantly dolomite). Nexa’s Três Marias zinc smelter in Brazil includes a processing circuit specifically configured to process the zinc silicate concentrate produced at the Vazante Operation and as a result, all of the zinc concentrate produced at the Vazante Operation is processed at the Três Marias smelter where zinc metal is produced. The Vazante Operation concentrate accounts for approximately 70% of the feed to the Três Marias smelter. Deleterious elements affecting the Três Marias smelting operation are controlled at the Vazante Operation to ensure that they do not exceed the limits imposed by the smelter.

1.3.11.2 Lead Concentrate

The lead concentrate produced at the Vazante Operation is sold on the open market. Nexa provided information regarding sales contracts for lead concentrate produced at the Vazante Operation. According to this information, sales contracts are in place with concentrate traders for the sale of the lead concentrate. SLR has reviewed these contracts in place and their terms are considered to be consistent with industry norms. Since the lead concentrate produced at the Vazante Operation contains less than the preferred 45% lead, (typically the concentrate contains approximately 23% lead), the concentrate is subject to a small penalty charge, reported to be less than \$1.00/t.

1.3.12 Environmental Studies, Permitting and Plans, Negotiations, or Agreements with Local Individuals or Groups

The Vazante Operation has a net positive water balance that results in surplus water collected onsite being discharged to the receiving environment. Industrial effluents from the Vazante Operation are directed to the Aroeira TSF, together with surface runoff from the crushing area, chemical laboratory area, and channel network for surface water collection. Underground mine dewatering is pumped to surface and conveyed via gravity to the Aroeira TSF tailings pond through a concrete channel. Water is pumped from the Aroeira TSF to offset make up water requirements for ore processing. Excess water collected in the Aroeira TSF is released to the Santa Catarina River. Dewatering from the Extremo Norte Mine is pumped to a sediment sump prior to release to the Ouro Podre stream.





Tailings are currently disposed in the Pilha Garrote DSTSF as filtered tailings, and at the Aroeira TSF as a slurry. The Pilha Garrote DSTSF is the primary TSF. Waste rock is used for backfilling or disposed of at surface in mined-out open pits.

Six Environmental Impact Assessments (EIAs) complemented with other studies have been developed since 2000 to identify potential environmental effects resulting from project activities for the construction, operation, and closure stages. The mitigation measures are mostly addressed through a number of environmental control programs (including environmental monitoring) presented in the EIAs.

The Vazante Operation holds several permits in support of the current operations. The main instrument to regulate the Vazante Operation is a set of operating licences issued by the COPAM from the state of Minas Gerais. The licences are active, some of them under renewal process.

Two annual environmental reports (one for the Vazante Mine and one for the Extremo Norte Mine) were prepared by Nexa in 2020 and submitted to the authority (Regional Environment Superintendence SUPRAM-NOR) in compliance with Condition 01 of the Operation Licences.

The closest community is the municipality of Vazante, located 8.5 km from the Vazante Operation with a population of approximately 20,600 residents. The closest major urban centre is Brasilia, approximately five hours away via roadways (250 km), with a population of approximately 4.7 million residents.

The most recent Mine Closure Plan was prepared in 2018. The Mine Closure Plan has been designed to address remediation of the operational areas, and to meet Brazilian engineering requirements for such plans at a conceptual level. The plan identifies three key phases: pre-closure, closure, and post-closure. Most facilities will be dismantled, and equipment removed from the site. Underground openings will be sealed, and groundwater levels allowed to stabilize.

Closure of the Aroeira TSF will involve removal of the tailings pond, construction of an outlet channel, decommissioning of the operating spillway, placing of topsoil on the deposited tailings surface and revegetation. Closure of the Pilha Garrote DSTSF will involve construction of a surface drainage system, placing of topsoil and revegetation. Post-closure monitoring would be undertaken over a 10 year period (conceptually 2029 to 2038), and would include monitoring of geotechnical stability, water quality, fauna, and revegetation.

1.3.13 Capital and Operating Cost Estimates

Sustaining capital costs were estimated by Nexa, with the majority of the costs consisting of mine development and heavy mobile equipment needed to replace the aging fleet. Sustaining capital costs are summarized in Table 1-4.

Table 1-4: Sustaining Capital Cost Estimate
Nexa Resources S.A. - Vazante Polymetallic Operations

Category	Sustaining Costs (US\$ millions)
Safety, Health & Environmental	4.8
Heavy Mobile Equipment	53.9
Expansion	18.5
Modernization	6.0
Horizontal Development	94.7
Vertical Development	23.6
Sustaining	27.4
Operational Working Capital	-7.6
Closure	38.5
Total	259.9





Operating costs estimated by Nexa, averaging US\$68.6 million per year, were estimated for mining, processing, and general and administration (G&A). Operating cost inputs such as labour rates, consumables, and supplies were based on Nexa operating data. A summary of operating costs is provided in Table 1-5.

Table 1-5: Operating Cost Estimate
Nexa Resources S.A. - Vazante Polymetallic Operations

Parameter	Total LOM (US\$ millions)	Average Year (US\$ millions/yr)	LOM Unit Cost (US\$/t)
Mining	447.7	40.7	26.83
Processing	222.8	20.3	13.36
G&A	84.5	7.7	5.06
Total	755.0	68.6	45.25

SLR notes that capital and operating costs are incurred in Brazilian Reais (R\$), and that the foreign exchange rate R\$:US\$ has a significant impact on costs.





2.0 INTRODUCTION

SLR Consulting Ltd (SLR) was retained by Nexa Resources S.A. (Nexa) to prepare an independent Technical Report Summary on the Vazante Polymetallic Operations (the Vazante Operation), located in the state of Minas Gerais, Brazil. The purpose of this Technical Report Summary is to support the disclosure of Mineral Resource and Mineral Reserve estimates for the Vazante Operation as of December 31, 2020. This Technical Report Summary conforms to United States Securities and Exchange Commission’s (SEC) Modernized Property Disclosure Requirements for Mining Registrants as described in Subpart 229.1300 of Regulation S-K, Disclosure by Registrants Engaged in Mining Operations (S-K 1300) and Item 601 (b)(96) Technical Report Summary. SLR has prepared this amended Technical Report Summary to provide additional information about metallurgical recoveries and lead and silver markets, and to disclose the accuracy of the cost estimates. SLR notes that the effective date of the technical information contained herein remains December 31, 2021.

Nexa is a publicly traded company on the Toronto Stock Exchange (TSX) and the New York Stock Exchange (NYSE). Nexa is a reporting issuer in all provinces and territories of Canada and is under the jurisdiction of the Ontario Securities Commission.

Nexa is a large-scale, low-cost, integrated zinc producer with over 60 years of experience developing and operating mining and smelting assets in Latin America. Nexa has a diversified portfolio of polymetallic mines (zinc, lead, copper, silver, and gold) and also greenfield projects at various stages of development in Brazil and Peru. In Brazil, Nexa owns and operates two underground mines, Vazante and Morro Agudo (Zn and Pb). It also operates two zinc smelters in Brazil (Três Marias and Juiz de Fora). In Peru, Nexa operates the El Porvenir (Zn, Pb, Cu, and Ag, Cerro Lindo (Zn, Cu, Pb, and Ag), and Atacocha (Zn, Cu, Pb, Au, and Ag) mines, as well as the Cajamarquilla zinc smelter near Lima. Nexa’s development projects in Peru include Magistral, Shalipayco, Florida Canyon (JV with Solitario), Hilarión, and Pukaqaqa. In Brazil, Nexa is developing the Aripuanã Zinc Project (Zn, Pb, Cu, Au, and Ag), which is currently under construction.

2.1 Site Visits

A site visit was carried out to the Vazante Operations by SLR Qualified Persons (QP) from November 19 to 23, 2018. During this site visit, the SLR QPs visited the core shack where examples of the mineralization from both the Vazante and Extremo Norte deposits were inspected, logging and sampling procedures reviewed, and visits carried out to the sample sawing and density measurement facilities. Visits were made to several locations in the underground mines in which the nature of the mineralization was observed and the grade control mapping and sampling procedures were discussed. SLR QPs also visited some of the mine stockpile areas, in addition to conducting a tour of the processing plant to inspect the sampling points used to determine the tonnages and grades processed. A visit was made to the site sample preparation facility as well as the site assay laboratory. Discussions were held with site personnel as noted below.

2.2 Sources of Information

During the preparation of this Technical Report Summary, discussions were held with the following Nexa personnel:

- Mr. Thiago Nantes Teixeira, Mineral Resources and Mineral Reserves Committee
- Ms. Priscila Artioli, Mineral Resources and Mineral Reserves Committee
- Mr. Fernando Madeira Perisse, Technical Services Manager
- Mr. Jorge Lucas Carvalho Bechir, Technology Manager
- Mr. Thiago De Oliveira Nunan Leite, Metallurgical Plant Manager
- Mr. Anibal Pereira Neto, Metallurgical plant Coordinator
- Mr. Jose Antonio Lopes, Resource Manager
- Mr. Thiago Rolla Nunes, Geology Coordinator
- Ms. Michele Rodriguez, Financial Analyst
- Ms. Barbara Nassif Veiga, Senior Geologist





- Mr. Leonardo Hiram Nunez, Geology Consultant
- Mr. Helber Tomazella, Mineral Exploration Manager
- Mr. Rafael Fernandes de Freitas, Geology Consultant
- Mr. Paulo Calazans, Mining Engineering Consultant
- Mr. Frederico Costa Melo, Mining Engineering Consultant
- Ms. Marianita Rojas Solorzano, Mine Planning Engineer
- Mr. Luiz Fernando de Oliveira Silva, Environmental Engineer
- Mr. Volvei Tenfen, Environmental Manager
- Mr. Vitor Ferraz Viana, Technical Services Manager
- Mr. Edmar EufRASio de Araujo, Geology Consultant
- Ms. Aline Vilas Boas de Souza, Social Consultant

This Technical Report Summary was prepared by SLR. No prior Technical Report Summaries have been filed in respect to the Vazante Operations.

The documentation reviewed, and other sources of information, are listed at the end of this Technical Report Summary in Section 27 References.





2.3 List of Abbreviations

Units of measurement used in this Technical Report Summary conform to the metric system. All currency in this Technical Report Summary is US dollars (US\$) unless otherwise noted.

m	micron	kVA	kilovolt-amperes
mg	microgram	kW	kilowatt
a	annum	kWh	kilowatt-hour
A	ampere	L	litre
bbl	barrels	lb	pound
Btu	British thermal units	L/s	litres per second
°C	degree Celsius	m	metre
C\$	Canadian dollars	M	mega (million); molar
cal	calorie	m ²	square metre
cfm	cubic feet per minute	m ³	cubic metre
cm	centimetre	MASL	metres above sea level
cm ²	square centimetre	m ³ /h	cubic metres per hour
d	day	mi	mile
dia	diameter	min	minute
dmt	dry metric tonne	mm	micrometre
dwt	dead-weight ton	mm	millimetre
°F	degree Fahrenheit	mph	miles per hour
ft	foot	MVA	megavolt-amperes
ft ²	square foot	MW	megawatt
ft ³	cubic foot	MWh	megawatt-hour
ft/s	foot per second	oz	Troy ounce (31.1035 g)
g	gram	oz/st, opt	ounce per short ton
G	giga (billion)	ppb	part per billion
Gal	Imperial gallon	ppm	part per million
g/L	gram per litre	psia	pound per square inch absolute
Gpm	Imperial gallons per minute	psig	pound per square inch gauge
g/t	gram per tonne	RL	relative elevation
gr/ft ³	grain per cubic foot	s	second
gr/m ³	grain per cubic metre	st	short ton
ha	hectare	stpa	short ton per year
hp	horsepower	stpd	short ton per day
hr	hour	t	metric tonne
Hz	hertz	tpa	metric tonne per year
in.	inch	tpd	metric tonne per day
in ²	square inch	US\$	United States dollar
J	joule	USg	United States gallon
k	kilo (thousand)	USgpm	US gallon per minute
kcal	kilocalorie	V	volt
kg	kilogram	W	watt
km	kilometre	wmt	wet metric tonne
km ²	square kilometre	wt%	weight percent
km/h	kilometre per hour	yd ³	cubic yard
kPa	kilopascal	yr	year





3.0 PROPERTY DESCRIPTION

3.1 Location

The Vazante Operation is located in the western portion of the state of Minas Gerais, Brazil at a latitude of approximately 17° 57’ 33” S and a longitude of approximately 46° 49’ 42” W, within Zone 23S of the Universal Transverse Mercator (UTM) coordinate system (Córrego Alegre Datum) at approximately 306,000 mE and 8,016,000 mN (Figure 3-1). The Vazante Operation is located approximately 8.5 km east of the town of Vazante, 253 km southeast of Brasília, and 370 km northwest of Belo Horizonte.

The zinc concentrate produced at the Vazante Operation is transported to Nexa’s Três Marias smelter complex for further processing while lead concentrate is sold on the open market.





Figure 3-1: Location Map





3.2 Land Tenure

3.2.1 Introduction

Title to the Vazante Operation is held by Nexa Recursos Minerais S A (Nexa Brazil) and Mineração Soledade Ltda., a subsidiary of Nexa Brazil. The mineral title for the Vazante Operation includes a number of mining concessions and exploration authorizations that are dispersed over a large area measuring approximately 60 km in a north-south direction and approximately 35 km in an east-west direction. Two exploration authorizations held by Vale S.A. under a joint venture contract also form part of the land tenure

Mining activities in Brazil are governed by the Brazilian Federal Constitution of 1988 (the Brazilian Federal Constitution), the Brazilian Mining Code (Federal Decree-Law No. 227/1967), and various other decrees, laws, ordinances, and regulations such as the Decree number 9.406/2018 which renews the regulation of the Mining Code. These regulations impose several obligations on mining companies relating to such items as the manner in which mineral deposits are exploited, the health and safety of the workers and local communities where mines are located, and environmental protection and remediation measures.

Under the Brazilian Federal Constitution, mineral rights are recognized to belong exclusively to the Brazilian federal government and are recognized as being distinct from surface rights. The Brazilian federal government is the sole entity that is responsible for governing mineral exploration and mining activities in Brazil.

Amongst other ministries and agencies, the Ministry of Mines and Energy (MME) and the Agência Nacional de Mineração (ANM) (formerly the Departamento Nacional de Produção Mineral (DNPM)) regulate mining activities in Brazil. The ANM is responsible for monitoring, analyzing, and promoting the performance of the Brazilian mineral industry by administering and granting rights related to the exploration and exploitation of mineral resources and other related activities in Brazil.

In Brazil, tenure to the mineral resources is achieved via exploration licenses (Autorizações de Pesquisa), mining concessions (Concessões de Lavra), mining concession applications (Requerimento de Lavra), and exploration license applications (Requerimentos de Pesquisa), which are together broadly referred to as mineral rights.

3.2.2 Mining Concessions

Mining concessions have no set expiry date. Each year Nexa is required to provide information to ANM summarizing mine production statistics through the annual mining report (Relatório Anual de Lavra). The perimeter of the mining concessions is defined by detailed surveys according to the conditions outlined by dos Santos et. al. (2016). Any tailings derived from mineral production from mining concessions are considered to be a part of the minerals produced from the mining concessions.

In addition, it should be noted that several mining concessions from the same holder and of the same mineral substance, in areas of the same deposit or mineralized zone, may be combined in a single mining unit, under the name of Group of Mining Concessions. According to the Mining Code and its Regulation (Decree nos. 227/1967 and 9.406/2018), the Group of Mining Concessions must be granted by the ANM and its holder, at the discretion of ANM, and may concentrate mining activities in one or some of the grouped concessions provided that the intensity of the mining is compatible with the importance of the total reserve of the grouped deposits.

Nexa holds a number of mining concessions throughout the Project area that total 2,091.10 ha. They are located as a group of six mining concessions in the immediate mine area and two other mining concessions that are dispersed elsewhere throughout the land package (Table 3-1). Figure 3-2 presents the location of the Vazante Operation mining concessions and mineralization.

In addition, the land holdings include an additional 272.18 ha comprising one mining application (ANM Register ID 5280/1956), one Right to Apply for Mining Concession (ANM Register ID 831875/2006), and one additional mining concession (ANM Register ID 801603/1968).





Table 3-1: List of Mining Concessions, Mining Applications, and Right to Apply for Mining Concessions
Nexa Resources S.A. - Vazante Polymetallic Operations

ANM Register ID	Status	Area (ha)
1032/1955	Mining Concession	73.19
1034/1955	Mining Concession	76.71
1035/1955	Mining Concession	47.89
1036/1955	Mining Concession	276.25
1973/1962	Mining Concession	412.39
2664/1956	Mining Concession	119.00
805141/1976	Mining Concession	859.17
14840/1967	Mining Concession	226.50
Subtotal		2,091.10
5280/1956	Mining Application	189.98
831875/2006	Right to Apply for Mining Concession	29.70
801603/1968	Mining Concession	52.50
Subtotal		272.18
Grand Total		2,363.28





Figure 3-2: Location of Mining Concessions and Mineralization





3.2.3 Exploration Licenses

Surrounding the mining concessions, Nexa also holds 62 exploration licenses totalling 50,076.76 ha. The land holdings include one additional parcel comprising a Right to Apply for Mining Concession with an area of 344.52 ha (Table 3-2). Figure 3-3 presents the location of the Vazante Operation exploration licenses.

Exploration licenses are granted for an initial period of three years. Once a company has applied for an exploration license, the applicant holds a priority right to the concession area as long as there is no previous ownership. The fee for holding the licenses during this initial three year phase is Brazilian Reais (R\$) 3.55/ha, to be paid annually. The owner of the license can apply to have the exploration license renewed for a one time extension period up to three years. The fee for holding the licenses during the second phase is R\$5.33/ha, to be paid annually. Renewal is at the sole discretion of ANM. Granted mining concessions and exploration licenses are published in the Official Gazette of the Republic (Diário Oficial da União - DOU), which lists individual concessions and their change in status. The exploration licenses and mining concessions grant the owner subsurface mineral rights, while surface rights can be applied for if the land is not owned by a third party.

The owner of an exploration license is guaranteed, by law, access to perform exploration field work, provided adequate compensation is paid to third party landowners and the owner accepts all environmental liabilities resulting from the exploration work. The exploration licenses are subject to annual fees based on their size (Taxa Anual por Hectare). A final report summarizing the results of any exploration activities carried out is required to be filed with the ANM upon expiry of an exploration license.

Table 3-2: List of Exploration Licenses
Nexa Resources S.A. - Vazante Polymetallic Operations

ANM Register ID	Area (ha)	Status	Titleholder	Expiry Date (MM/DD/YYYY)	Extended Expiry Date (MM/DD/YYYY)
831260/2018	833.74	Exploration License	Nexa Recursos Minerais S A	9/6/2021	6/21/2022
831259/2018	410.77	Exploration License	Nexa Recursos Minerais S A	9/6/2021	6/21/2022
831258/2018	761.26	Exploration License	Nexa Recursos Minerais S A	9/6/2021	6/21/2022
831194/2018	37.65	Exploration License	Nexa Recursos Minerais S A	9/6/2021	6/21/2022
831176/2018	901.62	Exploration License	Nexa Recursos Minerais S A	9/26/2021	7/11/2022
831106/2018	999.91	Exploration License	Nexa Recursos Minerais S A	10/16/2020	7/31/2022
830365/2018	38.8	Exploration License	Nexa Recursos Minerais S A	3/20/2021	1/2/2022
830343/2018	1,826.87	Exploration License	Nexa Recursos Minerais S A	3/20/2021	1/2/2022
832209/2017	1,612.32	Exploration License	Nexa Recursos Minerais S A	3/23/2021	1/5/2022
832171/2017	1,707.10	Exploration License	Nexa Recursos Minerais S A	3/20/2021	1/2/2022
832170/2017	1,196.36	Exploration License	Nexa Recursos Minerais S A	3/20/2021	1/2/2022
832141/2017	993.52	Exploration License	Nexa Recursos Minerais S A	3/20/2021	1/2/2022
832108/2017	993.58	Exploration License	Nexa Recursos Minerais S A	3/13/2021	12/26/2021
832104/2017	1,000.00	Exploration License	Nexa Recursos Minerais S A	3/13/2021	12/26/2021
832094/2017	472.33	Exploration License	Nexa Recursos Minerais S A	3/13/2021	12/26/2021
832021/2017	835.56	Exploration License	Nexa Recursos Minerais S A	7/26/2021	5/10/2022
832019/2017	1,056.89	Exploration License	Nexa Recursos Minerais S A	7/26/2021	5/10/2022
832018/2017	161.64	Exploration License	Nexa Recursos Minerais S A	3/19/2021	1/1/2022





832017/2017	1,920.26	Exploration License	Nexa Recursos Minerais S A	3/19/2021	1/1/2022
831988/2017	1,947.19	Exploration License	Nexa Recursos Minerais S A	3/13/2021	12/26/2021
830868/2017	714.05	Exploration License	Nexa Recursos Minerais S A	5/25/2021	3/9/2022
830476/2017	1,954.84	Exploration License	Nexa Recursos Minerais S A	2/9/2021	11/24/2021
830467/2017	45.28	Exploration License	Nexa Recursos Minerais S A	3/26/2023	1/1/2024
830466/2017	295.62	Exploration License	Nexa Recursos Minerais S A	3/26/2023	1/1/2024
830465/2017	831.47	Exploration License	Nexa Recursos Minerais S A	4/28/2023	1/1/2024
830464/2017	15.22	Exploration License	Nexa Recursos Minerais S A	4/28/2023	1/1/2024
830463/2017	1,152.64	Exploration License	Nexa Recursos Minerais S A	4/28/2023	1/1/2024
830461/2017	601.53	Exploration License	Nexa Recursos Minerais S A	3/26/2023	1/1/2024
830460/2017	1,359.83	Exploration License	Nexa Recursos Minerais S A	3/26/2023	1/1/2024
832170/2016	10.31	Exploration License	Nexa Recursos Minerais S A	3/26/2023	1/1/2024
831142/2016	689.36	Exploration License	Nexa Recursos Minerais S A	10/9/2021	7/24/2023
831137/2016	377.72	Exploration License	Nexa Recursos Minerais S A	10/9/2021	7/24/2023
830578/2016	914.28	Exploration License	Nexa Recursos Minerais S A	10/9/2022	7/24/2023
830345/2016	1,473.04	Exploration License	Nexa Recursos Minerais S A	4/23/2023	1/1/2024
830344/2016	1,888.30	Exploration License	Nexa Recursos Minerais S A	4/23/2023	1/1/2024
830341/2016	1,651.59	Exploration License	Nexa Recursos Minerais S A	4/23/2023	1/1/2024
830340/2016	1,958.50	Exploration License	Nexa Recursos Minerais S A	5/26/2023	1/1/2024
830339/2016	1,941.37	Exploration License	Nexa Recursos Minerais S A	4/23/2023	1/1/2024
830338/2016	1,793.39	Exploration License	Nexa Recursos Minerais S A	5/26/2023	1/1/2024
830333/2016	804.77	Exploration License	Nexa Recursos Minerais S A	6/9/2023	1/1/2023
831421/2014	130.37	Exploration License	Nexa Recursos Minerais S A	2/3/2023	11/18/2023
831420/2014	193.05	Exploration License	Nexa Recursos Minerais S A	4/15/2023	1/1/2024
830730/2014	30.15	Exploration License	Nexa Recursos Minerais S A	4/2/2022	1/15/2023
832214/2013	133.98	Exploration License	Nexa Recursos Minerais S A	6/28/2021	4/12/2022
831926/2013	311.6	Exploration License	Mineração Soledade Ltda	2/6/2022	11/21/2021
830955/2013	896.45	Exploration License	Nexa Recursos Minerais S A	Pending	Pending
833117/2012	1,000.00	Exploration License	Nexa Recursos Minerais S A	6/28/2021	4/12/2022
832196/2012	206.37	Exploration License	Nexa Recursos Minerais S A	6/28/2021	4/12/2022
831641/2012	857.81	Exploration License	Nexa Recursos Minerais S A	6/28/2021	4/12/2022
831543/2012	143.25	Exploration License	Nexa Recursos Minerais S A	6/28/2021	4/12/2022
832317/2011	44.4	Exploration License	Mineração Soledade Ltda	3/15/2021	12/28/2021





831297/2011	394.78	Exploration License	Mineração Soledade Ltda	10/16/2021	7/31/2022
834685/2010	35.47	Exploration License	Nexa Recursos Minerais S A	6/29/2021	4/13/2022
834682/2010	74.2	Exploration License	Nexa Recursos Minerais S A	2/25/2023	12/10/2022
834681/2010	163.29	Exploration License	Nexa Recursos Minerais S A	2/25/2023	12/10/2022
830676/2010	1,835.06	Exploration License	Nexa Recursos Minerais S A	6/5/2022	3/20/2023
830497/2010	337.7	Exploration License	Nexa Recursos Minerais S A	Pending	Pending
830232/2010	42.1	Exploration License	Nexa Recursos Minerais S A	3/26/2023	1/1/2024
831690/2009	782.02	Exploration License	Nexa Recursos Minerais S A	6/5/2022	3/20/2023
830170/2008	878.13	Exploration License	Nexa Recursos Minerais S A	2/25/2022	12/10/2022
832451/2004	991.72	Exploration License	Vale S A (Joint Venture)	Pending	Pending
832893/2012	414.38	Exploration License	Vale S A (Joint Venture)	8/8/2021	5/23/2021
Total, Expl. Licenses: 62		Total Area: 50,076.76 ha			
832632/2006	344.52	Right to Apply for Mining Concession	Nexa Recursos Minerais S A	Pending	Pending

Note:

1. Due to the COVID-19 pandemic situation, the ANM has extended the deadlines for the expiration of the mineral rights by up to 288 days.





Figure 3-3: Location of Exploration Concessions





3.2.4 Surface Rights

In addition to the mineral titles described previously, Nexa also holds title to a number of surface rights for such items as easements, infrastructure footprints, and rights-of-way in the immediate mine area. These surface rights comprise 30 titles that cover a total of 3,243.29 ha (Table 3-3). The location of the surface rights is shown in Figure 3-4.

Table 3-3: List of Surface Rights
Nexa Resources S.A. - Vazante Polymetallic Operations

Real Estate Name	Property Certificate	Area (ha)	Mining Right ANM
Fazenda Salobo	4.813	27.84	805141/1976
			830093/1988
			831022/2006
			831543/2012
			831137/2016
Fazenda Vazantes, Lugar Serra do Poço Verde	5.926	73.02	1032/1955
			1034/1955
Fazenda Vazantes, Lugar Serra do Poço Verde	5.927	76.48	1032/1955
			1034/1955
Fazenda Vazantes	6.264	164.48	805141/1976
			831695/1990
			830943/2011
			832170/2016
			830461/2017
Fazenda Claro, Lugar Cercado	7.686	76.74	830466/2017
			830463/2017
			830868/2017
Fazenda Vazantes	9.277	6.00	805141/1976
Fazenda Vazantes	5.496	184.00	831695/1990
			830946/2011
			833777/2011
			832170/2017
			830461/2017
			830466/2017
			832209/2017
			831259/2018
			1035/1955
			1034/1955
			1036/1955
			805141/1976
			831695/1990
			831022/2006
			832606/2008
Fazenda Salobo	324	95.0	830232/2010
			830943/2011
			833774/2011
			833775/2011
			833776/2011
			830955/2013
			831137/2016
			831170/2016
			830460/2017
			830461/2017
			830466/2017
			831259/2018
Fazenda Salobo, Lugar Sucuri	1.470	433.77	
Fazenda Salobo, Lugar Vargem Grande	1.619	9.0	





Real Estate Name	Property Certificate	Area (ha)	Mining Right ANM
Fazenda Salobo, Lugar Sucury	2.094	31.0	
Fazenda Salobo, Lugar Palmito	2.270	281.40	
Fazenda Salobo, Lugar Sucuri or Várzea da Sucuri	2.611	30.00	
Fazenda Vanates, Lugar Capão do Cedro ans Serra do Poço Verde	2.955	87.92	
Fazenda Vazantes, Lugar Poço Verde	3.129	115.3	
Fazenda Vazantes, Lugar Poço Verde	3.130	9.0	
Fazenda Salobo, Lugar Palmito	3.425	122.12	
Fazenda Salobo Lugar Rochedo	3.525	32.0	
Fazenda Vargem Grande	3.941	23.06	
Fazendas Salobo, Santa Barbara and Vazante or Lapa	4.232	322.31	
Fazenda Vargem Grande	4.249	12.61	
Fazenda Vazantes	4.363	297.70	
Fazenda Vargem Grande	4.368	3.27	
Fazenda Vazante	5.562	12.10	
Fazenda Salobo	4.503	8.42	
Fazenda Salobo	5.922	105.00	
Fazenda Salobo, Lugar Mata dos Paulista	5.923	18.00	
Fazenda Vazante Lugar Capão do Cedro	5.924	51.49	
Fazenda Vazante Lugar Jaburu and Capão das Ambruanas	5.925	50.52	
Fazenda Carneiro	12.363	483.74	
Total: 30 titles		3,243.29	





Figure 3-4: Location of Surface Rights Titles





3.3 Encumbrances

SLR is not aware of any encumbrances to the property, including current and future permitting requirements and associated timelines, permit conditions, and violations and fines.

3.4 Royalties

Revenues from mining activities at the Vazante Operation are subject to the Compensação Financiera pela Exploração de Recursos Minerais (CFEM) royalty that is paid to the ANM. The CFEM is a royalty paid on a monthly basis based on the sales value of minerals, net of taxes levied on the respective sale. When the produced minerals are used in its internal industrial processes, the CFEM payment is determined based on the costs incurred to produce them. The CFEM is determined by a reference price of the respective mineral to be defined by the ANM. The applicable rate varies according to the mineral product (currently 2% for zinc, lead, dolomite, and copper). There is also a monthly inspection fee related to the transfer and commercialization of certain minerals in some of the Brazilian states (such as Minas Gerais) known as the Taxa de Fiscalização de Recursos Minerais (TFRM), where the Vazante Operation mining concessions are located.

SLR is not aware of any environmental liabilities on the property. Nexa has all required permits to conduct the proposed work on the property. SLR is not aware of any other significant factors and risks that may affect access, title, or the right or ability to perform the proposed work program on the property.





4.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

4.1 Accessibility

The Vazante Operation is well serviced by a series of primary and secondary highways, with access roads to many portions of the Exploration Authorizations. Local access to the Vazante Operation from the nearby town of Vazante is via a well maintained paved road leading directly to the mine gate. Internal access to various portions of the mining concessions is by means of gravel roads.

The town of Vazante is accessed via high quality paved roads leading southeastwards from Brasilia to Paracatu and onwards to Vazante, or northwestwards from Belo Horizonte. Both Brasilia and Belo Horizonte are well serviced by commercial airlines that provide a large number of daily flights to both domestic and international locations.

4.2 Climate

The Vazante Operation is located in the equatorial region of Brazil and the climate in the area is classified as humid subtropical, with average daily maximum temperatures of approximately 30°C in September and March of each year. The average daily minimum temperatures typically occur in June and July and reach a minimum of approximately 13°C .

The rainy season typically extends from October through March, with peak rainfall occurring typically in December and January at a rate of approximately 300 mm/month. The dry period typically occurs in April through September.

4.3 Local Resources

The closest settlement to the Vazante Operation is the municipality of Vazante, with a population of approximately 20,600. The main economic activities of the region include cattle raising, farming, and mining. Most of the mine employees reside in Vazante and commute to the mine site daily, a distance of approximately eight kilometres. Goods and services in support of mining operations are generally sourced from Belo Horizonte. The region is well serviced with electricity supplied from the national grid as well as modern telecommunications. Basic medical services are available in the town of Vazante, with higher levels of medical services available in Paracatu, Brasilia, or Belo Horizonte.

4.4 Infrastructure

The surface and underground infrastructure of the Vazante Operation include:

- Seven open pit mines that have exploited the near-surface calamine mineralization.
- Two underground mines (Vazante and Extremo Norte) that together extend for a strike length of approximately nine kilometres and to a depth of approximately 550 m from surface.
- An ore blending and reclaim facility.
- Two processing plants, Plant W and Plant C. Plant W has a nominal throughput capacity of 1.2 million tonnes per annum (Mtpa) and Plant C has a nominal throughput capacity of 0.4 Mtpa.
- Waste rock storage facilities.
- Several tailings storage facilities (TSFs) (two active).
- A core logging and sampling facility.
- A commissary.
- A warehouse.
- An assay laboratory.
- A millwright and electrical shop.
- An administrative building.
- A first aid station.





The power supply to the Vazante Operation is provided by two independent 138 kV transmission lines that feed the site and that can provide up to 55 MW. Infrastructure is discussed further in Section 18 of this Technical Report Summary.

4.5 Physiography

The topography in the Vazante Operation area is characterized by gently rolling hillsides with incised streams and rivers. The elevations of the Vazante Operation area ranges from approximately 690 metres above mean sea level (masl) to 970 masl.

The majority of the region is used for either farming purposes or for pasture, with the primary food items produced being rice, beans, soybeans, and manioc. Remnant vegetation typically consists of open savannah (cerrado) with gallery type forest cover in the riparian areas. Cerrado is a protected environment, where it occurs.

The main water courses in the area form tributaries to the Paracatu River, which is part of the São Francisco River basin. The Santa Caterina River cuts through the southern part of the Vazante Operation area.





5.0 HISTORY

5.1 Prior Ownership

Mineralization in the Vazante Operation area was initially discovered by Angelo Solis in 1933 who acquired the first mineral titles to the area. The mineral rights to the Vazante Mine portion of the Vazante Operation land holdings were first acquired by Companhia Mineira de Metais (CMM) in 1956. CMM later became Votorantim Resources in 2005 and more recently Nexa Resources S.A. in 2014. The original land titles for the Vazante Operation were added and expanded over the years by means of direct land acquisition (claim staking) and various option agreements and purchases. The Extremo Norte Mine portion of the current Vazante Operation land holdings was acquired by purchase in 2007.

5.2 Exploration and Development History

The exploration and development history of the Vazante Operation is presented in Table 5-1. The exploration and development work carried out on the property to date has focussed on the location and delineation of the known mineralized zones both along strike and to depth. In addition, exploration work has focussed on evaluating the potential of selected areas on the mineral claims for hosting additional mineralized zones. Exploration work has included basic geologic mapping activities, geochemical and geophysical surveys, and various drilling programs.





Table 5-1: Summary of Exploration and Development History
Nexa Resources S.A. - Vazante Polymetallic Operations

Year	Operator	Purpose	Summary of Work	Remarks
1933	Angelo Solis			Zinc discovered in the Vazante region.
1956	CMM			Votorantim/Nexa company established.
1969	U.S. Steel	Surface exploration	Geological Mapping	Regional geological mapping-Cia Meridonal.
		Open pit mining		First ore transported from Vazante open pits to the Três Marias smelter.
1972	DOCEGEO	Surface exploration	Geological mapping	Regional mapping of the Vazante belt.
1974-1978	ENJEX/DOCEGEO/CMM (Votorantim)/DNPM	Drilling	Exploratory drilling and mineral potential definition	Agua Doce and Pasto prospects.
1980-1989	CMM/BSHELL	Drilling	Exploratory drilling and mineral potential definition	Agua Doce and Pasto prospects.
1983	CMM (Votorantim)	Underground Mining		Commencement of underground mining, Lumiadeira mine.
1990	CMM (Votorantim)	Drilling	Exploration drilling	Agua Doce prospect.
2000	CMM (Votorantim)	Surface exploration	Stream sediment sampling	Sampling of the Garrote Formation along the Lagoa Feia trend, and around the Lages, Cercado, and Partecal targets.
2001	COMIG	Geophysics	Aerial magnetic and radiometric surveys	Vazante belt.
2004-2006	Votorantim (CMM became Votorantim in 2005)	Surface exploration drilling	Regional mapping, exploration and resource definition drilling, exploratory auger drilling	Olho D'Água target.
2007	Votorantim	Surface exploration	Regional scale geological mapping (1:100,000) and local scale mapping (1:20,000) rock sampling	Mapping to identify potential areas of mineralization and better understand the stratigraphic and metallogenetic context around Vazante Mine targets.
		Drilling	Mineral potential definition	Olho D'Água prospects.





2008	Votorantim	Surface exploration	Regional scale geological mapping (1:100,000) and local scale mapping (1:20,000) rock sampling	Identify potential areas of mineralization. Rock and geochemical sampling at Cercado and Olh D'Água prospects.
2009	Votorantim	Surface exploration	Regional scale geological mapping (1:100,000) and local scale mapping (1:20,000) rock, soil, and stream sediment sampling	Identify potential areas of mineralization and infill drilling in the Cercado, Olhos D'Água, and the Lagoa Feia trend.
2010	Votorantim	Geophysical surveying	Ground magnetic surveys	Ground magnetic surveying at the Agua Doce, Extremo Notre Mine, Vazante Mine, and the Lagoa Feia trend.
		Surface exploration	Regional scale geological mapping (1:100,000) and local scale mapping (1:20,000) rock, soil, and stream sediment sampling	Large scale geological mapping campaign to assess the mineral potential definition in the Vazante South belt, soil sampling over prospective targets such as Olho D'Água trend, Vazante Mine area, and Cercado trend.
2011	Votorantim	Drilling	Exploration drilling and mineral potential definition	Focus on drilling over the Cercado trend.
		Surface exploration	Regional scale geological mapping (1:100,000) and local scale mapping (1:20,000) rock, soil, pan concentrate, and stream sediment sampling	Large scale geological mapping campaign to assess mineral potential definition in the Vazante South belt, soil sampling over prospective targets such as Olho D'Água trend, Vazante Mine area, and Cercado trend.
		Drilling	Exploration drilling and mineral potential definition	Vazante Mine, Olho D'Água, Boi Branco.
2012	Votorantim	Geophysics	FALCON airborne magnetic and gravity surveys	Regional airborne surveys.
		Surface exploration	Regional scale geological mapping (1:100,000, rock, pan concentrate, and stream sediment sampling	Potential areas definition. Detailed work over the Olho D'Água, Lagoa Feia, Partecal trend and Boi Branco prospect.
		Drilling	Exploration drilling and mineral potential definition	





2013	Votorantim	Surface exploration	Regional scale geological mapping (1:100,000, rock, pan concentrate, and stream sediment sampling	Cercado trend and Boi Branco prospect.
		Drilling	Exploration drilling and mineral potential definition	Testing potential Vazante parallel structure and Agua Doce prospect.
2014	Votorantim (Nexa)	Surface exploration	Regional, local, and detailed scale geological mapping (1:100,000, 1:20,000 and 1:5,000), rock and pan concentrate sampling	Potential area definition in parallel structure to the Vazante Mine.
		Drilling	Exploratory drilling	Olhos D'Água trend, Vazante Mine parallel structures trend.
		Geophysics	Electroresistivity surveys	Undertaken to delineate weathering zone and fracture zones at Vazante Mine limits.
2015	Nexa	Surface exploration	Regional and local scale geological mapping (1:100,000 and 1:20,000), rock, soil, stream sediment, and pan concentrate sampling	Boi Branco, Lages, Partecal, Olhos D'Água trend.
		Drilling	Exploratory drilling, mineral resource potential and resource definition.	Vazante Mine parallel structures.
2016	Nexa	Surface exploration	Detail-scale mapping (1:10,000), rock and soil sampling	Detail-scale geological mapping at Lages and Lagoa Feia.
		Drilling	Exploratory drilling, mineral potential, and resource definition	Vazante Mine drilling (Lumiadeira Sul, gaps at Extremo Norte, and Lages.
		Geophysics	Induced Polarization (IP) survey	Spectral IP at Lages, Extremo Norte target and Boi Branco trend.





2017	Nexa	Surface exploration	Detail-scale mapping (1:10,000), rock and soil sampling	Lages and Lagoa Feia targets.
		Drilling	Exploratory drilling, mineral potential, and resource definition	Drilling at Vazante (Lumiadeira Sul, gaps at Extremo Norte and Lages). Beginning of drilling program to assess calamine potential in Vazante Mine.
		Geophysics	IP survey	Spectral IP survey over Vazante, Lages, and Lagoa Feia target.
2018	Nexa	Surface exploration	Detail-scale mapping (1:10,000), rock and soil sampling	Lagoa Feia, Cercado, Carrapato, and Calamina targets
		Drilling	Exploratory drilling, mineral potential, and resource definition	Vazante Mine drilling (Lumiadeira and gaps at Extremo Norte), Lagoa Feia, Cercado, and Calamina targets.
		Geophysics	IP survey and electrical survey	Spectral IP at Carrapato trend, electrical survey at Calamina target.
2019	Nexa	Surface exploration	Detail-scale mapping (1:10,000), rock and soil sampling	Vazante Sul, Sungem, and Calamina targets.
		Drilling	Exploratory drilling, mineral potential, and resource definition	Vazante Mine drilling (Extremo Norte, Extremo Norte Deep, and Varginha Norte), Cercado trend, Vazante Sul, and Sungem target.
		Geophysics	IP survey and electrical survey	Electrical survey at Calamina target.





5.3 Historical Resource Estimates

Nexa has owned the Vazante land holdings and the Vazante Operation since 1956, formerly as CMM, then Votorantim Resources, and more recently as Nexa Resources S.A. There have been no relevant Mineral Resource or Mineral Reserve estimates prepared by previous owners of the Vazante Operation.

Additional descriptions of previous Mineral Resource and Mineral Reserve estimates prepared by Nexa are presented in the Amec Foster Wheeler (Amec) 2017 NI 43-101 Technical Report (Amec, 2017).

5.4 Past Production

Mechanized open pit mining at the Vazante Operation commenced in 1969. The initial mining operations exploited the supergene calamine mineralization which was formed by a mixture of hemimorphite ($\text{Zn}_4(\text{Si}_2\text{O}_7)(\text{OH})_2 \cdot \text{H}_2\text{O}$) and smithsonite (ZnCO_3) that were derived from weathering of the primary willemite mineralization. Open pit mining operations of willemite mineralization were suspended in 2000, followed by the suspension of open pit production of calamine mineralization in 2008.

Development of the Vazante Operation underground mines began in 1983, with initial minor production of willemite mineralization taking place in 1984. The underground mines exploit the primary willemite mineralization (Zn_2SiO_4) along with minor to trace amounts of sphalerite. Production from the underground mines is ongoing. Between 1982 and 2019 a total of 230,489 m of level development has been completed in the underground mines (Figure 5-1).



Figure 5-1: Underground Mine Development 1982 to 2019, Vazante and Extremo Norte Mines

From inception to 2019, a total of 38,695,229 t of ore have been processed from both the open pit and underground mines. Beginning in 2018, increasing quantities of tailings sourced from the Aroeira TSF have been included as part of the plant feed stock for reprocessing. As of December 31, 2020, a total of approximately 0.2 million tonnes (Mt) of tailings have been fed to the processing plant.

A summary of the open pit production history is provided in Table 5-2 and a summary of the underground mine production is presented in Table 5-3. The production history for the open pit and underground mines is summarized in Figure 5-2.

**Table 5-2: Summary of Open Pit Mine Production
Nexa Resources S.A. - Vazante Polymetallic Operations**

Year	Calamine Production (Ore tonnes)	Willemite Production (Ore tonnes)
1969	6,000	2,700
1970	13,000	5,720
1971	24,000	10,512
1972	32,000	13,600
1973	48,000	21,120
1974	74,000	31,450
1975	73,000	31,390
1976	110,000	46,200
1977	121,000	50,215
1978	151,000	57,380
1979	232,000	69,600
1980	280,000	72,800
1981	316,000	—
1982	501,000	—
1983	584,000	—
1984	156,054	419,967
1985	116,157	384,293
1986	209,221	400,785
1987	182,146	315,635
1988	267,139	538,475
1989	247,350	500,553
1990	129,799	609,522
1991	173,268	550,354
1992	78,470	595,242
1993	279,727	629,893
1994	185,777	553,879
1995	137,538	376,879
1996	111,138	187,200
1997	205,322	296,322
1998	181,070	163,086
1999	188,601	85,499
2000	183,146	56,289
2001	210,211	—
2002	278,049	—
2003	495,754	—
2004	441,064	—
2005	500,949	—
2006	501,754	—
2007	366,582	—
2008	285,631	—
Total	8,676,917	7,077,280





Table 5-3: Summary of Underground Mine Production
Nexa Resources S.A. - Vazante Polymetallic Operations

Year	Plant Feed (t)	Plant Head Grade (% Zn)	Contained Metal (t Zn)
1984	657	—	—
1985	20,342	—	—
1986	4,621	—	—
1987	13,942	—	—
1988	5,965	—	—
1989	—	—	—
1990	2,050	—	—
1991	21,999	—	—
1992	42,174	—	—
1993	31,410	—	—
1994	115,797	—	—
1995	143,504	—	—
1996	226,996	—	—
1997	227,927	—	—
1998	309,426	—	—
1999	416,583	—	—
2000	441,902	14.58	64,429
2001	531,606	14.97	79,581
2002	590,500	15.14	89,402
2003	680,251	15.04	102,310
2004	708,385	15.10	106,966
2005	815,821	14.43	117,723
2006	868,726	15.67	136,129
2007	1,026,790	15.33	157,407
2008	986,447	14.61	114,210
2009	1,096,662	15.12	165,815
2010	1,301,527	15.37	173,940
2011	1,323,742	13.14	173,940
2012	1,401,281	10.80	151,338
2013	1,389,520	10.80	150,068
2014	1,389,574	11.25	156,327
2015	1,355,200	11.68	158,287
2016	1,298,545	11.93	154,960
2017	1,348,254	12.39	167,082
2018	1,360,761	11.89	161,799
2019	1,441,625	10.76	155,115
2020	1,622,927	10.43	169,271
Total	24,563,959	—	—





Source: Nexa, 2020

Figure 5-2: Summary of Open Pit and Underground Mine Production



Nexa Resources S.A. | Vazante Polymetallic Operations, **SLR Project No: 233.03245.R0000**
Technical Report Summary - February 15, 2021



6.0 GEOLOGICAL SETTING, MINERALIZATION, AND DEPOSIT

6.1 Regional Geology

The South American Platform is mainly composed of metamorphic and igneous complexes of Archean/Proterozoic age and makes up the continental interior of South America. The Platform consolidated during the Late Proterozoic to Early Paleozoic times in the course of the Brasiliano/Pan-African orogenic cycle during which the amalgamation of different continents and micro continents with the closure of several ocean basins led to the formation of the Supercontinent Gondwana. Archean and Proterozoic rocks are exposed in three major shield areas within the framework of Neoproterozoic fold belts (Guiana, Central Brazil, and Atlantic shields). The western continental margin of the South American Plate developed from at least Neoproterozoic to Early Paleozoic times and constitutes a convergent margin, along which eastward subduction of Pacific oceanic plates beneath the South American Plate takes place. Through this process, the Andean Chain, the highest non-collisional mountain range in the world, developed. The eastern margin of the South American Plate forms a more than 10,000 km long divergent margin, which has developed as a result of the separation of the South American Plate and the African Plate since the Mesozoic era through the opening of the South Atlantic and the break-up of Gondwana. The northern and southern margins of the South American Plate developed along transform faults in transcurrent tectonic regimes due to the collision of the South American Plate with the Caribbean and Scotia plates. The South American Plate reveals a long and complex geologic history (Engler, 2009). Figure 6-1 is a simplified geological map of Brazil.

The Project is underlain by Paleoproterozoic and Mesoproterozoic-aged (1.80 Ga to 1.55 Ga) lithologies belonging to the Río Negro-Juruena Province, one of six major geochronological provinces comprising the Amazonian Craton. The Río Negro-Juruena Province occupies a large portion of the western part of the Amazonian Craton (Figure 6-2) and includes volcano-sedimentary sequences, felsic plutonic-gneiss, and granitoids. Rift basins within the province are filled with continental platform molasse and marine sediments of Mesoproterozoic, Paleozoic, and Mesozoic age (Engler, 2009). It is a zone of complex granitization and migmatization. Regional metamorphism, in general, occurred in the upper amphibolite facies (Tassinari et al., 2010)





Figure 6-1: Regional Geology





Figure 6-2: Geological Map of the Amazonian Shield





6.2 Local Geology

The Vazante Operation is situated within the Tocantins Province (Almeida et. al., 1977), an orogenic system located between the São Francisco Craton, the Amazon Craton, and a potential covered third cratonic block located in the Paraná watershed. The province is bordered by three orogenic mountain ranges: the Paraguay and Araguaia Ranges that border the Amazon Craton, and the Brasília range, which borders the São Francisco Craton. The regional geology is presented in Figure 6-3.

A geological map of the Vazante Operation area is presented in Figure 6-4. All known zinc mineralization in the Vazante Operation area is hosted by the Meso-Neoproterozoic aged Vazante Group. The generalized stratigraphy of the Vazante Group is presented in Figure 6-5.

The Vazante Formation was first proposed by Dardenne (1979) to designate a set of pelitic-carbonate units traditionally attributed to the Bambuí Group. The Vazante Formation was subdivided into three sections: basal, intermediate, and top. Later, Dardenne et. al. (1998) redefined the Vazante Formation as the Vazante Group which included the Retiro, Lagamar, Serra do Garrote, Serra do Poço Verde, Morro do Calcário, and Serra da Lapa Formations.

Zinc-lead deposits hosted in pelitic-carbonate rocks of the São Francisco Craton are considered to be genetically connected to regional compression that forced basinal brines out and upward along regional structures (Guimarães, 1962, Beurlen, 1974, Lye et. al., 1992, and Lye, 1984). Major zinc deposits hosted by Vazante Group units occur as two major types. The first being represented by the Vazante zinc silicate deposit, and the second by the Morro Agudo zinc sulphide deposit. These deposit types have distinct lithostratigraphic controls as well as significant difference in terms of hydrothermal (Vazante) and syn-diagenetic (Morro Agudo) origins. Geochronological information presented in Olivio et. al. (2018) suggests that the age of the Middle Pamplona Member (the host to the Vazante zinc-silicate mineralization) ranges from approximately 2.10 Ga to 1.82 Ga while the age of the Upper Pamplona Member (the host to the Morro Agudo zinc-sulphide deposit) is approximately 1,082 Ma +/- 14 Ma.





Figure 6-3: Regional Geological Map of the Brasilia Fold Belt





Figure 6-4: Local Geology of the Vazante Mine Area





Figure 6-5: Generalized Stratigraphic Column of the Vazante Area





6.3 Property Geology

The geology of the Vazante Operation area consists of a sequence of pelitic carbonate rocks belonging to the Serra de Garrote and Serra do Poço Verde formations of the Vazante Group (Figure 6-6). The currently known mineralization has been traced along a strike length of approximately 10.5 km, extending from the southern end of the Vazante Mine to the northern limits of the Extremo Norte Mine.

6.3.1 Serra do Garrote Formation

The Serra do Garrote Formation consists of carbon rich phyllites containing ferruginous breccias and hematite blocks. The ferruginous breccias are attributed to surficial weathering processes while the hematite blocks are possibly due to hydrothermal fluid flows. The phyllitic rocks are carbon rich, black to dark gray when fresh, and quite homogenous in their appearance. Outcrops of these units are abundant in the Vazante Operation area, taking the form of flat outcrops in such locations as stream bottoms and in cliffs, road-cuts, and ravines.

In the field, these phyllites appear as laminated rocks occurring as alternating beds with different colours and particle sizes (Figure 6-7). The thickness of the bedding ranges from millimetre scale to centimetre scale. The sedimentary bedding (S0) is observed to typically occur parallel to subparallel to the cleavage (S1). These rock units are also affected by last phase kink-banding that is attributed to a regional deformation event (D1), and by locally developed crenulation cleavage.

The composition of the phyllite units consist primarily of sericite, chlorite, and quartz with minor amounts of detrital crystals of feldspar, tourmaline, and stilpnomelane. Iron hydroxide and oxide pseudomorphs after pyrite located interstitially to irregular sericite blades and quartz crystals.





Figure 6-6: Property Geology





Source: Amec, 2017.

Figure 6-7: Examples of Phyllites of the Serra Do Garrote Formation

6.3.2 Serra do Poço Verde Formation

In the Extremo Norte Mine area, the Serra do Poço Verde Formation is represented from base to top by the Lower Morro do Pinheiro, Upper Morro do Pinheiro, and Lower Pamplona members. The Lower and Upper Morro do Pinheiro members occur to the east of the Vazante Fault at the contact between the footwall and the hydrothermal dolomite breccia. The Lower Pamplona member occurs west of the Vazante Fault, at the contact between the cover and breccia.

6.3.2.1 Lower Morro do Pinheiro Member

Proposed by Dardenne (1978), the Lower Morro do Pinheiro Member occurs at the base of the dolomitic sequence of the Serra do Poço Verde Formation in the Extremo Norte Mine area. It consists of gray and sometimes pinkish coloured dolomites containing algal mat features. Occasional birds eye features are observed, consisting of lens shaped intergranular spaces filled with sedimentary material.

This Lower Morro do Pinheiro Member features dolomitic conglomerates (dolorudites) that are characterized by angular to subrounded clasts of different sizes, arranged in a limey mud (micritic) matrix. It consists almost exclusively of dolomite and some rare opaque crystals and quartz. The unit is locally silicified and can contain iron rich dolomite, quartz, and dolomite crenulations.

The almost monomineralic composition is probably related to diagenetic processes that favoured complete dolomitization. The presence of dissolution structures and cavity filling such as stromaticitis (which consist of cavities filled by well developed crystals of dolomite with quartz at the middle) is considered to be related to the diagenetic dolomitization process. Much of the unit near the Extremo Norte Mine is interpreted to be a diagenetic collapse breccia (Figure 6-8).

6.3.2.2 Upper Morro do Pinheiro Member

The Upper Morro do Pinheiro Member was initially defined by Dardenne (1978). This member features thinly bedded dolomite, with clay sized to silt sized mineral grains and a massive to slightly laminated structure. This member displays only minor evidence of hydrothermal alteration and has maintained a light and/or dark gray colour. Primary structures including birds eyes and algal mats are preserved (Figure 6-9).





Source: Amec, 2017.

Figure 6-8: Intraclast Breccias with Subangular Clasts in Dolomite Matrix, with Stromatactis Filled with Dolomite



Source: Amec, 2017.

Figure 6-9: Images of Gray, Massive Dolomite Containing Birds-Eyes (A), and Bird’s Eyes Structures (B)

The dolomite contains local intraclast breccia lenses with angular clasts of various sizes ranging from 0.2 cm to 10 cm that are surrounded by a dolomite matrix. Gray to greenish metapelite layers with average thicknesses of approximately two metres to three metres occur in the Upper Morro do Pinheiro Member. It is possible to clearly define two metamorphic foliations in the metapelites. One cleavage is a continuous cleavage that features a slaty cleavage while the second cleavage is discontinuous and often generates a crenulation of the early cleavage (Figure 6-10).

6.3.2.3 Lower Pamplona Member

The Lower Pamplona Member was defined by Dardenne (1978) and is located west of the Vazante Fault in a down dropped block.

The Lower Pamplona Member consists of a metadolomite that is pinkish in colour, fine grained, and marked by the presence of algal mats that define a sedimentary bedding (Figure 6-11). It contains several marly intervals that range in colour from purple to greenish. Two metamorphic foliations are recognized in the marls.





The Lower Pamplona Member has been extensively altered by hydrothermal fluids that have commonly produced siderite and ankerite veinlets, and locally, some brecciation. The metadolomite is sometimes totally silicified.



Source: Amec, 2017.

Figure 6-10: View of a Metapelite Featuring Two Metamorphic Foliations Oriented Oblique to Each Other



Source: Amec, 2017.





Figure 6-11: View of Pink-Coloured Dolomite with Algal Mats and Primary Bedding (A) and Containing Meta-Marl Intercalations (B)

6.3.2.4 Brecciated Dolomites (Hydrothermal Breccia)

Brecciated dolomites are exposed in a north-south oriented strip associated with the Vazante Fault. They cut the Extremo Norte Mine area where they thicken near the contact with the Serra de Garrote Formation and are characterized by intense strain (D3) that allowed the brecciated structure to develop (Figure 6-12).

The rock is generally pink to reddish in colour, and few primary structures or bedding features are preserved. The unit is highly veined by thick siderite, ankerite, and dolomite veins. Clasts are round to sub rounded in shape, suspected to be due to the partial assimilation that took place during the flow of the hydrothermal fluids. The clasts are chaotically disposed in a totally recrystallized dolomite matrix that has a comb structure.



Source: Amec, 2017.

Figure 6-12: Example of Dolomite Breccia with Intense Veinlet Development

6.4 Hydrothermal Alteration

Regionally, hydrothermal alteration is primarily controlled by brecciation and structures relating to brecciation. The most common alteration minerals are siderite, ankerite, quartz, and hematite, which can occur both as veins, and matrix infillings around breccia clasts. Gahnite was noted in some veinlets close to economic grade mineralization (Monteiro et. al., 1999).

Pervasive hematite alteration may cause a colour change in the dolostones from gray to pink. Silicification within the dolostones is also a common alteration signature (Slezak, 2012).

Hydrothermal alteration is well developed in and around the mineralized zones (Figure 6-13). The alteration minerals comprise pervasive ferroan dolomite, ankerite, siderite, and replacement silica that persist for up to 100 m to 150 m into the hanging wall and up to approximately 50 m into the footwall of the fault zone (Hitzman et. al., 2003). Within the Vazante Fault zone, silica-hematite veins cut ferroan dolomite, particularly along the upper and lower edges of the fault zone.





Figure 6-13: Typical Example of Alteration Style and Mineralogy





6.5 Mineralization

The zinc-lead-silver mineralization at the Vazante Operation is hosted by the Vazante Shear Zone which has been traced by drilling and sampling along a strike length of approximately 12 km. The Vazante Shear Zone has a general strike of azimuth 50° and dips approximately 60° to the northwest at surface (Figure 6-14). The hanging wall lithologies of the Vazante Shear Zone are comprised of dolostone and sericitic phyllite, slates and marl units of the Serra do Poço Verde Formation while the footwall lithologies to the Vazante Shear Zone are dominated by dark grey dolostones of the Upper Morro do Pinheiro Member. Drilling information indicates that the dip of the zinc mineralized zone gradually decreases with depth in the southern portions of the structure.

The zinc mineralization at the Vazante and Extremo Norte mines is composed largely of hypogene zones that are composed mainly of willemite (Zn₂SiO₄) veins, veinlets, and stockworks that are hosted by sphalerite rich carbonate. The mineralization typically contains willemite (50% to 70%), dolomite (10% to 30%), siderite (10% to 20%), quartz (10% to 15%), hematite (5% to 10%), zinc rich chlorite (5% to 10%), barite (<5%), franklinite (<5%), and zincite (<5%), with subordinate concentrations of magnetite and apatite (Monteiro et. al., 2006). Lead and silver are also recovered from the hypogene mineralization produced from the Vazante Operation. While no detailed studies regarding the specific lead and silver bearing minerals have been carried out on samples of the hypogene mineralization, several detailed mineralogical studies have been conducted using concentrate samples. SLR notes that the majority of the lead mineralization in the concentrates has been found to be related to galena (PbS), with lesser amounts of lead being contained in cerussite (Pb(CO₃)). Mineralogical studies have indicated that the silver values are contained in the minerals acanthite (Ag₂S) and jalpaite (Ag₂CuS₂).

Supergene zones of zinc rich mineralization have been developed in the near surface portions of the hypogene mineralized zones. These supergene zones are referred to as the calamine zones at the Vazante Operation. The calamine mineralization is composed principally of smithsonite (ZnCO₃) that includes subordinate amounts of hemimorphite (Zn₄(Si₂O₇)(OH)₂.H₂O) and quartz. The calamine mineralized zones were derived from weathering of the primary willemite mineralization.





Figure 6-14: View of the Geology, Alteration, and Mineralization





6.6 Deposit Descriptions

6.6.1 Vazante

The zinc silicate mineralization of the Vazante deposit is hosted in a tectonic hydrothermal breccia zone that is found near the contact between the Lower Pamplona and the Upper Morro do Pinheiro Members of the Vazante Group. Metamorphosed dikes are tectonically imbricated with the carbonates and hydrothermal breccias in the main orebody.

The Vazante portion of the orebody, which is approximately seven kilometres in length, has a variable thickness, and has been traced by drilling to a depth of approximately 800 m below surface. Willemite can form as pods, veinlets, and metre wide veins within the hydrothermal breccia and is locally controlled by antithetic faults in the deposit. The willemite composition, according to electron micro-probe (EMP) studies conducted by Monteiro et. al. (2006), has been shown to contain minor amounts of FeO (up to 0.3 wt%) and Ca (up to 0.13 wt %).

Willemitic mineralization is tectonically imbricated with small sulphide orebodies, metabasites, and brecciated metadolomites. The sulphide orebodies are offset by normal and reverse faults and are cut by late hydrothermal veins. This can cause a complex relationship between orebodies and host rocks. The sulphide bodies consist of iron poor sphalerite with round inclusions of galena, and occasional inclusions of hematite, quartz, and dolomite. The relationship between sphalerite and willemite is not well understood. They may have co-precipitated from the same solution (Monteiro et. al., 1999, Hitzman et. al., 2003), or the willemite may be an alteration or metamorphic product after sphalerite (Appold and Monteiro, 2009). Typical cross sections through the Lumiadeira and Sucuri areas of the Vazante Mine are presented in Figure 6-15 and Figure 6-16, respectively.





Figure 6-15: Cross Section of the Lumiadeira Area, Vazante Mine





Figure 6-16: Cross Section of the Sucuri Area, Vazante Mine





6.6.2 Extremo Norte

The Extremo Norte mineralization is associated with the Vazante Shear Zone, and is primarily hosted in the Lower Pamplona Member, or along the contact between the Lower Pamplona and Upper Morro do Pinheiro Members.

The mineralization consists of willemite (in variable quantities, but can reach up to 40% in abundance), specular hematite (1% to 50%), and minor franklinite (ZnFe₂O₄). The mineralized zones occur as a primary gently undulating, northwest dipping tabular sheet that has been traced by drilling along a strike length of approximately four kilometres and to a depth of approximately 600 m from surface.

The mineralization at the Vazante Mine is observed to generally contain more sulphide minerals associated with the willemite, and observations suggest that it has experienced a higher degree of ductile deformation than is observed at the Extremo Norte deposit. Metamorphosed and hydrothermally altered basic dikes are tectonically imbricated with the carbonates and the hydrothermal breccias in the Vazante Mine (Babinski et. al., 2005), but these have not been observed at the Extremo Norte deposit (McGladrey, 2014).

A paragenetic history of the Extremo Norte deposit has been proposed by Slezak et. al. (2013) and is presented in Figure 6-17 and Figure 6-18.





Figure 6-17: Proposed Paragenetic History of the Extremo Norte Deposit





Figure 6-18: Proposed Genetic Model for the Extremo Norte Deposit





6.6.3 Calamine

The majority of the existing calamine mineralized zones are located along the Extremo Norte portion of the Lumiadeira-Sucuri-Extremo Norte mineralized trend. Several minor occurrences of calamine are located along the northeastern sections of the Sucuri trend of the Vazante Mine. The calamine mineralized zones consist of fully weathered supergene material that is derived from the primary willemite zinc mineralization and its enclosing host rock units (Figure 6-19 and Figure 6-20).



Source: Nexa

Figure 6-19: View of In-Situ Calamine Mineralization





Source: Nexa

Figure 6-20: Example of Calamine Mineralization in Drill Core



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Technical Report Summary - February 15, 2021



6.7 Deposit Types

The zinc deposit found at the Vazante Operation is the largest known non-sulphide zinc deposits in the world and is the type example for this class of mineral deposit. The Vazante Operation mineralization is composed primarily of hypogene zinc silicate minerals dominate in abundance by willemite. The primary hypogene willemite mineralization has been subjected to supergene weathering processes to produce secondary zinc mineralization, referred to as the calamine mineralization, which is composed of smithsonite (ZnCO₃) and hemimorphite (Zn₄Si₂O₇(OH)₂).

Non-sulphide hypogene zinc deposits are known to occur either as stratiform deposits, or structurally controlled deposits. The mineralization at the Vazante Operation is an example of a structurally controlled deposit. Key features of structurally controlled deposits are:

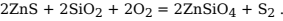
- They occur in Neoproterozoic to Cambrian aged sedimentary basins that have been metamorphosed to at least sub-greenschist facies.
- They are hosted in carbonate rocks associated with major structures, such as district-scale faults and folds.
- They are associated with brecciation, which may be the result of karstification, or the result of tectonism and hydrothermal fluid flow.
- The dominant economic zinc mineral is willemite. Additional minerals may include zinc oxides such as zincite, franklinite, or zinc carbonates such as smithsonite.
- The alteration minerals can include ferroan dolomite, hematite, and quartz.

The Vazante Operation mineralization is linked to the development of the Vazante Shear Zone, which has been interpreted to be a transpressional transcurrent fault that later reactivated as a normal fault (Monteiro et. al, 2007, Pinho, 1990).

The hypogene mineralization has two strong controls, lithostratigraphic and structural. The Vazante Operation deposit is clearly confined to a clay-dolomite interval near the contact between the Lower Pamplona Member and the Lower Morro do Pinheiro Member. Mineralization is restricted to the brecciated area in the fault zone that has had a long history of reactivation (Monteiro, 2002). This hypogene mineralization is interpreted to result from deposition of metals from hydrothermal fluids that have moved through the Vazante Shear Zone.

The morphology of the Vazante Operation deposit consists of veins and anastomosing podiform bodies that are fault bounded. The geochemical controls on the deposition of the mineralization are not well understood and the source of the metals is not known. The deposit genesis is thus in debate, as it may have originally represented a sulphide deposit that was subsequently silicified, or it may have consisted of primary zinc silicate mineralization that was later re-concentrated into the Vazante Shear Zone.

Work by Monteiro et. al, (1999, 2006, and 2007) suggest that the willemite can form by reacting sphalerite and quartz through the reaction:



This reaction would presumably occur during a low-grade metamorphic event.

Brugger et. al. (2003) investigated the origin of these deposits and suggested that the willemite could form by direct precipitation from hydrothermal fluids under high pH and high oxygen fugacity conditions.

Furthermore, Hitzman et. al. (2003) concluded that the fluids responsible for transporting zinc to the Vazante Operation type zinc deposits appear to be geochemically similar to solutions produced in many continental sedimentary basins. As non-sulphide zinc deposits appear to form from the mixing of highly oxidized, sulphur poor solutions with zinc bearing solutions, they could be found in the same districts as sphalerite-rich Mississippi Valley type or Irish type deposits formed by fluid mixing. Such appears to be the case in the Bambui Group in Brazil.

The Irish type Morro Agudo zinc-lead deposit, located approximately 100 km north of the Vazante Operation, occurs in rocks that are stratigraphically above the level of the mineralization at Vazante. Morro Agudo, like other Irish type deposits (Hitzman and Beaty, 1996), formed by the mixing of a metal rich, sulphur poor, reduced hydrothermal fluid with a sulphur rich fluid. Similarly, the Vazante Operation deposit may have formed through the mixing of a similar metal rich, reduced, hydrothermal fluid with a highly oxidized, sulphur poor fluid (Hitzman et. al., 2003).





7.0 EXPLORATION

7.1 Exploration

7.1.1 Introduction

Zinc was first discovered at the Vazante Operation in 1951 when areas of gossan and calamine mineralization were discovered in surface outcrops. Since 1951, exploration has largely consisted of geological mapping and geophysical surveying, with minor amounts of geochemical sampling programs being carried out to locate outcropping mineralized zones. In the Vazante Operation area, exploration programs (including drilling) have strategically been carried out in support of extensions of mining operations, including the possibility of deepening of the mine infrastructure.

While geochemical surveys are useful for locating those areas of outcropping mineralization, much of the mineralized zones at the Vazante Operation extend to depth and so limiting the effectiveness of geochemical surveys.

Geophysical surveys are useful for detecting mineralized zones to shallow depths and are also useful to assist in defining the location of controlling structures. As the surface and near-surface potential has been evaluated by these methods, increasingly diamond drilling programs are becoming the primary exploration tool for locating additional mineralized zones at depth.

7.1.2 Grid Datums and Topography Surveys

Two grid systems are used in the Vazante Operation area. For regional exploration programs, all location information is collected using the UTM SIRGAS 2000 Zone 23S datum. For exploration programs located in the vicinity of the mine areas, the location information is collected using the UTM Córrego Alegre Zone 23S datum.

The regional topographic surface is created from data collected from the Shuttle Radar Topography Mission (SRTM), an international research effort in February 2000 that obtained digital elevation models on a near global scale from latitudes of 56°S to 60°N. Contour lines were created from this information at five metre intervals using the GEOSOFT software package.

7.1.3 Geological Mapping Programs

Geological mapping programs have been conducted by a number of the prior owners of the mineral tenements. These include US Steel (1969), Rio Doce Geologia e Mineração S/A (1970’s), Serviços Geológico Do Brasil (1986, 2013, and 2015), and Votorantim, now Nexa, (2004 to date).

The scales of the geological mapping programs have ranged from regional mapping scales of 1:100,000, 1:75,000, and 1:50:000 in which the basic lithological framework was established to more local scale mapping programs at scales of 1:10,000 as exploration activities identified target areas that were believed to warrant collection of additional geological information at a more detailed level. Throughout these various mapping programs, information such as the lithology types, location of gossan and sulphide occurrences, alteration zones, and the location of faults and structural data were collected. This information was then used as guides for more detailed exploration activities.

7.1.4 Geochemical Sampling Programs

Geochemical exploration activities have included the collection of 1,417 rock chip samples (Figure 7-1), 133 pan concentrate samples (Figure 7-2), 633 stream sediment samples (Figure 7-3), and 4,080 soil samples (Figure 7-4).

The rock chip samples were collected mostly from selected outcrops of the Morro do Calcário Formation, while stream sediment samples were collected where favourable sites were present. Soil samples were collected primarily over areas that were considered to be underlain by the Morro do Calcário Formation. The results from all of these surveys were used to develop exploration drill targets.





Figure 7-1: Location Plan, Rock Chip Samples





Figure 7-2: Location Plan, Panning Concentrate Samples





Figure 7-3: Location Plan, Stream Sediment Samples





Figure 7-4: Location Plan, Soil Samples





7.1.5 Geophysical Surveys

7.1.5.1 Airborne Surveys

An airborne magnetic survey was carried out in 2000 to 2001 by Lasa Engenharia e Prospecções S.A, a geophysical contractor on behalf of Companhia Mineradora de Minas Gerais (COMIG). The survey used a fixed wing Islander BN2-A aircraft equipped with a caesium vapour, Scintrex CS-3 model, with a 10 Hz frequency and a sampling interval of six metres. Control lines were spaced at intervals of 2,600 m, with individual flight lines at 250 m intervals. The average flight height was approximately 100 m. In total, the magnetic survey provided approximately 85,155 line-km of data.

A second airborne survey that collected magnetic and gamma ray spectrometry information was carried out in the region in 2010 by Lasa on behalf of Votorantim. This survey covered an area of approximately 346.2 km². The aircraft used was a Caravan C208 (PR-FAK) with flight lines approximately 150 m apart and control lines approximately 1,500 m apart. The average flight height was approximately 100 m. The aircraft was equipped with a Scintrex cesium vapor sensor, model CS-3, with a resolution of 0.001 nT. The gamma ray spectrometry information was collected using a Picodas PGAM 1000 multichannel gamma-spectrometric system, with thallium-activated sodium iodide (NaI) detecting crystals, with a sampling frequency of 1Hz and 60m sample interval.

Gravity measurements totalling 2,632 line-km of data were also collected during this survey using the FALCONTM AGG system.

An excerpt of the regional magnetic information for the Vazante Mine area is provided in Figure 7-5 , while gamma spectroscopy information is provided in Figure 7-6. The purpose of the magnetic surveys were to assist in the delineation of fault structures and lineaments that could have played a role in the localization of the mineralizing fluids. The gravity data was used in an attempt to differentiate areas of zinc mineralization, as there could be a marked difference between the host rocks and zones of sphalerite/willemite mineralization.





Figure 7-5: Regional Magnetic Data for the Vazante Mine Area





Figure 7-6: Regional Gamma Spectroscopy Data for the Vazante Mine Area





7.1.5.2 Ground Based Surveys

Nexa has executed a number of ground based geophysical surveys starting in 2009 as summarized in Table 7-1.





Table 7-1: Summary of Ground Based Geophysical Surveys
Nexa Resources S.A. - Vazante Polymetallic Operations

Prospect	Geophysical Method	Airborne (A) / Terrestrial (T)	Public (Pb) / Private (Pv)	Company	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
line-kilometer															
Cabeluda	Conventional IP	T	Pv	Geomag	-	-	-	-	3.60	-	-	-	-	-	-
Carrapato	Conventional IP	T	Pv	Geomag	-	-	-	-	-	-	-	-	-	2.35	-
Extremo Norte	Conventional IP	T	Pv	Geomag	-	-	-	-	-	-	-	1.30	-	-	-
Ferradura	Conventional IP	T	Pv	Geomag	-	-	-	-	-	-	-	-	-	4.45	-
Lajes	Conventional IP	T	Pv	Geomag	-	-	-	-	-	-	-	-	3.70	-	-
Lumiadeira	Conventional IP	T	Pv	Geomag	-	-	-	-	-	-	-	-	11.30	-	-
Salobo	Conventional IP	T	Pv	Geomag	-	-	-	-	-	-	-	-	11.45	-	-
Electrical Resistivity Tomography															
Calamina	Electrical Resistivity Tomography	T	Pv	Geodecon	-	-	-	-	-	-	-	-	-	15.20	-
Electrical Resistivity Tomography															
Calamina	Electrical Resistivity Tomography	T	Pv	Geodecon	-	-	-	-	-	-	-	-	-	-	6.00
Electrical Resistivity Tomography															
Lumiadeira	Electrical Resistivity Tomography	T	Pv	Geodecon	-	-	-	-	-	-	-	-	-	-	20.67
Electrical Resistivity Tomography															
Várzea Poço Verde	Electrical Resistivity Tomography	T	Pv	Geomag	-	-	-	-	-	-	-	-	6.40	-	-
Sungem	Fullwave IP	T	Pv	Geomag	-	-	-	-	-	-	-	-	-	-	4.05
Vazante Sul	Fullwave IP	T	Pv	Geomag	-	-	-	-	-	-	-	-	-	-	20.88
Gravity															
Mina	Gravity	T	Pv	Prospecgeo	10.41	-	-	-	-	-	-	-	-	-	-
Água Doce	Magnetometry	T	Pv	Nexa	14.30	-	-	-	-	-	-	-	-	-	-
Alcalina Vz Sul	Magnetometry	T	Pv	Nexa	-	-	-	-	10.70	-	-	-	-	-	-
Masa	Magnetometry	T	Pv	Nexa	24.90	-	-	-	-	-	-	-	-	-	-
Mata 1 / 2	Magnetometry	T	Pv	Nexa	90.90	-	-	-	-	-	-	-	-	-	-
Mata Preta	Magnetometry	T	Pv	Nexa	-	-	-	-	7.04	-	-	-	-	-	-
Magnetometry															
Mina	Magnetometry	T	Pv	Nexa	144.60	-	-	-	-	-	-	-	-	-	-
Olho D'Água	Magnetometry	T	Pv	Nexa	-	103.04	-	-	-	-	-	-	-	-	-
Pasto	Magnetometry	T	Pv	Nexa	-	20.35	-	-	-	-	-	-	-	-	-
Salobo	Magnetometry	T	Pv	Nexa	136.60	-	-	-	-	-	-	-	-	-	-
Soledade	Magnetometry	T	Pv	Nexa	34.35	-	-	-	-	-	-	-	-	-	-
Sungem	Magnetometry	T	Pv	Nexa	36.12	-	-	-	-	-	-	-	-	-	-
Varginha	Magnetometry	T	Pv	Nexa	109.70	-	-	-	-	-	-	-	-	-	-
Lajes	Magnetometry	T	Pv	Nexa	-	-	-	-	-	-	-	18.00	-	-	-
Resistivity															
Varginha	Resistivity	T	Pv	Intergeo	-	-	-	-	-	14.40	-	-	-	-	-





7.1.6 Exploration Potential

The Nexa geological team has continued to conduct exploration activities in the immediate environs of the Vazante Mine as well as in the neighbouring regions. The regional exploration programs have discovered several occurrences of zinc mineralization including Vazante Norte, Carrapato, Vazante Sul, and Sugem (Figure 7-7).

7.1.6.1 Regional Targets

7.1.6.1.1 Vazante Sul Target

The Vazante Sul Target is located south of the town of Vazante. Integration of all available data from historical drilling campaigns, and three element analyses of soil and rock samples has allowed a reinterpretation of the conceptual model for the Vazante Sul area and opened a potential mineralized trend approximately 15 km in length. This was followed by selected soil sampling and multi-elemental analyses, geological mapping at a scale of 1:10,000, and further three-dimensional modelling. The conceptual exploration model is based on the continuity of the Vazante Fault to the south of the town of Vazante. Observations made at the Vazante Mine suggest that the mineralization is deformed by northwest trending folds as well as by low angle faults. These observations have led to the view that the same should occur for a possible non-sulfide mineralization on the Vazante Sul trend. Historically the region was mapped as “undifferentiated dolomite” due the lack of outcrops and the thick soil cover, but re-evaluation of historical drill holes as well as detailed geological mapping found the presence of the pink dolomite that is recognized at the Vazante Mine as the main host rock for mineralization.

IP surveys (total 20.88 km in length) were carried out along five profiles on the Vazante Sul trend to search for stratigraphic discontinuities and areas of high resistivity, as intense silicification of the breccias that hosts the Vazante ore are known to increase resistivity.

Three drill holes were proposed in areas of favorable geological setting, discrete soil anomalies (due the thick allochthonous soil cover), and geophysical high resistivity. Two of the drill holes were in progress and were expected to be completed during December 2020.





Figure 7-7: Zinc Occurrences of the Vazante Mine Area





7.1.6.1.2 Sungem

The Sungem Target is located approximately 10 km from the village of Coromandel and 110 km southwest of the town of Vazante. Historical drill cores collected by the company Mearim who were prospecting for diamonds intercepted zinc-lead mineralization hosted in carbonatic rocks.

In 2020, two IP profiles and three drill holes were executed by Nexa to identify the system. Zinc sulphide occurrences were intercepted and a further drilling campaign is proposed to extend zinc potential towards the northeast (Figure 7-8).



Source: Nexa

Figure 7-8: Hydrothermal Breccia and Zinc Sulphide Mineralization from the Sungem Target

7.1.6.1.3 Mata Preta Prospect

The Mata Preta prospect is located south of the town of Vazante, near the contact between the Serra Do Garrote black shales and the grey dolomites of the Morro do Pinheiro Formation. Outcrops in the area show potential for sulphide mineralization controlled by structures (Figure 7-9). Grab samples collected containing sphalerite have returned up to 15,000 ppm Zn and 661 ppm Pb.





Source: Nexa

Figure 7-9: Vein-Hosts Sphalerite in Veins Associated with Hydrothermal Dolomite and Quartz, Mata Preta Prospect





A geophysical IP profile completed on the Vazante Sul area to the southwest indicated a potential northeast trend of five kilometres towards the Mata Preta target (Figure 7-10). Association of high resistivity and high chargeability can indicate presence of sulphides.

Multi-elemental soil samples also correlate with the northeast trend showing anomalies in several elements such as Zn, Pb, Cu, As, Be, Ag, Fe, V, Cd and Ba (Figure 7-11).



Source: Nexa

Figure 7-10: Location of the Mata Preta Prospect and Potential Mineralized Corridor





Source: Nexa

Figure 7-11: Three Dimensional Model of the Mata Preta Prospect Showing Multi Element Geochemical Anomalies

7.1.6.1.4 Carrapato Trend

The Carrapato trend is located northwest of the town of Vazante. Integration and re-interpretation of historical data indicated two potential trends observed on the three elements soil anomalies with zinc and lead values higher than 500 ppm, as well as in rock samples with up to 10.8% Zn (Figure 7-12). The trend is considered to have potential for containing sulphide and non-sulphide mineralization.

Geological mapping carried out by Nexa in 2020 has identified three areas that are considered to have potential of hosting zinc mineralization (Figure 7-13).





Figure 7-12: Compilation of Historical Results, Carrapato Trend



Source: Nexa

Figure 7-13: Exploration Potential of the Carrapato Trend

7.2 Drilling

7.2.1 Introduction

While the majority of drilling activities at the Vazante Operation are focussed in support of mining operations, a small number of exploration drill holes have been completed throughout the region to evaluate selected targets for their potential of hosting potentially economic concentrations of zinc mineralization. As of 2019, the regional core drilling programs have completed a total of 115 drill holes totalling 35,548.2 m in length (Figure 7-14, Table 7-2).

The regional exploration drill holes are drilled exclusively from surface based locations while the drill holes completed in support of the mining operations can be completed either from underground stations or from surface based locations. A small number of surface based drill holes were completed in the area of the open pit mines to evaluate the presence, distribution, and grade of areas of calamine mineralization. As well, a small number of “Direct Push” drill holes were completed in the Aroeira and Old Dam (Antiga) TSFs to provide information regarding the depths and grades of the accumulated tailings. Additional drilling was carried out in the area of the existing open pit mines to evaluate the extent and distribution of the calamine mineralization in those areas (Table 7-3, Figure 7-15). A summary of annual drilling completed at the Vazante Operation is presented in Table 7-4.





Figure 7-14: Location of Regional Exploration Drill Holes





Table 7-2: Summary of Regional Exploration Drilling
Nexa Resources S.A. - Vazante Polymetallic Operations

Year	Drilling Type	Number of Holes Completed	Metres Completed (m)
1976	Core	2	283.9
1977		4	889.7
1982		2	623.5
1983		2	695.9
1984		8	1,201.6
1985		4	505.1
1986		1	485.4
1987		2	430.8
1990		1	254.8
1997		1	613.8
1998		1	217.1
1999		2	213.7
2006		2	760.3
2007		1	244.4
2010		5	1,273.6
2011		5	1,285.9
2012		3	926.1
2013		2	715.7
2014		8	2,457.6
2015		7	4,147.3
2016		18	7,387.5
2017		17	4,632.6
2018		8	2,769.1
2019		3	1,011.2
Undated		6	1,521.6
Subtotal		115	35,548.2
2006	Auger	70	691.3
Total		185	36,239.5





Table 7-3: Summary of the Open Pit, Underground, and Tailings Sample Drill Hole and Sampling Data as at April 30, 2020
Nexa Resources S.A. - Vazante Polymetallic Operations

Area	Type	No. of Samples	Total Length (m)
Vazante (Lumiadeira & Sucuri)	Drill Core	6,186	1,036,581.7
	Chip/Channel Samples	1,089	5,972.7
Extremo Norte	Drill Core	1,399	345,495.7
	Chip/Channel Samples	199	1,147.5
Calamine Targets	Drill Core (Triple Tube)	415	39,569
Aroeira/Antiga TSFs	“Direct Push”	114	1,611.0





Figure 7-15: Location of Drill Holes and Channel Samples, Vazante and Extremo Norte Deposits





Table 7-4: Summary of Extension Drilling Completed by Year
Nexa Resources S.A. - Vazante Polymetallic Operations

Year	No. of Holes	Length (m)
2002	288	99,518.2
2003	10	3,956.7
2004	164	36,454.4
2005	479	117,252.2
2006	468	103,883.4
2007	274	45,510.1
2008	262	58,084.7
2009	345	55,788.6
2010	1,168	187,418.7
2011	1,245	115,622.8
2012	277	28,172.4
2013	578	85,895.3
2014	440	77,007.6
2015	395	67,094.0
2016	409	80,303.1
2017	170	25,046.4
2018	177	24,315.1
2019	126	24,437.6
Total	7,275	1,235,761.3

7.2.2 Drilling Methods

7.2.2.1 Drill Core

Drilling operations are performed by company personnel according to Standard Operating Procedures (SOPs) developed by Nexa staff (SOP numbers PO-VZ-GST-SON-005-PT and PO-VZ-GST-SOS- 003-PT). The Vazante Operation is certified by the Brazilian Standards Institute (BSI) for ISO9001 and ISO14001 standards (certificates FM504361 and EMS86481, respectively).

Drilling of the surface based core holes at the Vazante and Extremo Norte mines has been completed with a number of different drill machines, the types of which are not recorded.

The current drilling fleet consists of two surface drills, an Atlas drill model CS14 and Boart Longyear drill model LF90-D. The underground fleet includes five Boart Longyear model LM 75 drill rigs, and two Atlas U6 MCR model drill rigs.

Surface drilling commences with a diameter that is HQ (96 mm) or larger to better accommodate difficult surface drilling. When the rock mass improves, drill holes are reduced to NQ (75 mm) diameter. In many instances, drilling conditions dictate that the hole diameter be reduced further, to BQ (36 mm).





Geological conditions for underground drilling are typically much better than surface conditions, as the drill holes start in fresh rock and thus, they typically employ BQ diameter tools throughout.

Drill hole collar locations of underground based drill holes and surface based exploration core holes are surveyed using either a total station or survey grade Global Positioning System (GPS) survey unit in the UTM coordinate system according to the Córrego Alegre 23S datum. The drill hole collars for the surface based and underground based drill holes for the Extremo Norte and Vazante deposits are slightly modified so as to comply with the grid coordinate system employed by the mining operations. The correction factors to translate from the UTM to the mine grid system are to subtract 300,000 from the UTM eastings and 8,000,000 from the UTM northings. No rotation corrections are applied.

The collar azimuth and initial dip of the diamond drill rods are measured using the same survey equipment. Downhole survey deviation measurements were collected in core holes by Nexa utilizing a Tropari deviation measuring instrument until 2005, while, a Reflex Maxibor I deviation measuring unit was used to measure the downhole deviations from 2002 to 2008. Post 2008, all downhole deviation measurements are collected using either a Reflex Maxibor II unit or a Reflex Gyro unit. These surveys are generally undertaken every 100 m as the hole progresses to monitor drilling deviation. Reflex survey data is collected at three metre intervals after the drill holes are completed. All downhole deviation measurements are collected according to the following SOPs:

- PO-VZ-GST-SON-001-PT
- PO-VZ-GST-SOS-005-PT
- PO-VZ-GST-GEO-017-PT

Drill core is placed into wooden boxes and then taken to a secure core logging and sampling facility located on the Vazante Operation property (Figure 7-16). Geology staff check and validate the survey data before entering the information into the main drill hole database.





Figure 7-16: View of Vazante Core Logging Facilities

7.2.2.2 Tailings Samples

Process tailings from the flotation circuit have been placed into three TSFs over the Vazante Operation’s operating history (Figure 7-17). The Antiga and MASA facilities have been closed, while the Aroeira TSF remains active. Drilling programs have been carried out on the Aroeira and Antiga TSFs in which samples of the tailings column were collected on a regularly spaced grid system for assaying and metallurgical testing purposes. The drilling and sampling programs were carried out by Nexa personnel using light weight, track mounted drilling equipment that collected complete cores by means of direct pushing of the drilling steel into the unconsolidated tailings (Figure 7-18). The drill holes were continued to refusal, at which point the drill hole was considered to have encountered the base of the tailings column. All drill holes were vertical (i.e. with dips of -90°) and the drill hole locations were determined by detailed survey using the UTM Córrego Alegre 23S datum. In contrast with the exploration and underground based core holes, no correction factors were applied to the collar locations of the tailings sampling holes, and the collars are plotted according to the UTM grid system rather than the mine grid system. A total of 79 holes were completed on the Antiga TSF for a total length of 1,023.7 m, and a total of 34 drill holes were completed on the Aroeira TSF for a total length of approximately 587.4 m (Figure 7-19).

The cored material collected from these drill holes was placed into plastic sleeves and transported to the core logging facility located at the Vazante Operation for processing.





Source: Nexa

Figure 7-17: View of the Vazante Operation Tailings Storage Facilities



Source: Nexa

Figure 7-18: View of the Tailings Sampling Drilling Equipment





Figure 7-19: Collar Locations for the Antiga and Aroeira Tailings Drill Holes





7.2.2.3 Calamine Drilling

Drilling programs were carried out in the area of the open pit mines whose objective was to collect lithology and grade information for the calamine mineralization in those areas where the existing drill holes were judged to be too widely spaced for use in the preparation of Mineral Resource estimates. The drilling programs were completed by drilling contractor Willemita Drillings using conventional wireline drilling equipment and by contractor Geosedna using rotopercussive drilling equipment. A triple tube core barrel (HQ sized) was applied to the drill string so as to collect the most complete samples possible of the fractured and porous material. The drilling procedures followed the normal procedures used to complete surface based drill holes as described previously. Once drilling was completed, the final locations of the collars were determined using survey grade GPS surveying equipment using the UTM Córrego Alegre 23S datum. No corrections were applied to the collar locations to align them with the mine grid.

SLR recommends that the coordinates for all of the calamine related drill holes be converted into the local mine grid coordinates so that the results from all Mineral Resource estimation activities can then be integrated with any underground mining activities that have been or are planned to be carried out in this area.

7.2.3 Logging Procedures

The description of the lithologies, alteration and mineralization observed in the drill cores as well as the sampling procedures are carried out by the site geologists according to the following SOPs that have been prepared by Nexa staff:

- PG-EXP-GTO-001-PT for quality assurance/quality control (QA/QC) (Duplicate)
- PG-EXP-GTO-002-PT for QA/QC (Certified Standard)
- PG-EXP-GTO-003-PT for QA/QC (External Check)
- PO-VZ-GST-GEO-004-PT for geological logging
- PO-VZ-GST-GEO-005-PT for core sampling
- PO-VZ-GST-GEO-006-PT for core shed operations

The core boxes are checked by the drilling support team, who review core size and recovery data, in addition to verifying the location of core blocks. If irregularities are discovered, they are resolved before the core is released to the core shack. All core is photographed, with drill holes then transferred to the core workbench where the core is described by a team of geologists and technicians. The principal items logged include lithology, alteration type and intensity, mineralization style and estimated abundance, colour, texture, weathering, structure, and fracture density.

Geotechnical and hydrogeological descriptions are also completed and stored in the geological database.

Core is marked up to show sample intervals selected for assaying and the locations of control samples. The sample intervals selected for assaying are adjusted to conform to the local lithological, alteration, or mineralization features observed in the drill core. Once the description of the core is complete, the boxes to be sampled are identified and the remaining boxes are stored. Typical examples of the mineralization encountered in the Extremo Norte, Vazante, Aroeira TSF, and calamine zones are presented in Figure 7-20 to Figure 7-23, inclusive.





Figure 7-20: Representative Cross Section of the Extremo Norte Deposit





Figure 7-21: Representative Cross Section of the Vazante Deposit





Figure 7-22: Representative Cross Section of the Aroeira Tailings Sampling Program





Figure 7-23: Representative Cross Section of the Calamine Mineralization





Considering the long production history of the Vazante Operation, the amount of drill hole data is far too extensive to provide a comprehensive summary of the significant mineralized intersections that have been encountered in the drill holes. The selected examples provided in Table 7-5 present typical examples of the nature of the zinc mineralization that has been encountered in the Extremo Norte deposit and the Lumiadeira and Sucuri portions of the Vazante Mine. SLR notes that the examples presented in Table 7-5 are drawn from the drill holes presented in Figure 7-20 and Figure 7-21.

Examples of significant intersections returned from the Aroeira TSF drilling program are presented in Table 7-6, while examples of the mineralization encountered by the Calamine drilling programs are presented in Table 7-7.

Table 7-5: Summary of Zinc Mineralization, Extremo Norte and Lumiadeira/Sucuri Deposits
Nexa Resources S.A. - Vazante Polymetallic Operations

Hole ID	From (m)	To (m)	Length (m)	Grade (% Zn)
Extremo Norte Deposit				
MASAF001	218.25	224.90	6.65	6.49
MASAF011	180.30	186.15	5.85	29.47
MASAF016	288.20	292.90	4.70	20.37
MASAF026	388.90	397.35	8.45	27.66
MVZ490GTNP17350SF02	44.25	53.65	9.40	20.81
MVZENP05N105WF01	131.50	140.45	8.95	22.21
MVZENP05N105WF02	125.95	128.95	3.00	8.53
MVZENP05N105WF03	103.10	113.40	10.30	13.91
MVZENP05N105WF04	101.10	109.85	8.75	26.00
MVZENP05N105WF05	80.00	96.00	16.00	20.04
MVZENP05N217WF02	204.05	210.45	6.40	34.17
MVZENP05N351WF01	341.50	344.80	3.30	39.31
MVZENP06N111WF01	122.30	129.10	6.80	26.81
MVZENP06N111WF02	116.90	122.10	5.20	26.78
MVZENP06N111WF05	89.80	100.80	11.00	20.08
MVZENP06N111WF06	78.55	81.20	2.65	32.98
MVZGP585P17350SF01	124.30	129.05	4.75	30.91
MVZGP585P17350SF02	118.35	124.15	5.80	29.62
MVZGT585P17375SF01	29.05	35.05	6.00	23.66
MVZGT585P17375SF02	28.00	35.50	7.50	36.35
MVZGT585P17375SF03	32.80	41.60	8.80	26.12
VZMIF152	88.65	97.95	9.30	5.28





Lumiadeira and Sucuri				
MVZGP507P10412SF01	131.20	140.70	9.50	23.11
MVZGP507P10412SF02	134.80	141.80	7.00	31.50
MVZGP507P10412SF05	140.40	153.30	12.90	11.20
MVZGP507P10412SF06	151.30	158.00	6.70	11.15
MVZGP507P10425SF01	103.70	133.25	29.55	26.05
MVZGP507P10425SF02	132.40	140.80	8.40	30.91
MVZGP507P10425SF03	131.50	138.90	7.40	29.48
MVZGP507P10425SF04	129.70	138.00	8.30	26.39
MVZGP507P10425SF05	130.70	137.40	6.70	14.56
MVZGP507P10425SF07	137.50	148.70	11.20	12.83
MVZGP507P10425SF08	145.00	153.40	8.40	24.24
MVZGP507P10425SF09	152.30	167.50	15.20	9.79
MVZGT509SGV05F01	46.35	50.90	4.55	38.64
MVZGT509SGV05F02	44.40	54.85	10.45	38.66

**Table 7-6: Summary of Zinc Mineralization, Aroeira Tailings Drill Holes
Nexa Resources S.A. - Vazante Polymetallic Operations**

Hole ID	From (m)	To (m)	Length (m)	Grade (% Zn)
BRMVZBARP000038	0.00	12.00	12.00	3.84
BRMVZBARP000040	0.00	4.80	4.80	4.06
BRMVZBARP000042	0.00	3.60	3.60	3.43
BRMVZBARP000044	0.00	3.60	3.60	4.87
BRMVZBARP000046	0.00	7.20	7.20	4.06
BRMVZBARP000048	0.00	24.00	24.00	3.61
BRMVZBARP000050	0.00	18.00	18.00	3.65
BRMVZBARP000052	0.00	14.40	14.40	3.23
BRMVZBARP000054	0.00	25.20	25.20	3.70
BRMVZBARP000056	0.00	25.20	25.20	4.40
BRMVZBARP000058	0.00	21.60	21.60	3.44
BRMVZBARP000060	0.00	22.80	22.80	3.91
BRMVZBARP000062	0.00	13.20	13.20	4.00
BRMVZBARP000064	0.00	4.80	4.80	5.03
BRMVZBARP000066	0.00	16.80	16.80	3.93
BRMVZBARP000068	0.00	9.60	9.60	3.95
BRMVZBARP000070	0.00	4.80	4.80	4.31
BRMVZBARP000072	0.00	4.80	4.80	4.05





Hole ID	From (m)	To (m)	Length (m)	Grade (% Zn)
BRMVZBARP000074	0.00	8.40	8.40	4.72
BRMVZBARP000076	0.00	12.00	12.00	4.33
BRMVZBARP000078	0.00	22.80	22.80	4.30
BRMVZBARP000080	0.00	22.80	22.80	4.53
BRMVZBARP000082	0.00	18.00	18.00	4.07
BRMVZBARP000084	0.00	22.80	22.80	3.99
BRMVZBARP000086	0.00	20.40	20.40	4.90
BRMVZBARP000088	0.00	19.20	19.20	4.64
BRMVZBARP000090	0.00	24.00	24.00	3.68
BRMVZBARP000092	0.00	25.20	25.20	4.03
BRMVZBARP000094	0.00	22.80	22.80	3.99
BRMVZBARP000096	0.00	16.80	16.80	4.38
BRMVZBARP000098	0.00	19.20	19.20	4.65
BRMVZBARP000100	0.00	22.80	22.80	5.53
BRMVZBARP000102	0.00	21.60	21.60	5.77
BRMVZBARP000104	0.00	20.40	20.40	5.90

**Table 7-7: Example of Zinc Mineralization, Calamine Drilling
Nexa Resources S.A. - Vazante Polymetallic Operations**

Hole ID	From (m)	To (m)	Length (m)	Grade (% Zn)
BRBVZEND000005	95.87	105.84	9.97	10.20
BRMVZCLD000005	8.12	11.19	3.07	18.11
BRMVZCLD000007	10.69	18.36	7.67	23.57
BRMVZCLD000007	20.14	20.19	0.05	48.18
BRMVZCLD000007	46.12	46.76	0.64	13.65
BRMVZCLD000008	24.31	29.30	4.99	6.12
BRMVZCLD000008	38.03	47.48	9.45	6.01
BRMVZCLD000008	50.02	51.63	1.61	10.70
BRMVZCLD000010	28.99	31.30	2.31	3.76
BRMVZCLD000010	36.00	48.37	12.37	6.39
BRMVZCLD000011	29.88	30.48	0.60	9.63
BRMVZCLD000014	25.00	25.99	0.99	45.60
BRMVZCLD0000119	51.79	52.02	0.23	1.13
BRMVZCLD0000119	57.70	58.88	1.18	1.44





Hole ID	From (m)	To (m)	Length (m)	Grade (% Zn)
BRMVZCLD000119	67.29	82.36	15.07	16.80
BRMVZCLD000119	87.19	89.42	2.23	1.13
BRMVZCLD00012	10.85	14.19	3.34	13.06
BRMVZCLD00012	15.38	18.02	2.64	22.38
BRMVZCLD000120	22.90	26.59	3.69	29.89
BRMVZCLD00013	34.39	35.45	1.06	9.85
BRMVZCLD00013	36.90	38.15	1.25	18.25
BRMVZCLD00013	42.36	47.49	5.13	12.90
BRMVZCLD00013	50.51	53.00	2.49	3.04
BRMVZCLD00014	50.75	58.24	7.49	25.54
BRMVZCLD00015	19.36	32.28	12.92	7.67
BRMVZCLD00017	11.97	18.96	6.99	11.28
BRMVZCLD00017	24.78	27.25	2.47	34.86
BRMVZCLD00017	35.05	36.04	0.99	5.03
BRMVZCLD00019	51.98	60.70	8.72	26.52
BRMVZCLD00023	4.93	15.89	10.96	16.68
BRMVZCLD00023	17.68	21.71	4.03	31.12
BRMVZCLD00023	24.78	27.92	3.14	8.28
BRMVZCLD00024	43.91	47.06	3.15	23.06
BRMVZCLD00025	4.97	7.60	2.63	0.90
BRMVZCLD00025	9.10	14.82	5.72	0.16
BRMVZCLD00025	16.90	17.70	0.80	6.02
BRMVZCLD00025	18.49	19.80	1.31	3.44
BRMVZCLD00025	21.31	22.19	0.88	3.72
BRMVZCLD00027	49.71	54.54	4.83	11.63
BRMVZCLD00030	45.02	48.30	3.28	10.61
BRMVZCLD00030	51.50	55.43	3.93	2.94
BRMVZCLD00031	6.81	11.39	4.58	10.59
BRMVZCLD00036	45.06	71.08	26.02	19.81
BRMVZCLD00037	36.73	43.58	6.85	6.73
BRMVZCLD00037	53.02	67.01	13.99	16.02
BRMVZCLD00040	48.45	60.03	11.58	6.06
BRMVZCLD00042	49.90	57.13	7.23	6.14
BRMVZCLD00044	52.19	75.80	23.61	15.62





Hole ID	From (m)	To (m)	Length (m)	Grade (% Zn)
BRMVZCLD00044	82.04	85.46	3.42	7.98
BRMVZCLD00046	46.28	60.54	14.26	21.80
BRMVZCLD00049	50.51	51.19	0.68	0.27
BRMVZCLD00049	57.57	60.99	3.42	0.65
BRMVZCLD00049	66.23	70.47	4.24	2.83
BRMVZCLD00049	72.17	81.94	9.77	18.50
BRMVZCLD00049	86.34	89.98	3.64	14.76
BRMVZCLD00051	43.00	55.86	12.86	10.51
BRMVZCLD00055	42.73	56.01	13.28	1.03
BRMVZCLD00055	61.00	62.19	1.19	7.35
BRMVZCLD00061	62.96	73.10	10.14	11.68
BRMVZCLD00065	84.49	93.66	9.17	13.20
BRMVZCLD00068	47.23	57.00	9.77	16.91
BRMVZCLD00068	61.28	65.53	4.25	14.61
BRMVZCLD00072	42.45	47.01	4.56	16.02
BRMVZCLD00072	49.62	54.60	4.98	9.13
BRMVZCLD00072	57.60	66.45	8.85	7.38
BRMVZCLD00078	65.20	69.22	4.02	29.43
BRMVZCLD00086	61.78	65.31	3.53	25.40
BRMVZCLD00090	54.45	55.45	1.00	5.88
BRMVZCLD00098	74.30	78.49	4.19	21.15
BRMVZCLD00101	47.70	49.70	2.00	9.23
BRMVZCLD00101	55.36	58.99	3.63	5.47
BRMVZCLD00107	44.03	47.01	2.98	4.82
BRMVZCLD00107	47.74	49.01	1.27	7.55
BRMVZCLR00001	57.99	59.00	1.01	3.22
BRMVZCLR00001	66.97	69.07	2.10	8.75
BRMVZCLR00001	71.99	81.97	9.98	21.32
BRMVZCLR00001	86.15	88.74	2.59	7.13
BRMVZCLR000115	20.01	27.01	7.00	39.41
BRMVZCLR000134	66.02	67.00	0.98	3.91
BRMVZCLR000134	69.00	70.00	1.00	3.11
BRMVZCLR000139	85.99	90.00	4.01	3.48
BRMVZCLR000139	92.00	95.11	3.11	3.28





Hole ID	From (m)	To (m)	Length (m)	Grade (% Zn)
BRMVZCLR000152	65.00	70.99	5.99	12.39
BRMVZCLR000161	56.00	56.99	0.99	3.50
BRMVZCLR000162	45.00	61.00	16.00	7.43
BRMVZCLR000163	39.04	47.00	7.96	7.03
BRMVZCLR000164	53.98	56.02	2.04	5.20
BRMVZCLR000167	47.94	48.99	1.05	8.71
BRMVZCLR000173	15.02	16.98	1.96	19.73
BRMVZCLR000173	23.00	25.99	2.99	31.08
BRMVZCLR000173	30.00	46.97	16.97	9.36
BRMVZCLR000174	4.05	4.99	0.94	3.83
BRMVZCLR000174	20.01	20.99	0.98	25.50
BRMVZCLR000174	32.00	33.00	1.00	27.30
BRMVZCLR000174	49.00	50.00	1.00	3.17
BRMVZCLR000177	42.99	44.01	1.02	11.05
BRMVZCLR000177	45.00	46.00	1.00	4.18
BRMVZCLR000178	40.03	44.00	3.97	28.37
BRMVZCLR000179	56.03	63.98	7.95	6.49
BRMVZCLR000180	94.01	99.99	5.98	41.14
BRMVZCLR000184	11.03	14.00	2.97	11.09
BRMVZCLR000184	16.00	19.60	3.60	8.00
BRMVZCLR000184	19.81	32.04	12.23	10.84
BRMVZCLR000184	33.98	38.99	5.01	25.22
BRMVZCLR000184	43.02	52.95	9.93	15.43
BRMVZCLR000185	15.00	17.01	2.01	6.69
BRMVZCLR000185	29.00	34.01	5.01	2.76
BRMVZCLR000188	21.98	23.51	1.53	5.16
BRMVZCLR000191	43.01	43.99	0.98	3.16
BRMVZCLR000194	71.03	71.96	0.93	4.18
BRMVZCLR000198	52.98	54.98	2.00	9.42
BRMVZCLR000198	58.00	60.03	2.03	4.43
BRMVZCLR000199	40.18	45.12	4.94	5.14
BRMVZCLR000199	48.10	49.05	0.95	3.57
BRMVZCLR000203	58.99	62.11	3.12	3.95
BRMVZCLR000238	73.01	74.99	1.98	3.64





Hole ID	From (m)	To (m)	Length (m)	Grade (% Zn)
BRMVZCLR000238	76.00	82.01	6.01	5.44
BRMVZCLR000240	38.00	43.98	5.98	5.15
BRMVZCLR00039	87.99	93.01	5.02	7.31
BRMVZCLR00040	90.99	92.01	1.02	3.35
BRMVZCLR00044	20.00	24.95	4.95	14.05
BRMVZCLR00047	2.04	5.16	3.12	8.13
BRMVZCLR00047	11.01	11.98	0.97	3.03
BRMVZCLR00047	13.01	24.01	11.00	5.43
BRMVZCLR00051	22.98	27.01	4.03	7.80
BRMVZCLR00051	34.01	41.43	7.42	3.47
BRMVZCLR00051	45.00	49.96	4.96	5.15
BRMVZCLR00055	15.13	18.95	3.82	23.85
BRMVZCLR00057	12.02	30.00	17.98	8.14
BRMVZCLR00061	50.99	58.01	7.02	6.69
BRMVZCLR00069	58.01	60.99	2.98	4.53
BRMVZCLR00069	70.04	78.01	7.97	14.97
BRMVZCLR00069	81.00	82.01	1.01	6.90
BRMVZCLR00069	82.99	85.00	2.01	6.89
BRMVZCLR00069	86.01	86.73	0.72	21.40
BRMVZCLR00069	91.60	94.00	2.40	9.65
BRMVZCLR00069	95.00	95.99	0.99	8.15
BRMVZCLR00071	59.03	62.26	3.23	6.54
BRMVZCLR00075	64.04	64.98	0.94	3.35
BRMVZCLR00075	73.99	81.02	7.03	7.41
BRMVZCLR00077	73.02	84.01	10.99	14.08
BRMVZCLR00081	22.00	23.00	1.00	3.04
BRMVZCLR00081	25.00	26.00	1.00	4.21
BRMVZCLR00087	0.00	3.00	3.00	14.42
BRMVZCLR00089	2.00	5.99	3.99	24.51

There are no drilling, sampling, or recovery factors that could materially impact the accuracy and reliability of the results.

7.3 Geotechnical and Hydrogeology

Nexa uses a FEFLOW ground water model, which was last updated in 2019, as its primary water management tool for the Vazante Operations. Given the extreme dewatering that is required to permit ongoing mining, hydrologic monitoring is considered a critical element of operations. Continued calibration of flows is important to predict, plan, and install required pumping capacities for the Vazante Operations. The average dewatering rate has been estimated at approximately 13,000 m³/h to 15,000 m³/h.





Please see Section 12.4.2 for further information about Hydrogeology and Geotechnical Studies.



Nexa Resources S.A. | Vazante Polymetallic Operations, **SLR Project No: 233.03245.R0000**
Technical Report Summary - February 15, 2021



8.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

8.1 Sample Preparation and Analysis

8.1.1 Sampling Methods

8.1.1.1 Core Samples

Core boxes are transported daily to the core shed by personnel from the drilling company. Analytical samples are transported by company or laboratory personnel using corporately owned vehicles. Core boxes and samples are stored in safe, controlled areas.

Chain-of-custody procedures are followed whenever samples are moved between locations, and to and from the laboratory, by filling out sample submittal forms.

Nexa staff collect samples from drill core according to the following SOPs:

- PO-VZ-GST-GEO-004-PT
- PO-VZ-GST-GEO-006-PT

Core samples have a preferred length of one metre however length may vary from a minimum of 0.50 m and a maximum of 1.50 m, depending on the location of lithological, alteration, mineralization, or other natural boundaries or contacts. If core recovery is less than 100%, the length of the sample is considered as equivalent to the anticipated length. Nexa’s sampling protocols require that the logging personnel collect samples of drill core three metres above and three metres below mineralized intervals.

After sampling and sample description are completed and entered into the database, a sampling plan is prepared. That plan identifies assay and Quality Control (QC) sample locations and sample numbers. The QC samples are inserted and photographed prior to shipment as an aid to identification of those samples should problems occur.

Core samples from underground drill holes are not split, rather they are forwarded to the laboratory as whole core (typically BQ). Surface drill holes are split using a dedicated core saw. One half of the sample is forwarded to the laboratory, and the other half is placed into boxes and archived in the core shack. The unused sample material from the laboratory (coarse rejects and pulps) is returned back to the mine site and is placed into identified boxes and stored into the core shack.

8.1.1.2 Channel Samples

Underground channel samples are collected according to Nexa’s SOP PO-VZ-GST-GEO-016-PT (Underground channel samples). Channel samples range from 0.5 m to 1.5 m in length, and respect lithological, alteration, mineralization, and other natural boundaries. Samples are collected with a hammer and chisel or battery powered hammer drill, approximately 1.2 m horizontally above the floor of the mine working. Sample material is placed in plastic bags along with a paper tag containing the appropriate sample number and are transported to surface.

8.1.1.3 Tailings Samples

The entire length of the samples was used for assaying purposes. The samples are nominally 1.2 m in length unless there are obvious changes in the sample material visible in the core.

8.1.2 Density Determinations

8.1.2.1 Drill Core

Prior to 2015, density was determined by means of the displaced volume method for all samples collected at the Vazante Operation. From the second half of 2015 onwards, there was a transition to the Jolly method (Archimedes method) and, due to the large number of data available, analyses were performed on only a few drill holes. The Jolly method relies on the fact that porosity of the samples is very low. For each determination, an entire sample is weighed in air in a plastic mesh bag, and then weighted while the sample is suspended in water in the mesh bag. This allows for very accurate determination of density of the entire sample rather than a small piece of the sample.





Currently, bulk density is determined for every sample that is selected for assaying using the Jolly method which is checked with the displaced volume method (Nexa SOP PO-VZ-GST-GEO-015-PT (Density Measurement)) procedure. As of April 30, 2020, the database has approximately 117,315 bulk density measurements for the Vazante Mine and 15,869 bulk density measurements for the Extremo Norte Mine, for a total of more than 133,000 density data.

Every 20th sample is checked by the displaced volume method. The displaced volume method requires that the sample be placed in a large container of water and allowed to overflow into another container. The overflow is then weighed. The weight of water is essentially equivalent to the volume in cm³ of the sample. Comparisons of the density values determined by the two methods have shown a good correlation and no systematic bias among the measurements via displaced volume and the Jolly method (Figure 8-1).



Source: Nexa.

Figure 8-1: Comparison of Bulk Density Measurements

8.1.2.2 Tailings Samples

The bulk density of the tailings materials has been measured using the caliper method on the extracted cores and by in-situ measurements.

For the caliper method, the volume of the dried core samples is determined using calipers to estimate the average diameter of a segment of core for a measured length. The weight of the segment is determined by direct measurement. As of April 30, 2020, a total of 453 tailings bulk density measurements were collected using the caliper method.

For the in-situ method, the material from a known volume of tailings as determined by using a steel form of known volume is excavated from the surface of the Aroeira TSF and the material is allowed to dry. The dry weight is then measured. A total of 12 in-situ density samples were collected from the Aroeira TSF.





8.1.3 Analytical and Testing Laboratories

Prior to 2014, both the mine and exploration samples were analyzed at the on-site Vazante Operation laboratory. Samples were prepared using the mine laboratory equipment. SLR notes that the Vazante Operation laboratory is not accredited, and not independent of Nexa.

Currently, all operational samples from underground sampling (in-fill drilling programs and channel sampling) programs are analyzed at the ALS Global (ALS) laboratory facilities located in Vespasiano, Minas Gerais. All samples collected as part of the calamine drilling programs and the Aroeira tailings sampling programs were analyzed at the ALS facilities.

ALS, an independent laboratory, has been the primary laboratory for the preparation of exploration samples since 2014. Samples are prepared and analyzed at either of the ALS laboratories located in Vespasiano, Minas Gerais and Goiânia, Goiás. Both laboratories are ISO 9001:2008 certified (#FS571108).

ALS Lima, which is also independent of Nexa, was the primary analytical laboratory for exploration samples prior to 2014. The ALS Lima laboratory is ISO 9001:2008 and 17025:2005 accredited.

8.1.4 Sample Preparation

All exploration samples are currently prepared at ALS.

- After samples are split at the core shed, they are sent to ALS Vespasiano in Belo Horizonte, Brazil where they undergo preparation following the ALS method code PREP-31. The procedure is as follows:
- As samples are received at the laboratory, any differences between the number of samples indicated on the Analytical Request (RA) letter that accompanies the samples and what has effectively been received are reported, as well as any other anomalies.
- Samples are weighed after they are checked against the RA letter.
- Samples are dried in a kiln for eight hours to 12 hours, with maximum controlled temperature of 120°C.
- The sample is crushed to 70% passing (P70) a 2-mm screen (9 mesh Tyler).
- Samples are homogenized and split through a Jones type rifle splitter. Approximately 250 g is split for the analytical sample. The remaining fraction is stored as coarse reject.
- Samples are pulverized until 85% of the particles pass a 75 µm (-200 mesh) screen.

The pulverized sample is bagged in kraft paper bags and sent to the laboratory for analysis.

8.1.5 Analytical Methods

8.1.5.1 Vazante Operation Laboratory

Prior to mid-2014, chemical analyses at the Vazante Operation laboratory were performed using an X-ray fluorescence (XRF) technique and an atomic absorption spectroscopy (AAS) procedure for selected elements. Samples with zinc contents >6% were re-assayed with the AAS procedure.

The analytical procedures used by the Vazante Operation laboratory are summarized in Table 8-1.

Table 8-1: Summary of Analytical Procedures for the Vazante Laboratory
Nexa Resources S.A. - Vazante Polymetallic Operations

Table with 4 columns: Parameter, Sample Type, Analytical Method, and Standard Operating Procedure. It lists various elements (Ag, Zn, Pb, Fe, CaO, MgO, Al2O3, SiO2, Mn, Cd, Mg, Na, Carbonate and S) and their corresponding sample types and analytical methods.



8.1.5.2 ALS Chemex

The transition from XRF to inductively coupled plasma (ICP) and AAS began in 2014 when analyses for exploration samples began to be performed at the ALS laboratory in Lima. Selected elements were analyzed via AAS, while the same elements, and others, were analyzed with ICP atomic emission spectroscopy (AES). High grade zinc was analyzed specifically using a volumetric method for better results. From 2015 onward, all analyses have been performed at ALS Lima.

At ALS Lima, core and channel samples are dissolved using Method Code ME-ICP61 where the sample is submitted to a four acid digestion (HNO₃-HCl-H₂SO₄-HF). The metal concentrations in the solutions are then determined using either an ICP-AES or AAS method. Both finishes are appropriate for the elements of potential economic interest as well as deleterious elements at the Vazante Operation. For those samples containing metal grades above the upper detection limits, the metal concentrations are determined by means of the following methods:

Metal	ALS Method Code
Silver	Ag-OG62 / Ag-GRA21
Copper	Cu-OG62 / Cu - VOL61
Iron	Fe-OG62
Lead	Pb-OG62 / Pb-VOL70
Zinc	Zn-OG62 / Zn-VOL70

8.2 Quality Assurance and Quality Control (QA/QC)

Company wide QA/QC protocols implemented in 2009, are based on internal corporate standards (standard numbers PG-EXP-GTO-001-PT, PG-EXP-GTO-002-PT, and PG-EXP-GTO-003-PT).

8.2.1 Vazante Operation

The current Vazante Operation QA/QC program includes submission of twin, coarse and pulp duplicates, certified reference materials (CRMs), external controls, and coarse blank samples as shown in Table 8-2. Due to the unique nature of the mineralization found at the Vazante Operation, few options are available to purchase appropriate commercial CRMs for use in the QA/QC monitoring programs. Consequently, Nexa has prepared four internal CRMs from mineralized samples sourced from the Vazante and Extremo Norte deposits so that the CRMs are directly matched with the drill core and chip samples.



Table 8-2: Summary of QA/QC Protocols
Nexa Resources S.A. - Vazante Polymetallic Operations

Sample Type	Code	Insertion Rate (%)	Insertion Ratio	Purpose
CRM (Standard)	PD	5	1:20	Accuracy
Coarse Blank	BR	2	1:50	Contamination detection in sample preparation
Field Duplicate/Replicate	RP	1	1:100	Quality of sampling
Coarse Reject Duplicate	RG	1	1:100	Quality of sample preparation
Pulp Duplicate	DP	2	1:50	Precision
Interlaboratory Check	DC	2	1:50	Bias between laboratories - accuracy

For the period between July 1, 2019 and April 15, 2020, the Vazante Operation processed a total of 11,677 samples and inserted a total of 1,315 QA/QC samples (blanks, replicates, reject and pulp duplicates, CRMs, and external check assays), as summarized in Table 8-3.

Table 8-3: Summary of QA/QC Samples Processed from July 1, 2019 to April 15, 2020
Nexa Resources S.A. - Vazante Polymetallic Operations

Item	Number of samples
Blank Samples (ALS)	
Ag, Pb, and Zn	210
Certified Reference Materials (ALS)	
CRM BRMVZSTD007 (Ag, Fe, Pb, and Zn)	141
CRM BRMVZSTD008 (Ag, Fe, Pb, and Zn)	125
CRM BRMVZSTD009 (Ag, Fe, Pb, and Zn)	123
CRM VZ007 (Ag, Fe, Pb, and Zn)	106
Duplicates	
Pulp Duplicates (Ag, Fe, Pb, Zn)	429
Coarse Rejects (Ag, Fe, Pb, Zn)	87
Replicates (Ag, Fe, Pb, Zn)	94

SLR has reviewed the results from Nexa's QA/QC program for the July 1, 2019 to April 15, 2020 period and notes that the results are within acceptable limits. Example control charts for the blank sample, CRMs, pulp duplicate, and replicate results are presented in Figure 8-2, Figure 8-3, Figure 8-4, and Figure 8-5, respectively.





Source: Nexa

Figure 8-2: Zinc Blank Sample Control Chart, July 1, 2019 to April 15, 2020



Source: Nexa

Figure 8-3: Zinc Standard Reference Material (BRMVZSTD007) Control Chart, July 1, 2019 to April 15, 2020





Source: Nexa

Figure 8-4: Zinc Pulp Duplicate Sample Control Chart, July 1, 2019 to April 15, 2020



Source: Nexa

Figure 8-5: Zinc Replicate Sample Control Chart, July 1, 2019 to April 15, 2020





8.2.2 Calamine Drilling

QA/QC programs were carried out during the course of the drilling campaigns carried out on the calamine mineralization in 2017, 2018, and 2019. The programs conformed to the requirements set out in Nexa's SOPs PG-EXP-GTO-001-PT, PG-EXP-GTO-002-PT, and PG-EXP-GTO-003-PT. A summary of the number and type of QA/QC samples submitted, along with the submittal rates is provided in Table 8-4.

SLR has examined the results of the QA/QC data collected in relation to the drilling campaigns carried out on the calamine mineralization in 2017, 2018, and 2019 and notes that the results are within acceptable limits.

Table 8-4: Summary of QA/QC Samples from the Calamine 2017, 2018, and 2019 Drilling Programs
Nexa Resources S.A. - Vazante Polymetallic Operations

Year	Total Samples	Assays	QA/QC Samples						QA/QC Total
			Blank	Standard	Coarse Duplicate	Pulp Duplicate	Coarse Reject	Pulp Reject	
2017	9,196	8,116	162	403	0	360	79	76	1,080
2018	6,955	6,015	118	315	81	310	68	48	940
2019	3,983	3,555	66	126	0	165	65	6	428
Total	20,134	17,686	346	844	81	835	212	130	2,448

Year	% Total Samples	% Assays	QA/QC Insertion Rates						
2017	45.7	45.9	1.8	4.4	0	3.9	0.9	0.8	11.7
2018	34.5	34.0	1.7	4.5	1.1	4.5	1.0	0.7	13.5
2019	19.8	20.1	1.7	3.2	0	4.1	1.6	0.2	10.8
Total	100	100	1.7	4.2	0.4	4.2	1.1	0.7	12.2

8.2.3 Tailings Sampling

QA/QC programs were carried out during the course of the drilling campaigns for the tailings sampling programs. The QA/QC programs conformed to the requirements set out in Nexa's SOPs PG-EXP-GTO-001-PT, PG-EXP-GTO-002-PT, and PG-EXP-GTO-003-PT.

The QA/QC programs included the use of two standard reference materials (BRMVZSTD001, 34 samples, and BRMVZSTD002, six samples), blank samples (eight samples), and pulp duplicate assaying of 28 samples.

SLR has examined the results of the QA/QC data collected in relation to the drilling campaigns carried out for the tailings sampling programs and notes that the results are within acceptable limits.

8.2.4 Survey QA/QC

QC data for total station surveys consist of closed loops for all surveys, both surface and underground. Quality control for Digital Global Positioning System (DGPS) surveys rely on duplicate surveys as well as repeated surveys of known points at the beginning and end of each survey day.

Downhole drill hole deviation survey QC data consist of duplicate surveys for all holes.





8.2.5 Databases

Fusion™, a database management software package sold and supported by Datamine™ is used for database management at the Vazante Operations. Fusion™ provides reliability and traceability assurance as well as an easy interface with Datamine™ modeling and mine planning software. The login is password protected by individual personnel and all personnel have the permission necessary to complete their tasks. Three people in the company have unlimited access to the database. Data cannot be entered or changed in the database without the appropriate permission. There is an expert in charge of the database full time to make certain that data are reliable and to provide data extraction and editing services.

Primary data entered by the site geologists into the tablet devices are imported directly into Fusion™. Analytical data are provided digitally by the assay laboratories.

All data stored in the Fusion™ database are verified via software verification before final entry into the database. These automatic routines are aimed at preventing entry of extraneous data such as incorrect lithology codes or overlapping assay intervals into the database. They are largely successful; however, these checks are not perfect and additional internal checks are made to ensure that information used for Mineral Resource estimation and mine planning is as nearly correct as possible. Nexa’s internal corporate SOP PO-EXP-GRM-001-PT, requires additional checking of the following items:

- Maximum and minimum grade values,
- Negative values,
- Detection limits and null values,
- Drill hole surveys,
- Unreasonable sample length,
- Sample gaps,
- Sample overlaps,
- Drill hole collars versus topography,
- Coordinate datum,
- Verification of mining permissions, and
- Laboratory analysis certificates.

Each of these items are checked and if discrepancies are discovered, verified, and corrected if necessary.

Primary original documents and logs, downhole surveys, core photographs, and assay certificates are stored on network drives. Digital copies of the database network drives are routinely backed-up daily, weekly, and monthly.

In the SLR QP’s opinion, the sample preparation, analysis, and security procedures at the Vazante Operation are adequate for use in the estimation of Mineral Resources.

In the SLR QP’s opinion, the QA/QC program as designed and implemented by Nexa is adequate and the assay results within the database are suitable for use in preparation of a Mineral Resource estimate.





9.0 DATA VERIFICATION

Validation of the Vazante Operation geological data by SLR began with an inspection conducted during the November 19 to 23, 2018 site visit. During this site visit, the SLR QP visited the core shack where examples of the mineralization from both the Vazante and Extremo Norte deposits were inspected, logging and sampling procedures reviewed, and visits carried out to the sample sawing and density measurement facilities. Visits were made to several locations in the underground mines in which the nature of the mineralization was observed and the grade control mapping and sampling procedures were discussed. Discussions were carried out with site geological staff in regards to the regional and local scale geology as well as reconciliation activities carried out by the mine staff.

SLR also visited some of the mine stockpile areas, in addition to conducting a brief tour of the processing plant to inspect the sampling points used to determine the tonnages and grades processed. A visit was made to the site sample preparation facility as well as the site assay laboratory.

In addition to personal inspections of Vazante, SLR carried out a program of validating the assay tables in the drill hole databases by means of spot checking a selection of drill holes that intersected the mineralization of the Vazante, Extremo Norte, Aroeira TSF, and calamine deposits. SLR proceeded to carry out its drill hole database validation exercise by comparing the information contained within the assay tables of the digital databases against the assays presented in the original laboratory certificates. Comparisons of the lithological information contained within the drill logs against the information contained within the digital databases were also carried out, as was a comparison of the results of the down-hole deviation measurements with those contained within the survey table of the drill hole database.

While examining the information contained within the assay tables of the Vazante and Extremo Norte deposits, a small number of cases were discovered where the zinc assay values contained within the drill hole database did not agree with and were, in general, lower than the values provided in the assay certificates. After preliminary discussions with Nexa, SLR agrees that this may be a result of additional assaying that may have been carried out for those samples but for which the corresponding assay certificates could not be located.

A small number of discrepancies were discovered while comparing the results of the down-hole deviation measurements with those contained within the survey table. The discrepancies consisted of a disagreement in the sign of the drill hole dips between the original survey records and the records contained within the survey table in the drill hole database. Visual inspection of the drill holes in cross section views suggested that the drill holes in question are in good spatial agreement with the adjoining drill hole and channel sample data. Discussions with Nexa indicate that the source of the discrepancies may be related to the implementation of the new drill hole database, as the dip conventions were modified at that time.

SLR recommends that the drill hole dips for the drill holes examined be confirmed by direct visual inspection of the departing drill hole orientation at the drilling face.

Additional checks included a comparison of the drill hole collar locations with the digital models of the topographic surfaces and excavation models as well as a visual inspection of the downhole survey information. A small number of cases were observed where the collars of some of the underground based drill hole collars were in poor agreement with the excavation models. The collar locations of these drill holes were corrected prior to their use in preparation of the Mineral Resource estimate.

Considering the long production history of the Vazante Operation, the style of mineralization, and the visual confirmation of the mineralization both at the mine faces and in drill core, no samples were collected by the geological QP for check sampling.

The SLR QP is of the opinion that geological data verification procedures for the Vazante Operation comply with industry standards and are adequate for the purposes of Mineral Resource estimation.



10.0 MINERAL PROCESSING AND METALLURGICAL TESTING

10.1 Summary

The Vazante Operation currently produces and processes ore in which the main zinc mineral is willemite, a zinc silicate mineral (Zn_2SiO_4). During earlier Vazante operations, the predominant zinc mineralization occurred as calamine, which consists of both smithsonite (ZnCO_3) and hemimorphite ($\text{Zn}_4\text{Si}_2\text{O}_7(\text{OH})_2\cdot\text{H}_2\text{O}$), derived from weathering of the primary willemite mineralization and sourced from open pit supergene mineralization. Open pit mining operations of willemite mineralization were suspended in 2000, followed by the suspension of open pit production of calamine mineralization in 2008. Calamine ore is no longer produced and processed at the Vazante Operation. Development of the underground mines began in 1983, with initial minor production of willemite mineralization taking place in 1984. The underground mines exploit the primary willemite mineralization with minor to trace amounts of sphalerite. Production from the Vazante and Extremo Norte underground mines is ongoing. Treatment of calamine ores was more challenging than willemite ores with zinc recovery from calamine ores typically approximately 50%, while zinc recovery from willemite ores typically ranges from approximately 81% to 91%.

Zinc is the primary metal of economic importance, with minor quantities of lead as galena and associated silver minerals allowing for the production of relatively small amounts of lead concentrate as well. Due to the ore mineralogy, zinc concentrate produced at the Vazante Operation is elevated in silica, as well as calcium, magnesium, and carbonates resulting from carbonate gangue presence (predominantly dolomite). Nexa's Três Marias zinc smelter includes a circuit specifically configured to process the zinc silicate concentrate produced at the Vazante Operation and as a result all of the concentrate produced at the Vazante Operation is exclusively processed at the Três Marias smelter where zinc metal is produced.

Test work completed on the Vazante Operation willemite ores prior to 2017 is described in the Amec 2017 NI 43-101 Technical Report (Amec, 2017). Much of the test work was conducted in the Nexa laboratory at the Vazante Operations. Work was also supported by universities including the Federal University of Minas Gerais (UFMG) and the University of Sao Paulo. SLR notes that test work completed on historically mined calamine ores was not discussed in Amec (2017). Test work on willemite ores, however, indicated that the willemite ores are relatively hard with Bond ball mill work indices (BWi) ranging from 19.6 kWh/t to 21.1 kWh/t for the samples tested, and that zinc recovery was sensitive to grind size. A strong correlation between zinc head grade and zinc recovery was found in flotation test work, and production of an acceptable grade lead concentrate was challenging to produce at low lead head grades, particularly for Extremo Norte samples.

10.2 Recent Test Work

Recent test work has focussed on the reprocessing of historical tailings and improving recovery from calamine material (versus historical recovery) to support calamine resource evaluation. The Aroeira TSF contains both willemite and calamine tailings, with the willemite tailings generally deposited on top of the calamine tailings. The Vazante Operation currently processes tailings reclaimed by truck and front end loader (FEL) from the Aroeira TSF. Aroeira tailings comprise a small portion of the feed to the processing plants. The current practice of reclaiming historical tailings involves selectively reclaiming willemite tailings while avoiding calamine tailings as much as possible. Nexa estimates that the Aroeira tailings consist of approximately 60% willemite tails and 40% calamine tails. Processing of calamine ore was historically characterized by poor recovery (approximately 50%), and it is thought that reprocessing of the calamine tailings might be best accomplished using a new collector or process that would improve on the historical recovery. Preliminary test work was completed on calamine samples by Nexa at the Vazante Operations with the objective of improving on the historical recovery from calamine ore with bench scale tests completed in 2017, followed by pilot tests in 2018.

10.2.1 Aroeira Tailings Test Work

In 2019, SGS GEOSOL in Vespasiano, Brazil, (SGS GEOSOL, 2019), an independent laboratory certified to ISO 9001, ISO 14001, and ISO 17025, completed a pilot flotation study using a willemite tailings sample of approximately 29 t from the Aroeira TSF. The composition of the tailings sample is presented in Table 10-1. The objective of the test work was to produce a zinc concentrate containing 39% Zn at a minimum recovery of 55% of the contained zinc. After drying, the sample was screened at 2 mm and the +2 mm portion weighed 164 kg. The size distribution of the remainder of the sample indicated that it was approximately 47% +150 μm . In addition, approximately 71% of the zinc was found in the +150 μm portion of the sample. Semi-quantitative mineralogical analysis indicated that the main minerals present in the sample were hematite, dolomite, willemite, and quartz.



To prepare sample material for flotation test work, the sample was classified and ground in a circuit consisting of a spiral classifier and pilot ball mill. The grind target was set to approximate the typical granulometry of flotation feed at the Vazante Operation of between 88% passing and 92% passing 150 µm.

Preliminary rougher flotation test work using a mechanical cell and a column cell was conducted to compare the performance of the two types of cells, and to evaluate the effect of pH and reagent dosages (including dispersant, activator, collector, and frother), as well as the solids feed rate and air addition rate. Results demonstrated that at optimum conditions, the column cell performed better than the mechanical cell. The mechanical cell produced a rougher concentrate containing 17% Zn at a recovery of 68%, while the column cell produced a rougher concentrate containing 30% Zn at a recovery of 64% with lower activator and collector dosages, and no addition of frother.

Table 10-1: Pilot Study Aroeira Tailings Sample Composition
Nexa Resources S.A. - Vazante Polymetallic Operations

Element / Compound	%
Zn	4.91
Pb	0.43
Cu	0.03
S	0.06
Fe ₂ O ₃	47.50
CaO	12.5
MgO	8.46
SiO ₂	4.54
Al ₂ O ₃	0.78
K ₂ O	0.07
P ₂ O ₅	0.07
MnO	0.07
TiO ₂	0.03
LOI	19.4
Ag	8 ppm

Source: SGS GEOSOL, 2019

Closed circuit tests were conducted using rougher (column cells), scavenger (either column or mechanical cells), and cleaner (column cells) circuits, or just rougher and cleaner circuits using column cells. The best results, zinc recoveries of approximately 64% and concentrate grades 42% to 43%, were achieved at lower feed rates and higher reagent dosages, however, tests at higher feed rates and lower reagent dosages were also able to exceed the target recovery and concentrate grade. The best results achieved, i.e., 64% zinc recovery and 43% concentrate grade, used rougher and cleaner columns without any scavenger step. It was noted that concentrate quality and recovery were particularly sensitive to the addition of the sodium sulphide activator with higher dosages producing the best results.





Based on the pilot plant test work, a flowsheet consisting of trash and oversize removal, grinding, conditioning, and rougher and cleaner flotation using columns, has been proposed as a stand-alone circuit for processing larger quantities of willemite tailings from the Aroeira TSF.

Variability test work on samples taken from different areas of the Aroeira TSF was underway at the Vazante Operation at the time of writing this Technical Report Summary, using a mechanical cell to produce rougher concentrates. Preliminary results were similar to the mechanical cell rougher results from the 2019 SGS test work and it is anticipated that an improvement in performance similar to that achieved at SGS through the use of column flotation can be realized. Results of the variability test work completed to date are summarized in Figure 10-1.



Source: Nexa, 2020

Figure 10-1: Rougher Variability Test Work Results

10.2.2 Calamine Test Work

In addition to calamine tailings contained in the Aroeira TSF and older tailings deposits, Nexa has identified potential calamine resources along the strike length, but mostly in the Extremo Norte deposit area. Results of test work completed at the Vazante Operation in 2017 and 2018 are summarized in the 2018 Nexa report, Alternativa Tecnológica para Tratamento de Calamina (Nexa, 2018).

Bench scale tests completed in 2017 on calamine samples from the Extremo Norte area indicated that there was potential for improvement over historical performance while processing calamine ores. Open circuit rougher-scavenger tests indicated that it was possible to reach approximately 23% Zn in concentrate at a recovery of up to 70%. An open circuit cleaner test produced a concentrate grading 39% Zn and a recovery of 63%. This test work was followed up with pilot test work at Vazante Mine with the objective of evaluating circuit configuration, different reagents and dosages, and the effect of closed-circuit operation on recovery and concentrate grade.

For the pilot plant test work, a bulk sample of approximately 20 t was collected from the historical calamine pit 3A in the Extremo Norte area. The sample was crushed and ground to approximately 88% passing 150 µm (approximately 80% passing (P₈₀) 100 µm), similar to the current willemite flotation feed size, in preparation for flotation testing. Zinc content of the sample was approximately 13.4% Zn. The size distribution of the flotation feed sample indicated that approximately 35% of the feed was < 38 µm. X-ray Diffraction (XRD) analysis of a portion of the sample indicated that it consisted predominantly of smithsonite with secondary minerals including hemimorphite and quartz, typical of calamine mineralization. Additional bench scale rougher tests were used to assess the response of the calamine sample to different collectors and modifiers prior to starting the pilot tests. These tests indicated that a combination of amine collector and fatty acids significantly improved flotation response, with an emulsion of amine collector and rice oil producing the best results, and this was therefore selected for use in the pilot tests.





For the pilot tests, feed material was first classified to remove fines. Fines rejection was measured by mass loss, and two mass loss or rejection targets were applied, 20% and 30%. Tests using samples from which 30% of the mass had been rejected resulted in higher concentrate grades and recoveries than the tests using samples from which 20% of the mass had been rejected. Overall zinc recovery (i.e. recovery from flotation while accounting for zinc loss to the fines prior to flotation) of up to 50% at concentrate grades over 37% was shown to be possible with the samples from which 30% of the mass had been rejected. The best results were achieved using a circuit consisting of one rougher stage followed by two scavenger stages and with three cleaner stages. Cells used were conventional mechanical cells. Overall recovery for the samples from which 20% of the mass had been rejected was lower and the tests were also not able to achieve acceptable concentrate grades. XRD analysis of pilot plant tails indicated that the majority of zinc in the tails was present as hemimorphite. Nexa noted that the use of column cells rather than mechanical cells could provide some improvement in yield due to the large proportion of fines in the feed, and that further assessment of collectors and fatty acids was necessary to improve the recovery of hemimorphite.

SLR recommends that Nexa consider options that may help to improve recovery from calamine mineralization such as:

- Separate processing of calamine and willemite mineralization.
- A coarser primary grind for calamine mineralization and evaluation of the effect of a coarser primary grind on the proportion of fines in the flotation feed and zinc (and zinc mineral) deportment to fines.
- Separate processing of the fines fraction to recover hemimorphite in a purpose-built fines processing circuit, which could also be used for processing historical calamine tailings.

10.3 Current Performance

Vazante Operation concentrate production for the past four years is summarized in Table 10-2.

Table 10-2: Vazante Historical Performance
Nexa Resources S.A. - Vazante Polymetallic Operations

Description	Units	Actual			
		2017	2018	2019	2020
Plant Throughput	000 tpa	1,321	1,374	1,407	1,623
Head Grades	%Zn	12.3	12.1	11.5	10.4
	%Pb	0.34	0.34	0.31	0.36
	g/t Ag	17.3	19.1	17.6	19.5
Zinc Concentrate	tpa	351,377	357,469	353,669	372,322
Grade	%Zn	38.8	39.4	39.3	39.8
Recovery	%Zn	83.9	84.5	86.2	87.5
Lead Concentrate	tpa	6,027	5,025	4,052	5,069
Grade	%Pb	25.4	26.4	23.2	26.3
	g/t Ag	2,442	2,702	2,709	2,329
Recovery	%Pb	33.8	28.7	21.5	22.5
	%Ag	57.3	50.8	42.1	37.3





10.4 Deleterious Elements

10.4.1 Zinc Concentrate

The Très Marias smelter, owned by Nexa, processes all zinc concentrate produced by the Vazante Operation in its zinc circuit designed to process zinc silicate concentrate. Target zinc content in the concentrate is 39% Zn. Elements or compounds that negatively affect the refining process include carbonates, magnesium oxide (MgO), and fluorine. The carbonate specification for the zinc concentrate is < 13.3% CO₃, the MgO specification is < 4.5% MgO, and the fluorine specification is < 250 ppm F. Typical Vazante Operation concentrate contains levels of carbonates, MgO, and fluorine close to but under these limits.

10.4.2 Lead Concentrate

Nexa reports that the lead concentrate grade is approximately 20% Pb to 28% Pb and does not contain penalty levels of deleterious elements. Silver content ranges from approximately 2,000 g/t Ag to 3,000 g/t Ag. The Vazante Operation lead concentrate is subject to a penalty charge of less than US\$1.00/t due to the low lead content.

In the SLR QP's opinion, the metallurgical recovery data is adequate for the purposes of Mineral Resource and Mineral Reserve estimation in this Technical Report Summary.





11.0 MINERAL RESOURCE ESTIMATES

11.1 Summary

For this Technical Report Summary, SLR has reviewed the Mineral Resource estimates of the Vazante Operation as prepared by Nexa as of December 31, 2020. SLR carried out a number of checks to verify the various procedures and numerical calculations used in the Nexa estimates. The checks included detailed reviews of the geological and mineralization interpretations, detailed tracing of the parameters and methodology used for estimating the tonnage and grades of the mineralized blocks, analysis of the conceptual operational scenarios, and consideration that the “Reasonable Prospects for Economic Extraction” requirement of S-K 1300 is met.

The Mineral Resources comprise three styles of mineralization. The first style of mineralization is represented by the hypogene (willemite) mineralized zones that are found in the underground portions of the Vazante and Extremo Norte deposits. The second style of mineralization is represented by the supergene (calamine) mineralized zones found in the Cava 3A, Mata dos Paulistas, and Braquiara areas of the Extremo Norte and Vazante deposits. This supergene (calamine) mineralization is referred to at the Vazante Operation as calamine mineralization and comprises a mixture of smithsonite and hemimorphite minerals. The third type of mineralization comprises tailings that are contained within the Aroeira TSF. The material found in the Aroeira tailings comprise a mixture of hypogene (willemite) and supergene (calamine) minerals.

The 2020 year end (YE) Mineral Resources as of December 31, 2020 for the Vazante Operation are presented in Table 11-1. Mineral Resources have been classified in accordance with the definitions for Mineral Resources in S-K 1300, which are consistent with CIM (2014) definitions. The Mineral Resources are exclusive of Mineral Reserves. The Mineral Resource statements for the underground hypogene (willemite) mineralization are prepared within reporting panels that have been created so as to achieve the required spatial continuity, cut-off grade, and minimum width criteria. The Mineral Resource statements for the supergene (calamine) mineralization are prepared using an open pit shell. The Mineral Resource statements for the tailings are reported using the original topographic surface as a constraint.

The Mineral Resource statements are prepared using Net Smelter Return (NSR) cut-off values that consider such items as the envisioned mining method, metallurgical recoveries, metal prices, etc. The NSR cut-off values are as follow:

Mineralization Type	Mining Method	NSR Cut-Off Value (US\$/t)
Hypogene (willemite)	Sub-level stoping	47.49
	Room-and-pillar	74.96
Supergene (calamine)	Open Pit – Rock	24.64
	Open Pit - Soil	23.39
Tailings	Truck-and-shovel	20.62

Table 11-1: Summary of Mineral Resources as of December 31, 2020
Nexa Resources S.A. - Vazante Polymetallic Operations

Category	Area	Tonnes (000 t)	Grade			Contained Metal		
			(% Zn)	(% Pb)	(g/t Ag)	(000 t Zn)	(000 t Pb)	(000 oz Ag)
Measured	Vazante & Extremo Norte	3,400	6.91	0.18	8.4	235.0	6.2	918
	Calamine	0	0.00	0.00	0.0	0.0	0.0	0
	Tailings	0	0.00	0.00	0.0	0.0	0.0	0
Subtotal, Measured		3,400	6.91	0.18	8.4	235.0	6.2	918
Indicated	Vazante & Extremo Norte	2,000	5.84	0.13	7.6	117.0	2.6	489
	Calamine	880	9.13	0.16	1.2	80.3	1.4	34
	Tailings	0.00	0.00	0.00	0.0	0.0	0.0	0.0
Subtotal, Indicated		2,880	6.85	0.14	5.6	197.3	4.0	523
Meas. & Ind.	Vazante & Extremo Norte	5,400	6.52	0.16	8.1	352.0	8.8	1,407
	Calamine	880	9.13	0.16	1.2	80.3	1.4	34
	Tailings	0.00	0.00	0.00	0.0	0.0	0.0	0.0
Subtotal, M&I		6,280	6.88	0.16	7.1	432.3	10.2	1,441
Inferred	Vazante & Extremo Norte	9,040	7.79	0.17	11.0	704.0	14.9	3,190
	Calamine	870	9.92	0.09	1.1	86.3	0.8	31
	Tailings	3,939	4.06	0.25	7.8	159.9	9.8	995
Subtotal, Inferred		13,849	6.86	0.18	9.5	950.2	25.5	4,216

Notes:

1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources which are consistent with CIM (2014) definitions.
2. Mineral Resources are reported on a 100% Nexa attributable ownership basis.
3. Mineral Resources are estimated at various NSR cut-off values appropriate to the mineralization style.
4. Mineral Resources are estimated using average long term metal prices of Zn: US\$2,869.14/t (US\$1.30/lb), Pb: US\$2,249.40/t (US\$1.02/lb), and Ag: US\$19.38/oz.
5. Metallurgical recoveries are accounted for in the NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at the LOM average hypogene head grades are 83.6% for Zn, 22.3% for Pb, and 42.0% for Ag. An average long term Brazilian Real (R\$)/US\$ exchange rate of 4.84 was used.
6. A minimum mining width of 3.0 m was used to create Mineral Resource reporting shapes for the willemite mineralization.
7. Mineral Resources are exclusive of Mineral Reserves.
8. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
9. Numbers may not add due to rounding.





11.2 Hypogene Mineralization (Willemite)

11.2.1 Resource Database

Information collected from surface-based drilling, underground-based drilling, and channel samples collected from the grade control program are all entered into a Fusion™ master database that is used for database management at the Vazante Operations. The Fusion™ database was implemented in 2017. The login is password protected by individual personnel and all personnel are assigned the permission levels necessary to complete their tasks. Three people in the company have unlimited access to the database. Data cannot be entered or changed in the database without the appropriate permission. There is a full time expert in charge of the database to make certain that the data is reliable and to provide data extraction and editing services.

Primary data are entered by the site geologists into the tablet devices and are imported directly into Fusion™ database. Analytical data are provided digitally by the assay laboratories and are merged with the data from the geologists. Primary original documents and logs, down-hole surveys, core photographs, and assay certificates are stored on network drives. Digital copies of the database network drives are routinely backed-up daily, weekly, and monthly.





All data stored in the Vazante Operation database are verified using various software verification routines before final entry into the database. These software verification routines are aimed at preventing the entry of extraneous data such as incorrect lithology codes or overlapping assay intervals into the database. While largely successful, these checks are not perfect and additional internal checks are made to ensure that information used for Mineral Resource estimation and mine planning is as nearly correct as possible. Nexa’s internal corporate standard operating procedure PO-VM-GRM-001, requires additional checking of the following items:

- Sample length problems
- Maximum and minimum grade values
- Negative values
- Detection limits and null values
- Drill hole surveys
- Sample size
- Gaps
- Overlaps
- Drill hole collars versus topography coordinate datum
- Verification of mining permissions
- Laboratory analysis certificates

Each of these items are checked and if discrepancies are discovered, verified, and corrected, as necessary.

Drill hole and channel sample information were extracted into two separate data subsets for the preparation of the Mineral Resource estimates for the hypogene mineralization found at the Vazante Mine. One database subset was constructed to include the mineralization found in the Lumiadeira and Sucrui segments of the Vazante portion of the mineralization. The second database subset was constructed to include the mineralization found in the Extremo Norte region of the Vazante Mine.

Drill hole and channel sample information for the Vazante Mine was extracted from this internal database into separate files for use in preparation of the Mineral Resource estimates. This drill hole information was modified slightly so as to be compatible with the format requirements of Datamine and Leapfrog modelling packages and were imported into those software packages by Nexa. A number of new tables and variables were created during the estimation process to capture such information as the interpreted mineralized intersection length along the drill holes, density readings, capped assay values, and composite values.

The cut-off date for the assays in the drill hole database is April 30, 2020. Drilling and sampling was carried out using the UTM Datum Córrego Alegre, Zone 23S grid coordinate system. The northing and easting collar coordinates of the drill holes and channel samples used to prepare the Mineral Resource estimate for the hypogene mineralization were modified from the UTM coordinate system to the mine grid coordinate system. No changes were made to the collar elevations, and no rotations or scaling factors were applied. The conversion factors from UTM to mine grid are shown below:

Easting (X): $UTM\ grid - 300,000 = Mine\ grid$

Northing (Y): $UTM\ grid - 8,000,000 = Mine\ grid$

A summary of the drilling and channel sampling information is provided in Table 11-2. The location of the drill holes and channel samples are presented in Figure 11-1.





Table 11-2: Summary of Drill Hole and Channel Sample Databases, Vazante and Extremo Norte
Nexa Resources S.A. - Vazante Polymetallic Operations

Data Type	No. of Records - DDH	No. of Records - Channels
Vazante		
Collars	6,186	1,088
Down hole survey	218,582	5,665
Lithology	86,846	3,227
Assays	126,435	5,665
Composites (within mineralized wireframe boundaries)		46,039
Density		17,315
Extremo Norte		
Collars	1,398	198
Down hole survey	96,694	1,031
Lithology	18,704	540
Assays	36,532	1,031
Composites (within mineralized wireframe boundaries)		10,062
Density		16,758





Figure 11-1: Drill Hole and Channel Sample Locations, Vazante and Extremo Norte Deposits





11.2.2 Mineralized Wireframe Interpretation

The mineralized wireframe interpretations were prepared by Nexa staff in consideration of all geological and assay information collected from drilling and channel sample information, information collected from the grade control geological mapping and sampling activities, and from practical experience gained over the many years of production history of the Vazante Operation. The broader-scale lithological features in both the Vazante and Extremo Norte deposits (such as the hydrothermal breccia unit) were used as guides in the preparation of the mineralized wireframe interpretations.

The mineralized wireframe interpretations adopted a three tier approach that was based on the zinc cut-off grade and the style of the mineralization. All mineralized wireframe outlines were prepared using the Leapfrog software package. A series of mineralized wireframe outlines were prepared at a cut-off grade of 5% Zn for those mineralized intervals considered to be part of the primary style of willemite mineralization that is located generally along the footwall contact of the mineralized system in association with the Vazante Shear.

The second series of mineralized wireframes were also prepared using a cut-off grade of 5% Zn, however, these wireframes included mineralized intervals that are present in the stratigraphic package but are not considered to form part of the main mineralized trend. In general terms, the secondary mineralized zones comprise stringer and breccia style mineralized intervals and are located on the hanging wall side of the primary mineralized zones. Occurrences of secondary style mineralization, however, are also present in the footwall of the primary mineralized zones.

The third series of mineralized wireframes were prepared using a cut-off grade of 2% Zn. These tertiary mineralized wireframes include lower grade mineralized intervals that are present in the immediate wall rocks to either the primary or secondary mineralized wireframes.

For each of the mineralized wireframes, no minimum widths were applied. This approach is part of an overall strategy in which the minimum width criteria is considered by application of reporting panels as one of the criteria when preparing the Mineral Resource statements.

While lead and silver also form part of the hypogene mineralization found at the Vazante Mine, their contributions to the overall value of the mineralization are minor in comparison with the revenue that is achieved from the zinc content (Figure 11-2). Consequently, the cut-off grade used to prepare the mineralized wireframe interpretations is based on a simple zinc-alone basis.





Figure 11-2: Relative Value by Metal, Willemite Mineralization

The hypogene zinc mineralization at the Vazante Mine has been traced by drilling and channel sampling along a strike length of approximately 10.5 km and from surface (elevation approximately 750 m AMSL) to elevation of approximately 0 m AMSL, a distance of approximately 750 m (Figure 11-3). A sample cross section is provided in Figure 11-4. Additional cross sections are provided in Section 7.2 of this Technical Report Summary.





Figure 11-3: View of the Mineralized Wireframe Outlines, Willemite Mineralization





Figure 11-4: Sample Cross Section of the Mineralized Wireframes, Vazante Mine





11.2.3 Topography and Excavation Models

11.2.3.1 Topography Surfaces

Three topographic surfaces are used at the Vazante Mine (Figure 11-5). The first topographic surface is constructed from satellite based data that is made available through the Brazilian government agencies. This general topographic map provides coverage for a wide area around the Vazante Mine and is used as a general guide for field activities such as regional exploration and planning purposes for surface-based drilling programs targeting the hypogene mineralization. The precision and accuracy of this topographic surface is limited to several metres, especially when dealing with elevation data.

The second topographic surface is constructed by the Nexa mine staff from data collected using various detailed surveying methods such as drone based LIDAR topography measurements or total station survey equipment. This detailed topographic information provides coverage for approximately half of the strike length of the Vazante portion of the mineralized trend and provides information relating to the open pit excavations that have taken place on the Vazante portion of the mineralized trend.

The third topographic surface is constructed by the Nexa mine staff using various detailed surveying methods such as drone based LIDAR topography measurements or total station survey equipment. This topographic surface has an effective date of April 24, 2019 and provides information relating to the open pit excavations that have taken place for the Extremo Norte portion of the mineralized trend.

11.2.3.2 Excavation Models

Mining activities have resulted in the excavation of two underground mines at the Vazante Operation, both of which are accessed by means of adits and ramps. The underground excavation for the Vazante Mine has achieved a depth of approximately 650 m from surface and provides access to approximately 5.3 km of the Vazante portion of the mineralized trend. The Extremo Norte Mine has achieved a depth of approximately 400 m from surface and provides access to approximately 1.6 km of the Extremo Norte portion of the mineralized trend. The two mines are separated by a distance of approximately 2.2 km (Figure 11-6).





Figure 11-5: Plan View of the Topographic Surfaces





Figure 11-6: Plan and Longitudinal Views of the Underground Development





As mining has been on-going at the Vazante Operation since before the development of Cavity Monitoring Survey (CMS) equipment, little digital information is available regarding the shapes of many of the stopes that have been excavated over the long production history of the mine. Prior to the implementation of the CMS surveys at the Vazante Operation, the extent of the excavations for the level developments were determined by the traditional line-and-offset method. This historical survey information was subsequently used to prepare digital models of the excavated level developments.

Beginning in January 2018, Nexa has employed a Reigl Model Vz400 laser scanner to create digital models of all excavated level developments and excavated stopes (Figure 11-7 and Figure 11-8). As a result of this history, digital information is available for most of the excavated levels and ramps, but only partial digital information is available for the excavated stopes. The digital information used in preparation of the Mineral Resource estimate regarding the mining excavations is current as of October 31, 2020.





Figure 11-7: Longitudinal View of the Mined Excavations, Vazante Mine





Figure 11-8: Longitudinal View of the Mined Excavations, Extremo Norte Mine





11.2.4 Resource Assays

The various mineralization wireframe models were used to code the drill hole database and identify the raw assay samples, or resource assays, that are contained within the mineralized wireframes. These samples were extracted from the database into their respective domains, and then subjected to statistical analyses by means of histograms and probability plots. A total of 36,235 zinc samples were contained within the primary, secondary, and tertiary mineralized wireframes for the Vazante deposit. A total of 9,674 zinc samples were contained within the primary, secondary, and tertiary mineralized wireframes for the Extremo Norte deposit. The resource assay sample statistics and the selected capping values for the uncapped assay values are summarized in Table 11-3. Selected histograms and probability plots are provided in Figure 11-9 to Figure 11-14.

Table 11-3: Summary Of Uncapped, Clustered Raw Sample Statistics, Willemite Mineralization
Nexa Resources S.A. - Vazante Polymetallic Operations

Item	Primary			Secondary			Tertiary		
	Zinc (% Zn)	Lead (% Pb)	Silver (g/t Ag)	Zinc (% Zn)	Lead (% Pb)	Silver (g/t Ag)	Zinc (% Zn)	Lead (% Pb)	Silver (g/t Ag)
Vazante Deposit									
Mean	22.69	0.59	42.3	19.54	0.48	34.8	4.19	0.24	7.8
Median	22.55	0.30	13.8	17.35	0.27	9.8	2.31	0.21	1.0
Standard Deviation	14.42	0.97	108.6	13.00	0.74	106.6	7.11	0.24	80.7
Coefficient of Variation	0.64	1.64	2.57	0.66	1.56	3.06	1.70	0.98	10.4
Minimum	0.03	0.00	0.25	0.05	0.01	0.25	0.01	0.00	0.25
Maximum	59.52	21.36	2,520	56.34	12.07	3,451	53.59	7.61	3,499
Number of Samples	23,598	15,341	14,204	7,284	5,217	4,385	5,353	4,823	4,832
Capping Value	54	8	1,000	50	5	850	48	2.5	250
Extremo Norte Deposit									
Mean	18.76	0.33	17.2	15.33	0.28	11.5	3.31	0.33	1.6
Median	16.00	0.28	9.2	12.56	0.25	6.3	2.40	0.29	0.5
Standard Deviation	12.92	0.35	48.0	10.40	0.26	22.5	4.18	0.26	4.5
Coefficient of Variation	0.69	1.07	2.8	0.68	0.92	1.95	1.26	0.80	2.8
Minimum	0.21	0.00	0.3	0.45	0.05	0.3	0.04	0.00	0.3
Maximum	55.89	12.95	1,685	46.15	5.21	335.0	52.89	3.86	147.0
Number of Samples	5,327	5,031	4,678	358	354	324	3,989	3,944	3,020
Capping Value	50	3	560	42	1.5	100	48	2.5	35





Source: Nexa

Figure 11-9: Raw Assay Histogram and Probability Plots for Zinc Within the Primary Mineralized Wireframe, Vazante Deposit



Nexa Resources S.A. | Vazante Polymetallic Operations, **SLR Project No: 233.03245.R0000**
Technical Report Summary - February 15, 2021



Source: Nexa

Figure 11-10: Raw Assay Histogram and Probability Plots for Zinc Within the Secondary Mineralized Wireframe, Vazante Deposit



Nexa Resources S.A. | Vazante Polymetallic Operations, **SLR Project No: 233.03245.R0000**
Technical Report Summary - February 15, 2021



Source: Nexa

Figure 11-11: Raw Assay Histogram and Probability Plots for Zinc Within the Tertiary Mineralized Wireframe, Vazante Deposit



Nexa Resources S.A. | Vazante Polymetallic Operations, **SLR Project No: 233.03245.R0000**
Technical Report Summary - February 15, 2021



Source: Nexa

Figure 11-12: Raw Assay Histogram and Probability Plots for Zinc Within the Primary Mineralized Wireframe, Extremo Norte Deposit



Nexa Resources S.A. | Vazante Polymetallic Operations, **SLR Project No: 233.03245.R0000**
Technical Report Summary - February 15, 2021



Source: Nexa

Figure 11-13: Raw Assay Histogram and Probability Plots for Zinc Within the Secondary Mineralized Wireframe, Extremo Norte Deposit





Source: Nexa

Figure 11-14: Raw Assay Histogram and Probability Plots for Zinc Within the Secondary Mineralized Wireframe, Extremo Norte Deposit

11.2.5 Treatment of High Grade Assays

In order to reduce the influence of high grade sample values, a simple capping approach was applied. In this method, the grades of the resource assays contained within the respective mineralized wireframes that are deemed to represent anomalously high grades are reduced to a maximum value - the capping grade. A summary of the descriptive statistics for the capped, cell declustered sample populations for each of the mineralized wireframes is presented in Table 11-4.





Table 11-4: Summary of Capped, Declustered Sample Statistics, Willemite Mineralization
Nexa Resources S.A. - Vazante Polymetallic Operations

Item	Primary			Secondary			Tertiary		
	Zinc (% Zn)	Lead (% Pb)	Silver (g/t Ag)	Zinc (% Zn)	Lead (% Pb)	Silver (g/t Ag)	Zinc (% Zn)	Lead (% Pb)	Silver (g/t Ag)
Vazante Deposit									
Mean	20.21	0.50	37.1	17.67	0.44	29.5	4.30	0.24	6.3
Median	18.55	0.27	11.6	14.90	0.26	9.5	2.48	0.21	1.2
Standard Deviation	12.53	0.74	93.0	11.09	0.66	67.1	6.38	0.21	25.1
Coefficient of Variation	0.62	1.49	2.51	0.63	1.51	2.3	1.48	0.88	3.8
Minimum	0.10	0.00	0.3	0.05	0.01	0.3	0.01	0.01	0.3
Maximum	54.00	8.00	1,000	50.0	5.00	850	48.00	2.50	250
Extremo Norte Deposit									
Mean	16.49	0.29	12.7	13.98	0.27	10.0	3.18	0.31	1.7
Median	13.70	0.24	5.7	11.52	0.25	5.2	2.47	0.28	0.6
Standard Deviation	10.45	0.30	29.0	8.81	0.13	13.5	3.55	0.24	3.4
Coefficient of Variation	0.63	1.03	2.3	0.63	0.48	1.3	1.12	0.75	2.2
Minimum	0.36	0.00	0.3	1.46	0.07	0.3	0.04	0.00	0.3
Maximum	50.00	3.00	560	41.23	0.99	100	48.00	2.50	35.0

11.2.6 Compositing

The capped assay samples contained within the primary, secondary, and tertiary mineralized wireframes for the Vazante and Extremo Norte deposits were composited into equal sample lengths of one metre using the best-fit compositing method using the Datamine software package. SLR has examined the supporting data for the selection of this composite sample length and agrees that it is appropriate for this data set, style of mineralization, and the anticipated mining method. The descriptive statistics for the capped composite samples are provided in Table 11-5.





Table 11-5: Summary of Capped, Composite Sample Statistics, Willemite Mineralization
Nexa Resources S.A. - Vazante Polymetallic Operations

Item	Primary			Secondary			Tertiary		
	Zinc (% Zn)	Lead (% Pb)	Silver (g/t Ag)	Zinc (% Zn)	Lead (% Pb)	Silver (g/t Ag)	Zinc (% Zn)	Lead (% Pb)	Silver (g/t Ag)
Vazante Deposit									
Mean	22.59	0.40	26.0	19.14	0.29	16.5	4.24	0.20	4.5
Median	21.73	0.22	5.0	16.92	0.19	1.60	2.50	0.20	0.9
Standard Deviation	13.29	0.72	69.9	11.64	0.51	53.9	6.59	0.19	16.9
Coefficient of Variation	0.59	1.81	2.7	0.61	1.79	3.26	1.54	0.95	3.8
Minimum	0.1	0.00	0	0.05	0.00	0	0.01	0	0
Maximum	54	8.00	1,000	50	5.0	850	48	2.5	250
Extremo Norte Deposit									
Mean	18.63	0.30	15.3	15.07	0.27	11.0	3.33	0.30	1.7
Median	16.25	0.28	8.3	12.11	0.25	6.2	2.47	0.28	0.5
Standard Deviation	11.90	0.22	29.8	9.32	0.19	14.6	3.99	0.22	3.3
Coefficient of Variation	0.64	0.74	2.0	0.62	0.71	1.3	1.20	0.75	2.0
Minimum	0.36	0.00	0.0	1.46	0.00	0.0	0.04	0.00	0.0
Maximum	50	3.00	560.0	42.00	1.50	100	48	2.50	35.0

11.2.7 Bulk Density

The relationship of the density values to the zinc, lead, and iron grades was carried out using the available density measurements contained within the mineralized wireframe volumes for the Vazante and Extremo Norte deposits (Figure 11-15 and Figure 11-16). The data clearly demonstrates that a consistent relationship is present that can be modelled using the following equation:

$$\text{Bulk Density} = 0.022657 \times (\text{Zn} + \text{Pb} + \text{Fe}) + 2.785876$$

This formula was used to calculate the bulk density using the estimated zinc, lead, and iron grades for the Vazante and Extremo Norte deposits.





Figure 11-15: Relationship of Measured Bulk Density with Zinc, Lead, and Iron Grades, Vazante Deposit





Figure 11-16: Relationship of Measured Bulk Density with Zinc, Lead, and Iron Grades, Extremo Norte Deposit





11.2.8 Trend Analysis

11.2.8.1 Grade Contouring

As an aid in conducting variography studies of the continuity of the zinc grades in the mineralized domain models, a short study to examine the overall trends was conducted. For this exercise, the distribution of zinc grades were examined using the mineralized wireframe models for the Vazante portion 2019 YE update of the Mineral Resources (Figure 11-17). The contoured data shows that the distribution of the zinc values is generally oriented in a horizontal to sub-horizontal direction along the strike length of the mineralization examined.





Figure 11- 17: Contoured Zinc Grades, Vazante Deposit





11.2.8.2 Variography

Nexa began its analysis of the spatial continuity by constructing separate downhole and omni-directional variograms using the composite data for the zinc, lead, silver, and iron grades for each of the mineralized wireframes for the Vazante and Extremo Norte deposits, with the objective of determining an appropriate value for the global nugget (C0). The analysis then proceeded with the preparation of directional variograms to search for any anisotropies that may be present in the data, which resulted in successful variograms with good model fits (Figure 11-18 and Figure 11-19).

The GSLIB software package was used to calculate the variograms and charts of the results were prepared using Nexa’s in-house software. A summary of the variogram parameters derived for each of the mineralized wireframe models is presented in Table 11-6. The left hand rule was used as the rotation convention wherein the Y axis is the direction of maximum continuity (major axis), the X axis is the direction of the semi-major axis, and the Z axis is the direction of the minor axis.



Source: Nexa

Figure 11-18: Example Variograms for Zinc Grades Contained Within the Primary Mineralized Wireframe Domain, Vazante Deposit





Source: Nexa

Figure 11-19: Example Variograms for Zinc Grades Contained Within the Primary Mineralized Wireframe Domain, Extremo Norte Deposit

**Table 11-6: Summary of Variogram Parameters, Willemite Mineralization
Nexa Resources S.A. - Vazante Polymetallic Operations**





Domain	Item	Zinc	Lead	Silver	Iron
Vazante Deposit					
Primary	C ₀ Nugget	0.30	0.35	0.38	0.38
	C ₁ 1 st structure	0.30	0.35	0.38	0.38
	C ₂ 2 nd structure	0.25	0.20	0.20	0.14
	C ₃ 3 rd structure	0.15	0.10	0.04	0.13
	A1 1 st Range Z (m)	4	2	1	3
	A2 2 nd Range Z (m)	12	7	3	6
	A3 3 rd Range Z (m)	25	8	6	7
	A1 1 st Range X (m)	8	5	4	10
	A2 2 nd Range X (m)	35	15	8	35
	A3 3 rd Range X (m)	150	80	60	150
	A1 1 st Range Y (m)	8	10	3	12
	A2 2 nd Range Y (m)	35	30	10	150
	A3 3 rd Range Y (m)	200	150	90	250
Secondary	C ₀ Nugget	0.22	0.15	0.26	0.20
	C ₁ 1 st structure	0.36	0.45	0.40	0.40
	C ₂ 2 nd structure	0.25	0.33	0.25	0.35
	C ₃ 3 rd structure	0.17	0.07	0.09	0.05
	A1 1 st Range Z (m)	3	2	1	2
	A2 2 nd Range Z (m)	4	4.5	2.5	9
	A3 3 rd Range Z (m)	5	5	7	10
	A1 1 st Range X (m)	10	5	7	5
	A2 2 nd Range X (m)	20	10	15	30
	A3 3 rd Range X (m)	100	80	25	45
	A1 1 st Range Y (m)	12	8	8	8
	A2 2 nd Range Y (m)	30	20	13	20
	A3 3 rd Range Y (m)	130	100	50	120
Tertiary	C ₀ Nugget	0.11	0.20	0.20	0.12
	C ₁ 1 st structure	0.30	0.35	0.35	0.40
	C ₂ 2 nd structure	0.30	0.30	0.30	0.30
	C ₃ 3 rd structure	0.29	0.15	0.15	0.18
	A1 1 st Range Z (m)	3	1	1.5	2
	A2 2 nd Range Z (m)	9	4	4	4
	A3 3 rd Range Z (m)	12	9	7	8
	A1 1 st Range X (m)	5	4	4	5
	A2 2 nd Range X (m)	15	8	10	15
	A3 3 rd Range X (m)	80	70	35	80
	A1 1 st Range Y (m)	15	8	8	8
	A2 2 nd Range Y (m)	40	15	20	20
	A3 3 rd Range Y (m)	130	100	80	120





Extremo Norte Deposit					
Primary	C ₀ Nugget	0.32	0.10	0.15	0.25
	C ₁ 1 st structure	0.32	0.40	0.45	0.40
	C ₂ 2 nd structure	0.18	0.30	0.30	0.20
	C ₃ 3 rd structure	0.18	0.20	0.10	0.15
	A1 1 st Range Z (m)	4.5	3	2	4
	A2 2 nd Range Z (m)	6	4	3	5
	A3 3 rd Range Z (m)	7	5	6	6
	A1 1 st Range X (m)	5	7	5	3
	A2 2 nd Range X (m)	30	15	10	6
	A3 3 rd Range X (m)	100	90	50	25
	A1 1 st Range Y (m)	5	8	7	7
	A2 2 nd Range Y (m)	30	40	35	25
	A3 3 rd Range Y (m)	200	100	100	80
Secondary	C ₀ Nugget	0.15	0.10	0.10	0.30
	C ₁ 1 st structure	0.36	0.45	0.40	0.40
	C ₂ 2 nd structure	0.30	0.25	0.25	0.20
	C ₃ 3 rd structure	0.19	0.20	0.25	0.10
	A1 1 st Range Z (m)	3	5	4	4
	A2 2 nd Range Z (m)	4	9	5	12
	A3 3 rd Range Z (m)	8	10	6	15
	A1 1 st Range X (m)	5	5	10	2
	A2 2 nd Range X (m)	30	10	35	6
	A3 3 rd Range X (m)	90	80	50	25
	A1 1 st Range Y (m)	10	5	10	15
	A2 2 nd Range Y (m)	25	50	15	25
	A3 3 rd Range Y (m)	90	60	80	40





Tertiary	C ₀ Nugget	0.17	0.17	0.17	0.32
	C ₁ 1 st structure	0.30	0.35	0.33	0.35
	C ₂ 2 nd structure	0.33	0.30	0.28	0.20
	C ₃ 3 rd structure	0.20	0.18	0.22	0.13
	A1 1 st Range Z (m)	2.5	3	4	4
	A2 2 nd Range Z (m)	3	4	6	8
	A3 3 rd Range Z (m)	6	8	8	12
	A1 1 st Range X (m)	5	5	3	5
	A2 2 nd Range X (m)	10	45	20	15
	A3 3 rd Range X (m)	50	70	100	80
	A1 1 st Range Y (m)	8	8	5	8
	A2 2 nd Range Y (m)	20	15	10	20
	A3 3 rd Range Y (m)	60	100	25	120

11.2.9 Block Model Construction

Two block models were constructed by Nexa using the Datamine software package and the mine grid coordinate system. The block models used a parent block size of 10 m (X) x 10 (Y) m x 5 m (Z) sized blocks and using sub-blocking with a minimum block size of 1 m (X) x 1 m (Y) x 0.5 m (Z). The block models are oriented parallel to the mine grid coordinate grid system (i.e., no rotation or tilt). The selection of the block sizes for this model remain unchanged from the block sizes that have been used for preparation of the previous Mineral Resource and Mineral Reserve estimates. The block model origin and dimensions are provided in Table 11-7. A number of attributes were created to store such information as rock code, material densities, estimated metal grades, final mineral resource classification, and the like (Table 11-8). The same list of attributes was used to populate both block models.

Table 11-7: Block Model Definition, Vazante and Extremo Norte Deposits
Nexa Resources S.A. - Vazante Polymetallic Operations

Type	Units	Y (Northing)	X (Easting)	Z (Elevation)
Vazante Deposit				
Minimum Coordinates	m	11,447	767	-127
Maximum Coordinates	m	15,567	5,727	663
Parent Block Size	m	10	10	5
Sub-block Size	m	1	1	0.5
Rotation	°	0.000	0.000	0.000
Extremo Norte Deposit				
Minimum Coordinates	m	15,331	5,327	59
Maximum Coordinates	m	19,511	8,167	739
Parent Block Size	m	10	10	5
Sub-block Size	m	1	1	0.5
Rotation	°	0.000	0.000	0.000





Table 11-8: List of Block Model Attributes, Vazante and Extremo Norte Deposits
Nexa Resources S.A. - Vazante Polymetallic Operations

Attribute Name	Type	Decimals	Background	Description
ag	Real	0	0	
density	Real	0	-1e+30	
fe	Real	0	0	
kvarag	Real	0	-1e+30	
kvarfe	Real	0	-1e+30	
kvarpb	Real	0	-1e+30	
kvarzn	Real	0	-1e+30	
lito	Real	0	-1e+30	1=mineralized wireframe, 2=waste
nsamag	Real	0	-1e+30	
nsamfe	Real	0	-1e+30	
nsampb	Real	0	-1e+30	
nsamzn	Real	0	-1e+30	
ore	Real	0	0	1=primary, 2=secondary, 3=tertiary
pb	Real	0	0	
recovery	Real	0	-1e+30	
rectype	Real	0	-1e+30	
resource	Real	0	-1e+30	
surface	Real	0	-1e+30	
svol	Real	0	-1e+30	
svolag	Real	0	-1e+30	
svolfe	Real	0	-1e+30	
svolpb	Real	0	-1e+30	
svolzn	Real	0	-1e+30	
tonnes	Real	0	-1e+30	
trdip	Real	0	-1e+30	
trdipdir	Real	0	-1e+30	
trstkdpip	Real	0	-1e+30	
trstkdpip	Real	0	-1e+30	
trstkdpip	Real	0	-1e+30	
zn	Real	0	0	

11.2.10 Search Strategy and Grade Interpolation Parameters

Metal grades were estimated into the blocks by means of the Ordinary Kriging (OK) interpolation algorithm. A total of three interpolation passes at different ranges were carried out for each of the mineralized wireframes using distances derived from the variogram results and the search ellipse parameters presented previously. All search ellipses adopted the dynamic search function of the Datamine software package in which the orientation of the search ellipse is varied so as to remain as parallel as possible to the local strikes and dips of the mineralization. An example of the search strategies and estimation parameters used to estimate the metal grades for the primary mineralization domain of the Vazante deposit is presented in Table 11-9.

In general, “hard” domain boundaries were used along the contacts of the mineralized domain models. Only data contained within the respective wireframe model was allowed to be used to estimate the grades of the blocks within the wireframe in question, and only those blocks within the wireframe limits were allowed to receive grade estimates.





Table 11-9: Search Parameters and Estimation Strategies, Primary Mineralized Wireframe, Vazante Deposit
Nexa Resources S.A. - Vazante Polymetallic Operations

Item	Zinc	Lead	Silver	Iron
Interpolation method	OK	OK	OK	OK
Search volume method	Ellipsoid	Ellipsoid	Ellipsoid	Ellipsoid
Length of axis 1	150	80	60	150
Length of axis 2	200	150	90	250
Length of axis 3	25	8	6	7
First rotation angle	48	48	48	48
Second rotation angle	0	0	0	0
Third rotation angle	50	50	50	50
First rotation axis (1=X, 2=Y, 3=Z)	3	3	3	3
Second rotation axis (1=X, 2=Y, 3=Z)	1	1	1	1
Third rotation axis (1=X, 2=Y, 3=Z)	2	2	2	2
Octant Definition Method	Use Octants	Use Octants	Use Octants	Use Octants
Min. number of octants to be filled	2	2	2	2
Min. number of samples in an octant	1	1	1	1
Max. number of samples in an octant	40	40	40	40
Min. number of samples for first dynamic search volume	8	8	8	8
Max. number of samples for first dynamic search volume	30	30	30	30
Axis multiplying factor for second dynamic search volume	8	8	8	8
Min. number of samples for second dynamic search volume	8	8	8	8
Max. number of samples for second dynamic search volume	30	30	30	30
Axis multiplying factor for third dynamic search volume	3	3	3	3
Min. number of samples for third dynamic search volume	8	8	8	8
Max. number of samples for third dynamic search volume	30	30	30	30
Maximum multiplying factor	5	5	5	5





11.2.11Block Model Validation

Block model validation exercises included several validation techniques that included examination of the global mean grades, preparation of swath plots, Quantile-Quantile (Q-Q) plots, scatter plots, histogram comparison, and visual validation.

11.2.11.1Global Estimate

Block model validation exercises consisted of visually comparing the volume of the coded blocks in the block model against the volume report of the respective wireframe models as a high level check that the block model has been correctly coded for each of the wireframes. No issues were noted.

A comparison of the average grades of the informing capped, declustered composite samples against the average estimated block grades was carried out (Table 11-10).

Table 11-10: Comparison of Composite Sample Grades with Estimated Block Model Grades, Willemite
Nexa Resources S.A. - Vazante Polymetallic Operations

Item	Zinc (% Zn)	Primary Lead (%Pb)	Silver (g/t Ag)	Zinc (% Zn)	Secondary Lead (%Pb)	Silver (g/t Ag)	Zinc (% Zn)	Tertiary Lead (%Pb)	Silver (g/t Ag)
Vazante Deposit									
Composite Mean	22.59	0.40	26.0	19.14	0.29	16.5	4.24	0.20	4.5
Block Model Average	19.65	0.53	36.8	18.81	0.48	31.3	3.84	0.26	5.7
Difference (Bm-Comp)	-2.94	+0.13	+10.8	-0.33	+0.19	+14.8	-0.4	+0.06	+1.2
% Difference (vs Comp)	-13%	+33%	+42%	-2%	+66%	+90%	-9%	+30%	+27%
Extremo Norte Deposit									
Composite Mean	18.63	0.30	15.3	15.07	0.27	11.0	3.33	0.30	1.7
Block Model Average	18.08	0.31	16.3	15.86	0.29	12.8	5.89	0.55	1.5
Difference (Bm-Comp)	-0.55	+0.01	+1.0	+0.79	+0.02	+1.8	+2.56	+0.25	-0.2
% Difference (vs Comp)	-3%	+3%	+7%	+5%	+7%	+16%	+77%	+83%	-12%

Review of the results shows that the estimated zinc grades are in reasonable agreement with the informing samples for the primary and secondary mineralized wireframes at the Vazante and Extremo Norte deposits. A high variance, however, is observed in the estimated zinc grades for the tertiary mineralized wireframe for the Extremo Norte deposit. While high variances are observed for the estimated lead and silver grades for the secondary and tertiary mineralized wireframes, it is important to note that these metals provide only a minor contribution to the overall value of the mineralization.

11.2.11.2Swath Plots

Nexa conducted an evaluation of the spatial accuracy of the estimated grades by constructing a series of swath plots that compared the average composite grades to the average estimated block model grades in plan, section, and longitudinal orientations. Sample swath plots for selected wireframes are presented in Figure 11-20 and Figure 11-21. Review of the swath plots show a reasonable agreement between the estimated grades and their respective informing composite samples.





11.2.11.3Quantile-Quantile Plots

The accuracy of the distribution of the zinc grades between the informing composite samples and the estimated block grades was examined by construction of Q-Q plots using the GSLIB software package (Figure 11-22 and Figure 11-23). Very good agreement is observed in the distribution between the estimated zinc grades and the corresponding informing samples for the primary and secondary mineralized wireframes at the Vazante and the Extremo Norte deposits. Similarly, very good agreement is observed in the distribution between the estimated zinc grades and the corresponding informing samples for the tertiary mineralized wireframe at the Vazante deposit. A slight bias in favour of the informing samples (i.e. block grades are under-estimated) is observed for the tertiary mineralized wireframe at the Extremo Norte deposit for zinc grades above approximately 8% Zn.





Figure 11-20: Swath Plots for Zinc, Primary Mineralized Wireframes, Vazante Deposit





Figure 11-21: Swath Plots for Zinc, Primary Mineralized Wireframes, Extremo Norte Deposit





Figure 11-22: Quantile-Quantile Plots of the Zinc Grades, Vazante Deposit





Figure 11-23: Quantile-Quantile Plots of the Zinc Grades, Extremo Norte Deposit





11.2.11.4Scatter Plots

The accuracy of the distribution of the zinc grades between the informing composite samples and the estimated block grades was also examined by construction of simple scatter plots using the GSLIB software package (Figure 11-24 and Figure 11-25). The results show that a good agreement is present between the estimated zinc grades and their corresponding informing samples for the primary and secondary mineralized wireframes for the Vazante and Extremo Norte deposits. Higher variances are observed for the tertiary mineralized wireframes, however.





Figure 11-24: Scatter Plots of the Zinc Grades, Vazante Deposit





Figure 11-25: Scatter Plots of the Zinc Grades, Extremo Norte Deposit





11.2.11.5Histogram Comparison

The accuracy of the distribution of the zinc grades between the informing composite samples and the estimated block grades was also examined by construction of normal scores histograms and the results charted using the Microsoft (MS) Excel software package (Figure 11-26 and Figure 11-27). Good agreements are observed in the grade distributions of the estimated zinc grades and their corresponding informing samples.

In SLR's opinion, the validation performed by Nexa and SLR are typical industry standard validation techniques and in general, the results presented suggest that the block model has been completed to a high standard, in line with industry best practices.





Figure 11-26: Normal Scores Histogram Plots of the Zinc Grades, Vazante Deposit





Figure 11-27: Normal Scores Histogram Plots of the Zinc Grades, Extremo Norte Deposit





11.2.12Mineral Resource Classification

Definitions for Mineral Resource categories used in this Technical Report Summary are those defined by SEC in S-K 1300. Mineral Resources are classified into Measured, Indicated, and Inferred categories. Mineralized material for each wireframe was initially classified into the Measured, Indicated, or Inferred Mineral Resource categories on the basis of the density of drill hole and chip sample information, and presence of underground access as follows:

Mineral Resource Category	Sample Spacing
Measured	25 m x 15 m
Indicated	50 m x 30 m
Inferred	100 m x 60 m
Potential	>100 m x 100 m, or lenses based on a single drill hole

In addition to the Measured, Indicated, and Inferred categories, Nexa adopts an additional category for classification of mineralized material. This fourth classification category is termed “Potential” and is used strictly for exploration and planning purposes. No quantities of mineralized material classified into the Potential category form part of either the Mineral Resource or Mineral Reserve statements.

Following the classification of the mineralized material into the initial Mineral Resource categories, clipping polygons were used in a final stage of the process to edit the initial classification assignments so as to ensure continuity and consistency of the final classified blocks in the model (Figure 11-28 and Figure 11-29).





Figure 11-28: View of the Final Mineral Resource Classification, Primary Mineralized Wireframe, Vazante Deposit





Figure 11-29: View of the Final Mineral Resource Classification, Primary Mineralized Wireframe, Extremo Norte Deposit





11.2.13Net Smelter Return and Cut-Off Grade Parameters

An NSR cut-off value was determined using the Mineral Resource metal prices, metal recoveries, transport, treatment, and refining costs, as well as mine operating cost. Metal prices used for Mineral Resources are based on consensus, long term forecasts from banks, financial institutions, and other sources. All domestic costs were converted to an equivalent US dollar basis using an average long term exchange rate of R\$4.84/US\$.

The cut-off value used for the Mineral Resource estimate is based on an NSR value, in units of US\$/t, which can be directly compared to operating unit costs. The NSR formula is:



Cut-off costs and NSR parameters are summarized in Table 11-11. The break even NSR cut-off value for SLS and Room and Pillar (R&P) mining methods are \$47.49/t processed and \$74.96/t processed, respectively.

Table 11-11: Resource NSR Data- Willemite Mineralization
Nexa Resources S.A. - Vazante Polymetallic Operations

Item	Units	SLS	R&P
Metallurgical Recovery			
Zn	%	83.56	83.56
Pb	%	22.30	22.30
Ag	%	42.00	42.00
Metal Payability			
Zn Concentrate Payable			
Zn	%	94.4	94.4
Pb Concentrate Payable			
Pb	Min Payable/Deduction	95.0	95.0
Ag	Min Payable/Deduction	95%/3%	95%/3%
Metal Prices			
Zn			
Zn	US\$/lb	1.30	1.30
Pb	US\$/lb	1.02	1.02
Ag	US\$/oz	19.38	19.38
Transport Charges			
Zn Concentrate			
Zn Concentrate	US\$/t conc.	16.60	16.60
Pb Concentrate			
Pb Concentrate	US\$/t conc.	278.72	278.72
Treatment Charges			
Pb Concentrate			
Pb Concentrate	US\$/t conc.	142.57	142.57
Refining Charges			
Ag in Pb Concentrate			
Ag in Pb Concentrate	US\$/oz	1.00	1.00
Integrated Zn (processed at Tr�s Marias)			
Premium			
Premium	US\$/t	286.31	286.31
Conversion Cost			
Conversion Cost	US\$/t	473.95	473.95
Operating Costs			
Mining			
Mining	US\$/t proc.	27.47	54.94
Processing			
Processing	US\$/t proc.	14.57	14.57
G&A			
G&A	US\$/t proc.	5.45	5.45
Total			
Total	US\$/t proc.	47.49	74.96





NSR calculations use a model head grade-recovery relationship for each metal, based on recent operating performance. The head grade and recovery curves are presented in Figure 11-30 and Figure 11-31. NSR factors are therefore variable by head grade, with average NSR factors summarized in Table 11-12. The average NSR factors are calculated using the LOM revenue contribution from each metal net of off-site costs and factors, divided by the reserve grade for that metal, and are indicative of the relative contribution of each metal unit to the economics of the mine. For most metals, a variable recovery (as a function of head grade) was used, and therefore the average NSR factors should not be applied to head grades without considering the head grade versus recovery relationship.



Source: Nexa

Figure 11-30: Zinc Grade-Recovery Curve for the Willemite Mineralization





Source: Nexa

Figure 11-31: Lead Grade-Recovery Curve for the Willemite Mineralization

Table 11-12: Average NSR Factors For the Willemite Mineralization
Nexa Resources S.A. - Vazante Polymetallic Operations

Item	Units	Value
Zn	US\$/% Zn	19.61
Pb	US\$/% Pb	1.04
Ag	US\$/oz Ag	6.88

Metal prices are based on Nexa’s projections. Nexa’s long term price model uses multiple variables including supply (mine and refined), demand, cost drivers, capital cost, and other key elements. The long term prices derived are in line with the consensus forecasts from banks and independent institutions.

11.2.14Mineral Resource Reporting

Definitions for Mineral Resource categories used in this Technical Report Summary are those defined by SEC in S-K 1300. Mineral Resources are classified into Measured, Indicated, and Inferred categories.

The Mineral Resources are exclusive of Mineral Reserves. The Mineral Resources are located as remnants in proximity of the existing underground excavations or as additional mineralized areas located beyond or below the current underground development. Three-dimensional reporting volumes were prepared to aid in the reporting of the Mineral Resources to ensure that the “Reasonable Prospects” requirement of S-K 1300 was met. These reporting volumes were prepared using the native functions and workflows available through the Deswik mine modelling software package.





The reporting volumes were created using similar parameters to those used to prepare the reporting volumes used for the reporting of Mineral Reserves. A minimum width of three metres was applied when creating the reporting panels for the Mineral Resources. Additional criteria included consideration of the envisioned mining method (SLS or room and pillar), exclusions for sill pillars in areas of either existing level development or planned future level development, crown pillars for those portions of the mineralization that are located close to the topographic surface, and geotechnical reservations.

As the Mineral Resources are stated exclusive of Mineral Reserves, only those reporting panels that were not used to prepare the Mineral Reserve statements were considered for preparation of the Mineral Resource statement. The reporting panels used to prepare the Vazante Operation hypogene Mineral Resource statements are presented in Figure 11-32 and Figure 11-33. The Vazante Operation hypogene Mineral Resources are summarized in Table 11-13. A summary of the previous Mineral Resources as of December 31, 2019 is presented in Table 11-14 for comparison purposes (Nexa, 2020d).

In SLR’s opinion, the assumptions, parameters, and methodology used for the Vazante Operation hypogene Mineral Resource estimates are appropriate for the style of mineralization and anticipated mining methods.

The SLR QP is of the opinion that, with consideration of the recommendations summarized in Sections 1 and 23, any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.





Figure 11-32: View of the Mineral Resource Reporting Panels, Vazante Deposit





Figure 11-33: View of the Mineral Resource Reporting Panels, Extremo Norte Deposit





Table 11-13: Mineral Resources for the Vazante and Extremo Norte Mineralization as of December 31, 2020
Nexa Resources S.A. - Vazante Polymetallic Operations

Category	Tonnes (000 t)	Grade			Contained Metal		
		(% Zn)	(% Pb)	(g/t Ag)	(000 t Zn)	(000 t Pb)	(000 oz Ag)
Measured	3,400	6.91	0.18	8.4	235	6.19	918
Indicated	2,000	5.84	0.13	7.6	117	2.56	489
Subtotal, M&I	5,400	6.51	0.16	8.1	352	8.75	1,408
Inferred	9,040	7.79	0.17	11.0	704	14.90	3,190

Notes:

1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources which are consistent with CIM (2014) definitions.
2. Mineral Resources are reported on a 100% Nexa attributable ownership basis.
3. Mineral Resources are estimated at a NSR cut-off value of US\$47.49/t for SLS and US\$74.96/t for R&P.
4. Mineral Resources are estimated using average long term metal prices of Zn: US\$2,869.14/t (US\$1.30/lb), Pb: US\$2,249.40/t (US\$1.02/lb), and Ag: US\$19.38/oz.
5. Metallurgical recoveries are accounted for in the NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at the LOM average hypogene head grades are 83.6% for Zn, 22.3% for Pb, and 42.0% for Ag. An average long term Brazilian Real (R\$)/US\$ exchange rate of 4.84 was used.
6. A minimum mining width of 3.0 m was used to create Mineral Resource reporting shapes.
7. Bulk density varies depending on the abundance of willemite and galena.
8. Mineral Resources are exclusive of Mineral Reserves.
9. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
10. Mineral Resources are reported for all material contained within reporting panels that have been created so as to achieve the required spatial continuity, cut-off grade, and minimum width criteria.
11. Numbers may not add due to rounding.

Table 11-14: Summary of Previous Mineral Resources as of December 31, 2019
Nexa Resources S.A. - Vazante Polymetallic Operations

Category	Tonnes (Mt)	Grade			Contained Metal		
		(% Zn)	(% Pb)	(g/t Ag)	(000 t Zn)	(000 t Pb)	(000 oz Ag)
Measured	2.37	10.38	0.31	12.9	246.0	7.3	981
Indicated	1.57	8.81	0.26	11.0	138.3	4.1	554
Subtotal, M&I	3.94	9.75	0.29	12.1	384.3	11.4	1,535
Inferred	9.46	8.55	0.22	12.2	808.8	20.8	3,720

Notes:

1. The qualified person for the mineral resources estimate is José Antonio Lopes, B.Geo, MAusIMM (CP) Geo, a Nexa Resources employee.
2. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources which are consistent with CIM (2014) definitions.
3. Mineral Resources are reported on a 100% Nexa attributable ownership basis.
4. Mineral resources are reported within underground mining shapes with minimum mining widths of 3 m.
5. Density was assigned based on rock type.
6. The NSR cut-offs are calculated based on the LOM costs independent of the mining method: SLS, VRM and C&F: US\$63.28.
7. Forecast long term metal prices used for the NSR calculation are: Zn: US\$2,899.15/t (US\$1.31/lb); Pb: US\$2,304/t (US\$1.04/lb) and Ag: US\$19.31/oz.
8. Metallurgical recoveries are accounted for in the NSR calculations based on historical processing data and are variable as a function of head grade. An average long term Brazilian Real (R\$)/US\$ exchange rate of 4.84 was used.





11.2.15Risks and Uncertainties to Mineral Resources

Based on SLR's review of the Vazante and Extremo Norte Mineral Resource estimate, the following key risks have been identified:

- Due to the natural variability inherent to the willemite mineralization, the presence, location, size, shape, and grade of the actual mineralization between the existing sample points may differ from the current interpretation. The level of uncertainty in these items is lowest for the Measured Mineral Resource category and is highest for the Inferred Mineral Resource category. Nexa mitigates this uncertainty by implementation of its grade control programs.
- Due to the reliance of the estimation of the density on the estimate of metal grades for those portions of the mineralization not currently sampled, the tonnage for those portions can vary if the actual metal grades differ from the estimated metal grades. The density estimates can be improved with increased density of drill hole and channel sample data.
- Due to variations in the global supply chain, the actual metal prices realized at the time of production may differ from the long term metal prices that were used in the preparation of the Mineral Resource statements. Lower zinc metal prices realized at the time of production may result in a decrease in Mineral Resources. In SLR's opinion the Mineral Resources are not sensitive to variations in the prices of silver or lead from those used in the current Mineral Resource statement.
- The cut-off grade (or value) used in preparation of the current Mineral Resource statement can be affected by variations in the Brazilian Real and United States dollar exchange rate. A strengthening of the Brazilian Real versus the United States dollar may result in an increase in the cut-off grade (or value), with a corresponding decrease in the Mineral Resources.

11.3 Supergene Mineralization (Calamine)

11.3.1 Resource Database

Information collected from surface-based drilling, underground-based drilling, and channel samples collected from the grade control program are all entered into a Fusion™ master database that is used for database management at the Vazante Operation. The Fusion™ database was implemented in 2017. All data stored in the Vazante Operation database are verified using various software verification routines before final entry into the database. Nexa's internal corporate standard operating procedure PO-VM-GRM-001, requires additional checking of the following items:

- Sample length problems
- Maximum and minimum grade values
- Negative values
- Detection limits and null values
- Drill hole surveys
- Sample size
- Gaps





- Overlaps
- Drill hole collars versus topography coordinate datum
- Verification of mining permissions
- Laboratory analysis certificates.

Each of these items are checked and if discrepancies are discovered, verified, and corrected, as necessary.

Drill hole information for the supergene mineralization was extracted from the Fusion™ database into separate files for use in preparation of the Mineral Resource estimates. This drill hole information was modified slightly so as to be compatible with the format requirements of the Datamine and Leapfrog modelling packages and were imported into those software package by Nexa. A number of new tables and variables were created during the estimation process to capture such information as the interpreted mineralized intersection length along the drill holes, density readings, capped assay values, and composite values. No grade control samples or blast hole samples taken during the previous operation of the open pit mine are included in this drill hole sub-set.

The cut-off date for the assays in the supergene drill hole database is April 30, 2020. Drilling and sampling were carried out using the UTM Datum Córrego Alegre, Zone 23S grid coordinate system. The northing and easting collar coordinates of the drill holes and channel samples used to prepare the Mineral Resource estimate for the supergene mineralization remained in the UTM coordinate system. This is in contrast to the drill hole and channel sample information used to estimate the hypogene mineralization that has been converted to the mine grid coordinate system.

SLR recommends that the drill hole data relating to the supergene mineralization be converted into the mine grid coordinate system to more easily integrate the information for the underground mine.

A summary of the drilling information is provided in Table 11-15. Three areas of supergene mineralization were modelled: Cava 3A, Mata dos Paulistas, and Braquiara. All three areas are located generally along the northeastern most portion of the mineralized trend. The Cava 3A area comprises the area including and adjacent to the Extremo Norte open pit mine (Figure 11-34).

**Table 11-15: Summary of Drill Hole Database, Calamine Mineralization
Nexa Resources S.A. - Vazante Polymetallic Operations**

Data Type	Number of Records
Collar	414
Down hole survey	9,932
Lithology	5,484
Assays	23,239
Weathering	9,251
Composites (within mineralized wireframe boundaries)	3,131
Density	4,908

11.3.2 Geology and Mineralization Interpretations

11.3.2.1 Geological Interpretations

Preparation of the geological interpretation began with construction of digital models by Nexa of the main un-weathered host rock units present at the Vazante Operation using the Leapfrog software package. This geological interpretation was carried out in the UTM coordinate system and adopted all available geological information such as surface mapping, surface-based and underground-based drilling information, and detailed mapping information collected as part of the grade control programs in the open pit and underground mines (Figure 11-35).





Interpretation activities then proceeded with consideration of the weathering profile that is present. Three weathering surfaces were created using the Leapfrog software package to represent the top of the unweathered rock, a transitional zone representing partially weathered rock, and a soil interval representing fully weathered material (Figure 11-36).





Figure 11-34: Drill Hole Locations, Calamine Mineralization





Figure 11-35: Inclined View of the Lithology Model (Overburden Removed), Calamine Mineralization





Figure 11-36: Sample Cross Section of the Lithology and Weathering Models, Calamine Mineralization





11.3.2.2 Mineralization Wireframes

The mineralized wireframe interpretations were prepared by creating a series of grade shells at a nominal cut-off grade of 3% Zn using the Leapfrog software package. In general, these interpretations considered only those zinc grades above the nominated cut-off grade that were located in either the transition or soil portions of the weathering profile. The supergene zinc mineralization at the Vazante Mine has been traced intermittently by drilling along a strike length of approximately 4.3 km (Figure 11-37). A sample cross section of the mineralization wireframes is provided in Section 7.2 of this Technical Report Summary.

While lead and silver also form part of the hypogene mineralization found at the Vazante Mine, their contributions to the overall value of the mineralization are relatively minor in comparison with the revenue that is achieved from the zinc content (Figure 11-38). Consequently, the cut-off grade used to prepare the mineralized wireframe interpretations is based on a simple zinc only basis.

11.3.3 Topography and Excavation Models

The topographic surface used in preparation of the supergene Mineral Resources is constructed by the Nexa mine staff using various detailed surveying methods such as drone based LIDAR topography measurements or total station survey equipment. This topographic surface has an effective date of April 24, 2019 and provides information relating to the open pit excavations that have taken place for the Extremo Norte portion of the mineralized trend.

A portion of the open pit mine at the Extremo Norte deposit has been used to store backfill material derived from various sources at the Vazante Operation, consequently the current topographic surface does not represent the full extent of the open pit mine. A digital model of this backfill material was prepared by Nexa using the maximum extents of the open pit mine as the lower contact, and the current topographic surface as the upper contact (Figure 11-39).





Figure 11-37: View of the Mineralized Wireframe Outlines, Calamine Mineralization





Figure 11-38: Relative Value by Metal, Calamine Mineralization





Figure 11-39: Plan View of the Topographic Surface, Supergene Mineralization





11.3.4 Resource Assays

The various mineralization wireframe models were used to code the drill hole database and identify the raw assay samples, or resource assays, that are contained within the mineralized wireframes. These samples were extracted from the database and then subjected to statistical analyses by means of histograms and probability plots. A total of 3,284 zinc samples were contained within the mineralized wireframes for the supergene mineralization. The resource assay sample statistics and the selected capping values for the uncapped assay values are summarized in Table 11-16. Selected histograms and probability plots are provided in Figure 11-40.

Table 11-16: Summary of Uncapped, Clustered Raw Sample Statistics, Calamine Mineralization
Nexa Resources S.A. - Vazante Polymetallic Operations

Item	Zinc (% Zn)	Lead (% Pb)	Silver (g/t Ag)
Mean	10.95	0.18	1.31
Median	7.39	0.10	0.68
Standard Deviation	10.17	0.26	4.57
Coefficient of Variation	0.93	1.48	3.50
Minimum	0.00	0.00	0.02
Maximum	51.06	3.87	117.0
Number of Samples	3,284	3,284	3,284
Capping Value	45.00	1.00	40.0

11.3.5 Treatment of High Grade Assays

In order to reduce the influence of high grade sample values, a simple capping approach was applied. In this method, the grades of the resource assays contained within the respective mineralized wireframes that are deemed to represent anomalously high grades are reduced to a maximum value - the capping grade. A summary of the descriptive statistics for the capped, cell declustered sample populations for each of the mineralized wireframes is presented in Table 11-17.





Source: Nexa

Figure 11-40: Raw Assay Histogram and Probability Plots for Zinc Within the Calamine Mineralized Wireframes

Table 11-17: Summary of Capped, Declustered Sample Statistics, Calamine Mineralization
Nexa Resources S.A. - Vazante Polymetallic Operations

Item	Zinc (% Zn)	Lead (% Pb)	Silver (g/t Ag)
Mean	10.17	0.14	1.2
Median	6.39	0.08	0.7
Standard Deviation	9.55	0.17	3.1
Coefficient of Variation	0.94	1.23	2.5
Minimum	0.00	0.00	0.02
Maximum	45.00	1.00	40.0

11.3.6 Compositing

The distribution of the capped assay samples contained within the supergene mineralized wireframes were examined by means of a simple histogram as an aid in the selection of an appropriate composite length (Figure 11-41). The results of this histogram show that a composite length of one metre is appropriate for this data set. All samples were composited into equal sample lengths of one metre using the best-fit compositing method in the Datamine software package. The descriptive statistics for the capped composite samples are provided in Table 11-18.



Source: Nexa

Figure 11-41: Histogram of Sample Lengths Within the Calamine Mineralized Wireframes

Table 11-18: Summary of Capped, Composite Sample Statistics, Calamine Mineralization
Nexa Resources S.A. - Vazante Polymetallic Operations

Item	Zinc (% Zn)	Lead (% Pb)	Silver (g/t Ag)
Mean	10.93	0.17	1.2
Median	7.57	0.10	0.7
Standard Deviation	9.80	0.20	2.7
Coefficient of Variation	0.90	1.17	2.2
Minimum	0.00	0.00	0.0
Maximum	45.00	1.00	40.0



11.3.7 Bulk Density

As described previously, the supergene mineralized zones found at the Vazante Operation comprise a variety of host rock and material types ranging from fully weathered material through to fresh, un-weathered host rock units (Figure 11-42). The bulk densities of these various material types were determined by Nexa staff during the drilling programs. The procedure used to measure the densities of these materials included enveloping the sample in a plastic polyethylene film so as to provide a seal for porous and unconsolidated samples. The Jolly method was then used to determine the bulk density. In this method the samples are placed into a mesh bag and their dry weights are determined in air. The entire mesh bag is then submerged into a water bath and the weights of the samples are measured a second time. Nexa accounted for the weight and density of the plastic polyethylene film using the following formula:

$$D = PS / \{PS - [PAR - (PRS/DR)]\},$$

Where:

- PS = dry weight of the sample,
- PAR = enveloped sample weight in water,
- PRS = dry envelope weight, and
- DR = envelope density.

The bulk densities for a total of 2,054 samples were determined using representative samples taken during completion of the supergene drilling programs. The bulk density measurements for each material type were then extracted and evaluated to determine their average bulk densities.

Considering the limited number of bulk density measurements that have been completed and the high degree of variability inherent in these material types, insufficient bulk density measurements are available to estimate the bulk densities into the block model by means of a formula. Consequently, the average bulk densities for each of the mineralized wireframes were applied to the various material types coded in the block model.

A summary of the average supergene mineralization bulk densities used for the current Mineral Resource estimate is presented in Table 11-19.





Figure 11-42: Examples of Mineralization Styles and Material Types, Supergene Mineralization





**Table 11-19: Summary of Bulk Density Measurements, Supergene Mineralization
Nexa Resources S.A. - Vazante Polymetallic Operations**

Material	Average Bulk Density (t/m ³)	Number of Measurements
Overburden - (Non-mineralized)	1.50	58
Weathered Calamine Mineralization (ARG)	1.50	113
Massive Calamine Mineralization (MAC)	2.50	62
Calamine Mineralization in Marl (MGA)	2.25	73
Willemite Mineralization (WIL)	3.40	16
Dolomite (Fresh, non-mineralized)	2.80	1,318
Marl (Fresh, non-mineralized)	2.69	337
Hydrothermal Breccia (Fresh rock)	2.87	38

11.3.8 Trend Analysis

11.3.8.1 Variography

Nexa began its analysis of the spatial continuity by constructing separate downhole and omni-directional variograms using the composite data for the zinc, lead, and silver grades for the supergene mineralized wireframes, with the objective of determining an appropriate value for the global nugget (C0) (Figure 11-43). The analysis then proceeded with the preparation of directional variograms to search for any anisotropies that may be present in the data, which resulted in variograms with poor model fits. In SLR's opinion, the inability to create successful variogram models is anticipated result considering the relatively small size of each of the mineralized wireframe models and their limited spatial continuity.

The GSLIB software package was used to calculate the variograms and charts of the results were prepared using Nexa's in-house software. The left hand rule was used as the rotation convention wherein the Y axis is the direction of maximum continuity (major axis), the X axis is the direction of the semi-major axis and the Z axis is the direction of the minor axis. A summary of the variogram parameters is presented in Table 11-20.



Source: Nexa

Figure 11-43: Omni Directional Variogram, Zinc, Supergene Mineralization





Table 11-20: Summary of Variogram Parameters, Supergene Mineralization
Nexa Resources S.A. - Vazante Polymetallic Operations

Item	Zinc	Lead	Silver
C ₀ Nugget	0.10	0.10	0.10
C ₁ 1 st structure	0.45	0.45	0.45
C ₂ 2 nd structure	0.30	0.30	0.30
C ₃ 3 rd structure	0.15	0.15	0.15
A1 1 st Range Z (m)	5	5	5
A2 2 nd Range Z (m)	12	12	12
A3 3 rd Range Z (m)	30	30	30
A1 1 st Range X (m)	5	5	5
A2 2 nd Range X (m)	12	12	12
A3 3 rd Range X (m)	30	30	30
A1 1 st Range Y (m)	5	5	5
A2 2 nd Range Y (m)	12	12	12
A3 3 rd Range Y (m)	30	30	30

11.3.9 Block Model Construction

An initial block model was constructed by Nexa using the Datamine software package and the UTM coordinate system. The block model used a parent block size of 10 m (X) x 10 (Y) m x 5 m (Z) sized blocks and using sub-blocking with a minimum block size of 0.5 m (X) x 0.5 m (Y) x 0.5 m (Z). The block models are oriented parallel to the UTM grid coordinate grid system (i.e., no rotation or tilt). The block model origin and dimensions are provided in Table 11-21. A number of attributes were created to store such information as rock code, material densities, estimated metal grades, final mineral resource classification, and the like (Table 11-22).

Table 11-21: Initial Block Model Definition, Supergene Mineralization
Nexa Resources S.A. - Vazante Polymetallic Operations

Type	Units	Y (Northing)	X (Easting)	Z (Elevation)
Minimum Coordinates	m	8,014,100	304,911	533
Maximum Coordinates	m	8,017,710	308,051	758
Parent Block Size	m	10	10	5
Sub-block Size	m	0.5	0.5	0.5
Rotation	°	0.000	0.000	0.000





Table 11-22: List of Initial Block Model Attributes, Calamine Mineralization
Nexa Resources S.A. - Vazante Polymetallic Operations

Attribute Name	Type	Decimals	Default	Description
ag	Real	0	-1e+30	Silver in g/t
density	Real	0	-1e+30	
fe	Real	0	-1e+30	Iron in %
kvar	Real	0	-1e+30	Kriging variance
lito	Real	0	-1e+30	1=overburden, 2=dolomite, 3=marl
nsam	Real	0	-1e+30	Number of samples
ore	Real	0	0	0=waste, 1=mineralized
orebody	Real	0	-1e+30	0=waste, 999=backfill, 910=void, wireframe number (1 to 25)
oretype	Real	0	-1e+30	1=argillite, 2=massive, 3=marl, 4=willemite
pb	Real	0	-1e+30	Lead in %
rectype	Real	0	-1e+30	0=waste, 1=remnant
resource	Real	0	-1e+30	2=indicated, 3=inferred
s	Real	0	-1e+30	Sulphur in %
svol	Real	0	-1e+30	Estimation domain
tonnes	Real	0	-1e+30	
weather	Real	0	-1e+30	1=soil, 2=transition, 3=rock
zn	Real	0	-1e+30	Zinc in %

In preparation to create an optimized pit surface for use reporting of the Mineral Resources, the initial block model was subsequently re-blocked to blocks of equal size that measured 5 m x 5 m x 5 m in size. A number of attributes were also added to permit the calculation of a NSR value. The revised attribute list is shown in Table 11-23.





**Table 11-23: List Of Re-Blocked Block Model Attributes, Supergene Mineralization
Nexa Resources S.A. - Vazante Polymetallic Operations**

Attribute Name	Type	Decimals	Default	Description
ag	Real	0	-1e+30	
ag_ppm	Real	0	0	
au	Real	0	0	
cu	Real	0	0	
density	Real	0	-1e+30	
fe	Real	0	-1e+30	
lito	Real	0	-1e+30	1=overburden, 2=dolomite, 3=marl
nsr20rec	Real	0	0	
nsragres	Real	0	0	
nsraures	Real	0	0	
nsrcures	Real	0	0	
nsrpbres	Real	0	0	
nsrznres	Real	0	0	
ore	Real	0	0	
orebody	Real	0	-1e+30	Wireframe number
oretype	Real	0	-1e+30	
pb	Real	0	-1e+30	
rectype	Real	0	-1e+30	
resource	Real	0	-1e+30	2=indicated, 3=inferred
rock	Real	0	0	
s	Real	0	-1e+30	
slope	Real	0	0	
weather	Real	0	-1e+30	1=soil, 2=transition, 3=rock
zn	Real	0	-1e+30	

11.3.10Search Strategy and Grade Interpolation Parameters

Metal grades were estimated into the blocks by means of the OK interpolation algorithm. A total of three interpolation passes at different ranges were carried out using distances derived from the omnidirectional variogram results. All search ellipses adopted the dynamic search function of the Datamine software package in which the orientation of the search ellipse is varied so as to remain as parallel as possible to the local strikes and dips of the mineralization. A listing of the search strategies and estimation parameters used to estimate the metal grades for the calamine mineralization is presented in Table 11-24.





Table 11-24: Search Parameters and Estimation Strategies, Supergene Mineralization
Nexa Resources S.A. - Vazante Polymetallic Operations

Item	Zinc	Lead	Silver
Interpolation method	OK	OK	OK
Search volume method	Ellipsoid	Ellipsoid	Ellipsoid
Length of axis 1 (m)	30	30	30
Length of axis 2 (m)	30	30	30
Length of axis 3 (m)	30	30	30
First rotation angle	40	40	40
Second rotation angle	0	0	0
Third rotation angle	20	20	20
First rotation axis (1=X, 2=Y, 3=Z)	3	3	3
Second rotation axis (1=X, 2=Y, 3=Z)	1	1	1
Third rotation axis (1=X, 2=Y, 3=Z)	2	2	2
Octant Definition Method	None	None	None
Min. number of samples for first dynamic search volume	3	3	3
Max. number of samples for first dynamic search volume	80	80	80
Axis multiplying factor for second dynamic search volume	2	2	2
Min. number of samples for second dynamic search volume	3	3	3
Max. number of samples for second dynamic search volume	80	80	80
Axis multiplying factor for third dynamic search volume	3	3	3
Min. number of samples for third dynamic search volume	3	3	3
Max. number of samples for third dynamic search volume	80	80	80
Maximum multiplying factor	10	10	10

11.3.11 Block Model Validation

Block model validation exercises included several validation techniques that included examination of the global mean grades, preparation of swath plots, Q-Q plots, scatter plots, histogram comparison, and visual validation.

11.3.11.1 Global Estimate

Block model validation exercises consisted of visually comparing the volume of the coded blocks in the block model against the volume report of the respective wireframe models as a high level check that the block model has been correctly coded for each of the wireframes. No issues were noted.

A comparison of the average grades of the informing capped, declustered composite samples against the average estimated block grades was carried out (Table 11-25).

Table 11-25: Comparison of Composite Sample Grades with Estimated Block Model Grades, Supergene Mineralization
Nexa Resources S.A. - Vazante Polymetallic Operations

Item	Zinc (% Zn)	Lead (% Pb)	Silver (g/t Ag)
Composite Mean	10.93	0.17	1.2
Block Model Average	9.73	0.17	1.4
Difference (Bm-Comp)	-1.20	0.00	+0.2
% Difference (vs Comp)	-11%	0%	+18%

Review of the results shows that the estimated zinc and lead grades are in reasonable agreement with the informing samples. While a high variance is observed for the silver grades, it is important to note that the variation is compared against a very low base and that the silver values do not provide a material contribution to the overall value.





11.3.11.2Swath Plots

Nexa conducted an evaluation of the spatial accuracy of the estimated grades by constructing a series of swath plots that compared the average composite grades to the average estimated block model grades in plan, section, and longitudinal orientations. A sample swath plot for the zinc grades is presented in Figure 11-44. Review of the swath plot shows a reasonable agreement between the estimated grades and their respective informing composite samples.



Source: Nexa

Figure 11-44: Swath Plot for Zinc, Calamine

11.3.11.3Quantile-Quantile Plots

The accuracy of the distribution of the zinc grades between the informing composite samples and the estimated block grades was examined by construction of Q-Q plots using the GSLIB software package (Figure 11-45). Very good agreement is observed in the distribution between the estimated zinc grades and the corresponding informing samples for the lower portion of the grade range up to approximately 26% Zn. A bias in favour of the estimated block grades (i.e. block grades are over-estimated) is observed above approximately 26% Zn. Review of the global mean values shows that this bias has not affected the overall average zinc grade.





Source: Nexa

Figure 11-45: Quantile-Quantile Plot of the Zinc Grades, Supergene

11.3.11.4Scatter Plots

The accuracy of the distribution of the zinc grades between the informing composite samples and the estimated block grades was also examined by construction of a simple scatter plot using the GSLIB software package (Figure 11-46). The results show that a good agreement is generally present between the estimated zinc grades and their corresponding informing samples. A slight bias is observed however where the estimated block grades are higher than their informing composite samples for a small number of data points.





Source: Nexa

Figure 11-46: Scatter Plot of the Zinc Grades, Supergene

11.3.11.5Histogram Comparison

The accuracy of the distribution of the zinc grades between the informing composite samples and the estimated block grades was also examined by construction of normal scores histograms and the results charted using MS Excel (Figure 11-47). Good agreement is observed in the grade distributions of the estimated zinc grades and their corresponding informing samples.

In SLR's opinion, the validation performed by Nexa and SLR are typical industry standard validation techniques and in general, the results presented suggest that the block model has been completed to a high standard, in line with industry best practices.





Source: Nexa

Figure 11-47: Normal Scores Plot of the Zinc Grades, Supergene

11.3.12Mineral Resource Classification

Definitions for Mineral Resource categories used in this Technical Report Summary are those defined by SEC in S-K 1300. Mineral Resources are classified into Measured, Indicated, and Inferred categories.

Mineralized material for each wireframe was initially classified into the Measured, Indicated, or Inferred Mineral Resource categories on the basis of the density of drill hole and chip sample information, and presence of underground access as follows:

Mineral Resource Category	Sample Spacing
Measured	10 m x 10 m
Indicated	20 m x 20 m
Inferred	>40 m x 40 m

Following the classification of the mineralized material into the initial Mineral Resource categories, clipping polygons were used in a final stage of the process to edit the initial classification assignments so as to ensure continuity and consistency of the final classified blocks in the model (Figure 11-48).





Figure 11-48: View of the Final Classified Mineral Resources, Supergene





11.3.13 Net Smelter Return Cut-Off Value and Whittle Parameters

11.3.13.1 Net Smelter Return

An NSR cut-off value was determined using the Mineral Resource metal prices, metal recoveries, transport, treatment, and refining costs, as well as mine operating cost. Metal prices used for Mineral Resources are based on consensus, long term forecasts from banks, financial institutions, and other sources. All domestic costs were converted to an equivalent US dollar basis using an average long term exchange rate of R\$4.84/US\$.

The cut-off value used for the Mineral Resource estimate is based on an NSR value, in units of US\$/t, which can be directly compared to operating unit costs. The NSR formula is:



Cost information and NSR parameters used to code the block model are summarized in Table 11-26.

**Table 11-26: Block Model NSR Data- Calamine Mineralization
Nexa Resources S.A. - Vazante Polymetallic Operations**

Item	Units	Rock	Soil
Metallurgical Recovery			
Zn	%	55.00	55.00
Pb	%	variable	variable
Ag	%	42.00	42.00
Metal Payability			
Zn Concentrate Payable			
Zn	%	94.4	94.4
Pb Concentrate Payable			
Pb	Min Payable/Deduction	95.0	95.0
Ag	Min Payable/Deduction	95%/3%	95%/3%
		95%/50.0 g/t	95%/50.0 g/t
Metal Prices			
Zn	US\$/lb	1.30	1.30
Pb	US\$/lb	1.02	1.02
Ag	US\$/oz	19.38	19.38
Transport Charges			
Zn Concentrate	US\$/t conc.	16.60	16.60
Pb Concentrate	US\$/t conc.	278.72	278.72
Treatment Charges			
Zn Concentrate	US\$/t conc.	0	0
Pb Concentrate	US\$/t conc.	142.57	142.57
Refining Charges			
Ag in Pb Concentrate	US\$/oz	1.00	1.00
Integrated Zn (processed at Três Marias)			





Item	Units	Rock	Soil
Premium	US\$/t	286.31	286.31
Conversion Cost	US\$/t	473.95	473.95
Operating Costs			
Mining	US\$/t proc.	4.62	3.23
Processing	US\$/t proc.	14.57	14.57
G&A	US\$/t proc.	5.45	5.45
Total	US\$/t proc.	24.64	23.39

NSR calculations use a model head grade-recovery relationship for each metal, based on recent operating performance. The head grade and recovery curves are presented in Figure 11-49 and Figure 11-50. NSR factors are therefore variable by head grade, with average NSR factors summarized in Table 11-27. The average NSR factors are calculated using the LOM revenue contribution from each metal net of off-site costs and factors, divided by the reserve grade for that metal, and are indicative of the relative contribution of each metal unit to the economics of the mine. For most metals, a variable recovery (as a function of head grade) was used, and therefore the average NSR factors should not be applied to head grades without considering the head grade versus recovery relationship.



Source: Nexa

Figure 11-49: Zinc Grade-Recovery Curve for the Supergene Mineralization





Source: Nexa

Figure 11-50: Lead Grade-Recovery Curve for the Supergene Mineralization

Table 11-27: Average NSR Factors for the Supergene Mineralization
Nexa Resources S.A. - Vazante Polymetallic Operations

Item	Units	Value
Zn	US\$/% Zn	13.55
Pb	US\$/% Pb	1.39
Ag	US\$/oz Ag	6.88

Metal prices are based on Nexa’s projections. Nexa’s long term price model uses multiple variables including supply (mine and refined), demand, cost drivers, capital cost, and other key elements. The long term prices derived are in line with the consensus forecasts from banks and independent institutions.

11.3.13.2Whittle Pit Shell Parameters

The conceptual operational scenario that is envisioned in relation to the Mineral Resource estimates of the supergene mineralization is to continue excavation of the mineralized material by means of open pit mining methods, with the mineralized material being processed using the existing plant facilities. As an aid in preparation of the Mineral Resource statement, an open pit shell was created by Nexa using the GEOVIA Whittle software package and the parameters presented in Table 11-28. The open pit shell was created using the updated, re-blocked model of the calamine mineralization. This block model was modified to assign a destination code for the material types as being sent either to the plant or to the waste rock storage area. The NSR cut-off values used to determine the material destination were \$20.16/t processed for soil and \$20.02/t processed for fresh rock and transition zone material. The resulting pit surface is presented in Figure 11-51.





Table 11-28: Summary of the Whittle Input Parameters
Nexa Resources S.A. - Vazante Polymetallic Operations

Item	Description	Units	Value
Geotechnical Info			
Overall Angle	Soil	°	39.00
Rock and Transition		°	46.00
Costs			
Mining	Soil	US\$/t total material	3.23
Rock and Transition		US\$/t total material	4.62
Process	Soil	US\$/t ore	14.71
Rock and Transition		US\$/t ore	14.57
G&A	Soil	US\$/t ore	5.45
Rock and Transition		US\$/t ore	5.45
Conversion Cost	All	US\$/t Zn	473.95
Macro Economics			
Exchange Rate		BRL/USD	4.84
Price	Zinc	US\$/t	2,869.14
Lead		US\$/t	2,249.40
Silver		US\$/oz	19.38
Premium	Zinc	US\$/t	286.31
Logistics	Zinc (to TM)	US\$/t conc.	16.60
Lead (Export)		US\$/t conc.	278.72
Metallurgical Recovery			
Vazante	Zinc	%	55.00
Lead		%	variable
Silver @ Pb Conc.		%	42.00
Três Marias	Zinc	%	94.40
Cut-off Value			
Cut off Value	Soil	US\$/t ore	20.16
Rock and Transition		US\$/t ore	20.02





Figure 11-51: Plan View of the Open Pit Surface, Supergene Mineral Resources





11.3.14Mineral Resource Reporting

Mineral Resources are prepared in accordance with the definitions for Mineral Resources in S-K 1300, which are consistent with CIM (2014) definitions.

The Mineral Resources are exclusive of Mineral Reserves. The Mineral Resources are located within an open pit shell that was created in consideration of appropriate metal prices, mining costs, metallurgical recoveries, and geotechnical considerations. The open pit shell was used to aid in the reporting of the Mineral Resources to ensure that the “Reasonable Prospects” requirement of S-K 1300 is met. The Mineral Resources for the supergene calamine mineralization are presented in Table 11-29. No previous Mineral Resources have been disclosed by Nexa in respect of the supergene mineralization.

In SLR’s opinion, the assumptions, parameters, and methodology used for the Vazante supergene Mineral Resource estimates are appropriate for the style of mineralization and anticipated mining methods.

The SLR QP is of the opinion that, with consideration of the recommendations summarized in Section 1 and Section 23, any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work

Table 11-29: Mineral Resources For the Calamine Mineralization as of December 31, 2020
Nexa Resources S.A. - Vazante Polymetallic Operations

Category	Tonnes (000 t)	Grade			Contained Metal		
		(% Zn)	(% Pb)	(g/t Ag)	(000 t Zn)	(000 t Pb)	(000 oz Ag)
Measured	0	0	0	0	0	0	0
Indicated	880	9.13	0.16	1.2	80.34	1.40	34.0
Subtotal, M&I	880	9.13	0.16	1.2	80.34	1.41	34.0
Inferred	870	9.92	0.09	1.1	86.30	0.78	30.8

Notes:

1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources which are consistent with CIM (2014) definitions.
2. Mineral Resources are reported on a 100% attributable ownership basis.
3. Mineral Resources are estimated at a NSR cut-off value of US\$20.16/t for soil and US\$20.02/t for fresh rock and transition material.
4. Mineral Resources are estimated using average long term metal prices of Zn: US\$2,869.14/t (US\$1.30/lb), Pb: US\$2,249.40/t (US\$1.02/lb), and Ag: US\$19.38/oz.
5. Metallurgical recoveries are accounted for in the NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at the LOM average calamine grades are 55% for Zn, 24% for Pb, and 42.0% for Ag. An average long term Brazilian Real (R\$)/US\$ exchange rate of 4.84 was used.
6. Bulk density varies depending on the degree of weathering.
7. Mineral Resources are exclusive of Mineral Reserves.
8. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
9. Mineral Resources are reported for all material contained an open pit shell with grades above the nominated NSR cut-off values.
10. Numbers may not add due to rounding.

11.3.15Risks and Uncertainties to Mineral Resources

Based on SLR’s review of the supergene (calamine) Mineral Resource estimate, the following key risks have been identified:





- Due to the natural variability inherent to the calamine mineralization, the presence, location, size, shape, and grade of the actual mineralization between the existing sample points may differ from the current interpretation. The level of uncertainty in these items is lowest for the Indicated Mineral Resource category and is highest for the Inferred Mineral Resource category. This risk item can be improved with increased density of drill hole and channel sample data.
- Due to the natural variability in the porosity of the host rocks, the local density for any portion of the Mineral Resources may vary from the estimated value, resulting in either an increase or decrease in the tonnage estimate at the local scale. The density estimates can be improved with increased density of drill hole and channel sample data.
- Due to the current level of drill hole information, the detailed distribution of the weathered and un-weathered materials may differ from the current interpretations, potentially resulting in changes to the reporting surface used to prepare the Mineral Resource statement. This risk item can be improved with increased density of drill hole and channel sample data.
- Changes in the metallurgical recoveries from the estimated values used in preparation of the Mineral Resource statement can impact on the amount of metal recovered at time of production. This risk item can be improved by completion of additional metallurgical test work.
- Due to variations in the global supply chain, the actual metal prices realized at the time of production may differ from the long term metal prices that were used in the preparation of the Mineral Resource statements. Lower zinc metal prices realized at the time of production may result in a decrease in Mineral Resources. In SLR's opinion the Mineral Resources are not sensitive to variations in the prices of silver or lead from those used in the current Mineral Resource statement.
- The cut-off grade (or value) used in preparation of the current Mineral Resource statement can be affected by variations in the Brazilian Real and United States dollar exchange rate. A strengthening of the Brazilian Real versus the United States dollar may result in an increase in the cut-off grade (or value), with a corresponding decrease in the Mineral Resources.

11.4 Aroeira Tailings

11.4.1 Resource Database

Drill hole information for the Aroeira tailings mineralization was extracted from the Fusion™ database into separate files for use in preparation of the Mineral Resource estimates. This drill hole information was modified slightly so as to be compatible with the format requirements of the Datamine and Leapfrog modelling packages and were imported into those software package by Nexa. A number of new tables and variables were created during the estimation process to capture such information as the interpreted mineralized intersection length along the drill holes, density readings, capped assay values, and composite values.

The cut-off date for the assays in the drill hole database is December 31, 2019. Drilling and sampling were carried out using the UTM Datum Córrego Alegre, Zone 23S grid coordinate system. The northing and easting collar coordinates of the drill holes and channel samples used to prepare the Mineral Resource estimate for the Aroeira tailings mineralization remained in the UTM coordinate system. This is in contrast to the drill hole and channel sample information used to estimate the hypogene mineralization that has been converted to the mine grid coordinate system.

SLR recommends that the drill hole data relating to the tailings mineralization be converted into the mine grid coordinate system to more easily integrate the information for the underground mine.

A summary of the drilling information for the Aroeira and Antiga tailings areas is provided in Table 11-30. The location of the drill holes is shown in Figure 11-52.





Table 11-30: Summary of Drill Hole Database, Tailings Mineralization
Nexa Resources S.A. - Vazante Polymetallic Operations

Data Type	Number of Records
Collar	113
Down hole survey	95
Assays	1,345
Composites (within mineralized wireframe boundaries)	490





Figure 11-52: Drill Hole Location Map, Tailings Sampling Programs





11.4.2 Mineralized Wireframe Interpretation

A mineralized wireframe of the Aroeira tailings was prepared for the material encountered in the drill holes completed as part of the tailings sampling program using the Leapfrog software package. It is important to note that the portion of the Aroeira tailings that was sampled by the drilling program comprises only a portion of the total volume of tailings that are currently stored in the Aroeira TSF (Figure 11-53). The mineralized wireframe was drawn to represent the volume of tailings that were encountered by the drilling program and excluded material which formed part of the original pre-deposition surface.

The resulting mineralization wireframe included 34 completed drill holes covering an area of the tailings measuring approximately 500 m in an east-west direction and approximately 550 m in a north-south direction. The drill holes were completed on a nominal spacing of 50 m x 50 m (Figure 11-54). A sample cross section is provided in Section 7.2 of this Technical Report Summary.



Source: Nexa

Figure 11-53: Inclined View of the Planned vs Completed Drill Holes, Aroeira Tailings





Figure 11-54: Plan View of the Drill Hole Locations and Mineralized Wireframe, Aroeira Tailings





11.4.3 Topography Surfaces

The original, pre-deposition topographic surface used to prepare the digital interpretation of the tailings volume perimeter was derived from an available topographic map that was prepared by the Brazilian government. The original topographic surface was presented in the form of contour lines that had limited precision and accuracy.

Nexa carried out an updated topographic survey of the Aroeira TSF area on December 8, 2020 using a Phantom 4 Pro drone that was equipped with a Leica GS18 RTK GPS unit (Figure 11-55). The average survey accuracy of this equipment is stated as 0.03 m.





Figure 11-55: View of the Aroeira Tailings Storage Area as of December 8, 2020





11.4.4 Resource Assays

The mineralization wireframe model was used to code the drill hole database and identify the raw assay samples, or resource assays, that are contained within the mineralized wireframe. These samples were extracted from the database and then subjected to statistical analyses by means of histograms and probability plots. A total of 464 zinc samples were contained within the Aroeira tailings mineralized wireframe model. The resource assay sample statistics and selected capping values for the uncapped assay values are summarized in Table 11-31. Histogram charts of the zinc, lead, and silver grades are provided in Figure 11-56, Figure 11-57, and Figure 11-58

Table 11-31: Summary of Uncapped, Clustered Raw Sample Statistics, Aroeira Tailings
Nexa Resources S.A. - Vazante Polymetallic Operations

Item	Zinc (% Zn)	Lead (% Pb)	Silver (g/t Ag)
Mean	4.26	0.26	8.2
Median	3.96	0.26	6.5
Standard Deviation	1.53	0.07	5.6
Coefficient of Variation	0.36	0.27	0.7
Minimum	0.05	0.00	0.3
Maximum	9.6	0.78	49.8
Number of Samples	464	464	464
Capping Value	8.0	No capping applied	No capping applied



Figure 11-56: Frequency Histogram of the Zinc Uncapped Raw Sample Statistics, Aroeira Tailings





Figure 11-57: Frequency Histogram of the Lead Uncapped Raw Sample Statistics, Aroeira Tailings



Figure 11-58: Frequency Histogram of the Silver Uncapped Raw Sample Statistics, Aroeira Tailings





11.4.5 Treatment of High Grade Assays

In order to reduce the influence of high grade sample values, a simple capping approach was applied. In this method, the grades of the resource assays contained within the respective mineralized wireframes that are deemed to represent anomalously high grades are reduced to a maximum value - the capping grade. A capping value of 8% Zn was applied to the zinc raw assays. No capping values were applied to the lead or silver assays.

11.4.6 Compositing

All samples contained within the Aroeira tailings mineralized wireframe had 1.2 m sample lengths, consequently compositing of samples into equal lengths was not required (Figure 11-59). A summary of the capped assays is presented in Table 11-32.



Source: Nexa

Figure 11-59: Histogram of Sample Lengths, Aroeira Tailings Samples

Table 11-32: Summary of Capped, Composite Statistics, Aroeira Tailings
Nexa Resources S.A. - Vazante Polymetallic Operations

Item	Zinc (% Zn)	Lead (% Pb)	Silver (g/t Ag)
Mean	4.24	0.26	8.2
Median	3.96	0.25	6.5
Standard Deviation	1.50	0.07	5.6
Coefficient of Variation	0.35	0.27	0.7
Minimum	0.05	0.00	0.3
Maximum	8.00	0.78	49.8
Number of Samples	464	464	464





11.4.7 Bulk Density

A total of 452 dry bulk density measurements were collected from drill hole samples of the Aroeira tailings, of which 431 were contained within the mineralized wireframe. These samples have bulk densities ranging from 1.01 t/m³ to 2.56 t/m³, with a mean bulk density of 1.71 t/m³ (Figure 11-60).

The bulk densities of each of these samples were used to estimate the block model density using the Inverse Distance, Power 2 interpolation algorithm. A minimum of five and a maximum of 30 samples were used to estimate the bulk densities to the block model.



Source: Nexa

Figure 11-60: Distribution of Dry Bulk Density Measurements, Aroeira Tailings

11.4.8 Trend Analysis

11.4.8.1 Variography

Nexa began its analysis of the spatial continuity by constructing separate downhole and omni-directional variograms using the composite data for the zinc, lead, and silver grades for the Aroeira tailings mineralized wireframe, with the objective of determining an appropriate value for the global nugget (C0). The analysis then proceeded with the preparation of directional variograms to search for any anisotropies that may be present in the data, which resulted in variograms with reasonable model fits (Figure 11-61).

The GSLIB software package was used to calculate the variograms and charts of the results were prepared using Nexa’s in-house software. The left hand rule was used as the rotation convention wherein the Y axis is the direction of maximum continuity (major axis), the X axis is the direction of the semi-major axis and the Z axis is the direction of the minor axis. A summary of the variogram parameters is presented in Table 11-33.





Source: Nexa

Figure 11-61: Example Variograms for Zinc Grades Contained Within the Aroeira Tailings Mineralized Wireframe Domain

Table 11-33: Summary of Variogram Parameters, Aroeira Tailings
Nexa Resources S.A. - Vazante Polymetallic Operations

Item	Zinc	Lead	Silver
C ₀ Nugget	0.35	0.35	0.35
C ₁ 1 st structure	0.25	0.25	0.25
C ₂ 2 nd structure	0.25	0.25	0.25
C ₃ 3 rd structure	0.15	0.15	0.15
A1 1 st Range Z	3	3	3
A2 2 nd Range Z	8	8	8
A3 3 rd Range Z	10	10	10
A1 1 st Range X	20	20	20
A2 2 nd Range X	50	50	50
A3 3 rd Range X	160	160	160
A1 1 st Range Y	20	20	20
A2 2 nd Range Y	80	80	80
A3 3 rd Range Y	200	200	200





11.4.9 Block Model Construction

An initial block model was constructed by Nexa using the Datamine software package and the UTM coordinate system. The block model used a parent block size of 25 m (X) x 25 (Y) m x 2 m (Z) sized blocks and using sub-blocking with a minimum block size of 1 m (X) x 1 m (Y) x 1 m (Z). The block models are oriented parallel to the UTM grid coordinate grid system (i.e., no rotation or tilt). The block model origin and dimensions are provided in Table 11-34. A number of attributes were created to store such information as rock code, material densities, estimated metal grades, and the like (Table 11-35).

Table 11-34: Initial Block Model Definition, Aroeira Tailings
Nexa Resources S.A. - Vazante Polymetallic Operations

Type	Units	Y (Northing)	X (Easting)	Z (Elevation)
Minimum Coordinates	m	8,012,556	306,704	595
Maximum Coordinates	m	8,013,181	307,229	629
Parent Block Size	m	25	25	2
Sub-block Size	m	1	1	1
Rotation	°	0.000	0.000	0.000

Table 11-35: List of Initial Block Model Attributes, Aroeira Tailings
Nexa Resources S.A. - Vazante Polymetallic Operations

Attribute Name	Type	Decimals	Background	Description
ag	Real	0	0	Silver in oz/t
corpo	Character	-		
density	Real	0	0	
fe	Real	0	0	
kvar	Real	0	-1e+30	
nsam	Real	0	-1e+30	
ore	Real	0	-1e+30	
oxide	Real	0	-1e+30	
pb	Real	0	0	Lead in percent
resource	Real	0	-1e+30	
svol	Real	0	-1e+30	
tonnes	Real	0	-1e+30	
zn	Real	0	0	Zinc in percent
zone	Real	0	0	





The initial block model was subsequently re-blocked to blocks of equal size that measured 5 m x 5 m x 2 m in size. A number of blocks were created as part of the re-blocking effort which extended beyond the limits of the mineralization boundary. These blocks were removed from the final re-blocked model so as to reflect the tonnage and grades of the source block model more accurately. A number of attributes were also added to permit the calculation of a NSR value and preparation of the Mineral Resource statement. The revised attribute list is shown in Table 11-36.

Table 11-36: List of Re-Blocked Block Model Attributes, Aroeira Tailings
Nexa Resources S.A. - Vazante Polymetallic Operations

Attribute Name	Type	Decimals	Background	Description
ag	Real	0	0	Silver in oz/t
agppm	Real	0	0	Silver in g/t
cog	Character	-		
density	Real	0	0	
fe	Real	0	0	
fillvol	Real	0	-1e+30	
kvar	Real	0	-1e+30	
nsam	Real	0	-1e+30	
nsr20res	Real	0	0	
ore	Real	0	-1e+30	
oxide	Real	0	-1e+30	
pb	Real	0	0	
rec_agpb	Real	0	0	
rec_agzn	Real	0	0	
rec_pb	Real	0	0	
rec_zn	Real	0	0	
resource	Real	0	-1e+30	
svol	Real	0	-1e+30	
tonnes	Real	0	-1e+30	
voidvol	Real	0	-1e+30	
zn	Real	0	0	
zone	Real	0	0	

11.4.10Search Strategy and Grade Interpolation Parameters

Metal grades were estimated into the blocks by means of the OK interpolation algorithm. A single interpolation pass was carried out using distances derived from the directional variogram results. A listing of the search strategies and





estimation parameters used to estimate the metal grades for the Aroeira tailings mineralization is presented in Table 11-37.

Table 11-37: Search Parameters and Estimation Strategies, Aroeira Tailings
Nexa Resources S.A. - Vazante Polymetallic Operations

Item	Zinc	Lead	Silver
Interpolation method	OK	OK	OK
Search volume method	Ellipsoid	Ellipsoid	Ellipsoid
Length of axis 1 (m)	160	160	160
Length of axis 2 (m)	200	200	200
Length of axis 3 (m)	10	10	10
First rotation angle	0	0	0
Second rotation angle	0	0	0
Third rotation angle	0	0	0
First rotation axis (1=X, 2=Y, 3=Z)	3	3	3
Second rotation axis (1=X, 2=Y, 3=Z)	1	1	1
Third rotation axis (1=X, 2=Y, 3=Z)	2	2	2
Octant Definition Method	None	None	None
Min. number of samples	1	1	1
Max. number of samples	40	40	40
Maximum multiplying factor	3	3	3

11.4.11Block Model Validation

Block model validation exercises included several validation techniques that included examination of the global mean grades, preparation of swath plots, Q-Q plots, scatter plots, histogram comparison, and visual validation.

11.4.11.1Global Estimate

Block model validation exercises consisted of visually comparing the volume of the coded blocks in the block model against the volume report of the respective wireframe models as a high level check that the block model has been correctly coded for each of the wireframes. No issues were noted.

A comparison of the average grades of the informing capped, declustered composite samples against the average estimated block grades was carried out (Table 11-38).

Table 11-38: Comparison of Composite Sample Grades with Estimated Re-Blocked Model Grades, Aroeira Tailings
Nexa Resources S.A. - Vazante Polymetallic Operations

Item	Zinc (% Zn)	Lead (% Pb)	Silver (g/t Ag)
Composite Mean	4.24	0.26	8.2
Block Model Average	3.81	0.24	7.4
Difference (Bm-Comp)	-0.43	-0.02	-0.8
% Difference (vs Comp)	-10%	-8%	-10%





Review of the results shows that the estimated zinc, lead, and silver grades are in reasonable agreement with the informing samples.

11.4.11.2Swath Plots

Nexa conducted an evaluation of the spatial accuracy of the estimated grades by constructing a series of swath plots that compared the average composite grades to the average estimated block model grades in plan, section, and longitudinal orientations. A sample swath plot for the zinc grades is presented in Figure 11-62. Review of the swath plot shows a reasonable agreement between the estimated grades and their respective informing composite samples.

11.4.11.3Quantile-Quantile Plots

The accuracy of the distribution of the zinc grades between the informing composite samples and the estimated block grades was examined by construction of Q-Q plots using the GSLIB software package (Figure 11-63). Very good agreement is observed in the distribution between the estimated zinc grades and the corresponding informing samples for the lower portion of the grade range up to approximately 5.5% Zn. A bias in favour of the estimated block grades (i.e. block grades are over-estimated) is observed above approximately 5.5% Zn. Review of the global mean values shows that this bias has not affected the overall average zinc grade.





Figure 11-62: Swath Plot for Zinc, Aroeira Tailings





Source: Nexa

Figure 11-63: Quantile-Quantile Plot of the Zinc Grades, Aroeira Tailings

11.4.11.4Scatter Plots

The accuracy of the distribution of the zinc grades between the informing composite samples and the estimated block grades was also examined by construction of a simple scatter plot using the GSLIB software package (Figure 11-64). The results show that a good agreement is generally present between the estimated zinc grades and their corresponding informing samples.





Source: Nexa

Figure 11-64: Scatter Plot of the Zinc Grades, Aroeira Tailings

11.4.11.5Histogram Comparison

The accuracy of the distribution of the zinc grades between the informing composite samples and the estimated block grades was also examined by construction of normal scores histograms and the results charted using MS Excel (Figure 11-65). Good agreement is observed in the grade distributions of the estimated zinc grades and their corresponding informing samples.

In SLR's opinion, the validation performed by Nexa and SLR are typical industry standard validation techniques and in general, the results presented suggest that the block model has been completed to a high standard, in line with industry best practices.





Source: Nexa

Figure 11-65: Normal Scores Plot of the Zinc Grades, Aroeira Tailings

11.4.12Mineral Resource Classification

Definitions for Mineral Resource categories used in this Technical Report Summary are those defined by SEC in S-K 1300. Mineral Resources are classified into Measured, Indicated, and Inferred categories.

All mineralized material within the mineralized wireframe was classified into the Inferred Mineral Resource category.

11.4.13Net Smelter Return Cut-Off Value Parameters

Nexa has been re-processing tailings from the Aroeira tailings storage area on an intermittent basis since 2018. This has been achieved by excavation of the tailings in one metre lifts using conventional hydraulic excavators which load the tailings into 15 t haulage trucks (Figure 11-66). The programs have been carried out during the dry season when the tailings are able to support the weight of the equipment. The tailings have been transported to the processing plant where they are added to the plant feed at the blending pads.

The conceptual operational scenario that is envisioned in relation to the Mineral Resource estimates of the Aroeira tailings mineralization is to continue excavation of the mineralized material by means of open cut mining methods, with the mineralized material being processed using the existing plant facilities. The excavation activities could continue until the original topographic surface is encountered.

An NSR cut-off value was determined using the Mineral Resource metal prices, metal recoveries, transport, treatment, and refining costs, as well as mine operating cost. Metal prices used for Mineral Resources are based on consensus, long term forecasts from banks, financial institutions, and other sources. All domestic costs were converted to an equivalent US dollar basis using an average long term exchange rate of R\$4.84/US\$.

The cut-off value used for the Resource estimate is based on an NSR value, in units of US\$/t, which can be directly compared to operating unit costs. The NSR formula is:



Source: Nexa

Figure 11-66: Excavation of the Aroeira Tailings

Cost information and NSR parameters used to code the block model are summarized in Table 11-39.





Table 11-39: Block Model NSR Data- Aroeira Tailings
Nexa Resources S.A. - Vazante Polymetallic Operations

Item	Units	Value
Metallurgical Recovery		
Zn	%	variable
Pb	%	variable
Ag	%	0.00
Metal Payability		
Zn Concentrate Payable		
Zn	%	94.4
Pb Concentrate Payable		95.0
Pb	Min Payable/Deduction	95%/3%
Ag	Min Payable/Deduction	95%/50.0 g/t
Metal Prices		
Zn	US\$/lb	1.30
Pb	US\$/lb	1.02
Ag	US\$/oz	19.38
Transport Charges		
Zn Concentrate	US\$/t conc.	16.60
Pb Concentrate	US\$/t conc.	278.72
Treatment Charges		
Zn Concentrate	US\$/t conc.	0
Pb Concentrate	US\$/t conc.	142.57
Refining Charges		
Ag in Pb Concentrate	US\$/oz	1.00
Integrated Zn (processed at Três Marias)		
Premium	US\$/t	286.31
Conversion Cost	US\$/t	473.95
Operating Costs		
Mining	US\$/t proc.	0.60
Processing	US\$/t proc.	14.57
G&A	US\$/t proc.	5.45
Total	US\$/t proc.	20.62

NSR calculations use a model head grade-recovery relationship for each metal, based on recent operating performance. The head grade and recovery curves are presented in Figure 11-67 and Figure 11-68. NSR factors are therefore variable by head grade, with average NSR factors summarized in Table 11-40. The average NSR factors are calculated using the LOM revenue contribution from each metal net of off-site costs and factors, divided by the reserve grade for



that metal, and are indicative of the relative contribution of each metal unit to the economics of the mine. For most metals, a variable recovery (as a function of head grade) was used, and therefore the average NSR factors should not be applied to head grades without considering the head grade versus recovery relationship.

Source: Nexa

Figure 11-67: Zinc Grade-Recovery Curve for the Aroeira Tailings

Nexa Resources S.A. | Vazante Polymetallic Operations, SLR Project No: 233.03245.R0000

Figure 11-68: Lead Grade-Recovery Curve for the Aroeira Tailings

Table 11-40: Average NSR Factors for the Aroeira Tailings
Nexa Resources S.A. - Vazante Polymetallic Operations

Item	Units	Value
Zn	US\$/%	18.75
Pb	US\$/%	1.39
Ag	US\$/oz	6.88

Metal prices are based on Nexa’s projections. Nexa’s long term price model uses multiple variables including supply (mine and refined), demand, cost drivers, capital cost, and other key elements. The long term prices derived are in line with the consensus forecasts from banks and independent institutions.

11.4.14Mineral Resource Reporting

Mineral Resources are prepared in accordance with the definitions for Mineral Resources in S-K 1300, which are consistent with CIM (2014) definitions.

The Mineral Resources are exclusive of Mineral Reserves. The Mineral Resources comprise material with an NSR value of greater than US\$20.62/t which lies above the original topographic surface. As the original topographic surface represents a stable slope, SLR is of the opinion that this is sufficient to satisfy the “Reasonable Prospects” requirement of S-K 1300. The Mineral Resources for the Aroeira tailings mineralization are presented in Table 11-41. No previous Mineral Resources have been disclosed by Nexa in respect to the Aroeira tailings mineralization.

In SLR’s opinion, the assumptions, parameters, and methodology used for the Aroeira tailings Mineral Resource estimates are appropriate for the style of mineralization and anticipated mining methods.



The SLR QP is of the opinion that, with consideration of the recommendations summarized in Section 1 and Section 23, any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.

Table 11-41: Mineral Resources for the Aroeira Tailings as of December 31, 2020
Nexa Resources S.A. - Vazante Polymetallic Operations

Category	Tonnes (000 t)	Grade			Contained Metal		
		(% Zn)	(% Pb)	(g/t Ag)	(000 t Zn)	(000 t Pb)	(000 oz Ag)
Measured	0	0	0	0	0	0	0
Indicated	0	0	0	0	0	0	0
Subtotal, M&I	0	0	0	0	0	0	0
Inferred	3,939	4.06	0.25	7.8	160	9.9	995

Notes:

1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources which are consistent with CIM (2014) definitions.
2. Mineral Resources are reported on a 100% Nexa attributable ownership basis.
3. Mineral Resources are estimated at a NSR cut-off value of US\$20.62/t.
4. Mineral Resources are estimated using average long term metal prices of Zn: US\$2,869.14/t (US\$1.30/lb), Pb: US\$2,249.40/t (US\$1.02/lb), and Ag: US\$19.38/oz.
5. Metallurgical recoveries are accounted for in the NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at the LOM average tailings grades are 75% for Zn, and 26% for Pb. An average long term Brazilian Real (R\$)/US\$ exchange rate of 4.84 was used.
6. The average bulk density is 1.71 t/m³.
7. Mineral Resources are exclusive of Mineral Reserves.
8. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
9. Mineral Resources are reported for all material with grades above the nominated NSR cut-off values and above the original topographic surface.
10. Numbers may not add due to rounding.

11.4.15Risks and Uncertainties to Mineral Resources

Based on SLR’s review of the tailings Mineral Resource estimate, the following key risks have been identified:

- Due to the variability inherent to the tailings mineralization, the presence, location, size, shape, and grade of the actual mineralization between the existing sample points may differ from the current interpretation. This risk item can be addressed by completion of additional drilling and sampling programs.
- Due to the natural variability in the dry bulk density of the mineralized material, the local density for any portion of the Mineral Resources may vary from the estimated value, resulting in either an increase or decrease in the tonnage estimate at the local scale. This risk item can be improved with increased density of drill hole data.
- Changes in the metallurgical recoveries from the estimated values used in preparation of the Mineral Resource statement can impact on the amount of metal recovered at time of production. This risk item can be improved by completion of additional metallurgical test work.
- Due to variations in the global supply chain, the actual metal prices realized at the time of production may differ from the long term metal prices that were used in the preparation of the Mineral Resource statements. Lower zinc metal prices realized at the time of production may result in a decrease in Mineral Resources. In SLR’s opinion the Mineral Resources are not sensitive to variations in the prices of silver or lead from those used in the current Mineral Resource statement.
- The cut-off grade (or value) used in preparation of the current Mineral Resource statement can be affected by variations in the Brazilian Real and United States dollar exchange rate. A strengthening of the Brazilian Real versus the United States dollar may result in an increase in the cut-off grade (or value), with a corresponding decrease in the Mineral Resources.





12.0 MINERAL RESERVE ESTIMATES

12.1 Summary

The Mineral Reserves estimate for the Vazante Operation as at December 31, 2020 is presented in Table 12-1.

SLR is of the opinion that the Mineral Reserves have been prepared in an appropriate manner consistent with good engineering practices and completed by competent professional personnel.

Table 12-1: Summary of Mineral Reserves as of December 31, 2020
Nexa Resources S.A. - Vazante Polymetallic Operations

Deposit/Category	Tonnes (000 t)	Grade (% Zn)	Grade (% Pb)	Grade (g/t Ag)	Contained Metal		
					(000 t Zn)	(000 t Pb)	(000 oz Ag)
Lumiadeira							
Proven	3,410	8.93	0.22	20.78	304.5	7.6	2,278
Probable	3,260	8.86	0.22	18.44	289.0	7.2	1,933
Proven & Probable	6,670	8.90	0.22	19.64	593.5	14.8	4,211
Sucuri							
Proven	3,408	8.41	0.26	13.74	286.8	9.0	1,505
Probable	1,225	7.17	0.26	11.40	87.9	3.2	449
Proven & Probable	4,633	8.09	0.26	13.12	374.7	12.3	1,954
Extremo Norte							
Proven	1,621	7.25	0.24	6.57	117.5	4.0	342
Probable	3,760	9.34	0.18	7.11	351.0	6.9	860
Proven & Probable	5,381	8.71	0.20	6.95	468.6	10.9	1,202
Total							
Proven	8,439	8.40	0.24	15.20	708.8	20.6	4,125
Probable	8,245	8.83	0.21	12.23	727.9	17.4	3,241
Proven & Probable	16,684	8.61	0.23	13.73	1,436.7	38.0	7,367

- Notes:
1. The definitions for Mineral Reserves in S-K 1300 were followed for Mineral Reserves which are consistent with CIM (2014) definitions.
 2. The Mineral Reserve estimate is reported on a 100% Nexa attributable ownership basis.
 3. Mineral Reserves are estimated at a cut-off NSR value of US\$47.49/t processed.
 4. Mineral Reserves are estimated using average LOM metal prices of US\$2,494.90/t Zn, US\$1,956.00/t Pb and US\$16.85/oz Ag.
 5. Metallurgical recoveries are accounted for in the NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at the LOM average head grades are 83.6% for Zn, 22.3% for Pb, and 42.0% for Ag. An average A minimum mining width of 4.0 m was used.
 6. Bulk density is 3.1 t/m³.
 7. Numbers may not add due to rounding.





Nexa reviewed supply and demand projections for zinc, lead, and silver, as well as consensus long term (10 year) metal price forecasts. SLR verified that Nexa’s selected metal prices for estimating Mineral Reserves are in line with independent forecasts from banks and other lenders.

The SLR QP is not aware of any risk factors associated with or changes to any aspect of the modifying factors such as mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate.

12.1.1 Mineral Reserve Process

Mineral Reserves were estimated by flagging mined-out stope surveys through September 2020 and planned mining to December 31, 2020, as zero-values in the block model. After year end, SLR verified the estimate by reviewing actual mining results for the short period of projected mining. Deviations from plan, amounting to approximately 1% of total Mineral Reserves tonnage, were caused by 2020 infill drilling and mining of some areas classified as Inferred at the time of the estimate. SLR considers these deviations to be typical of ongoing mining operations, and not significant or material to the Mineral Reserves estimate.

The Mineral Reserve estimation process commences with the generation of cross sections through the deposit. Sections are generally spaced at 70 m along strike which is consistent with the planned stope dimensions.

The NSR calculation is prepared in a MS Excel spreadsheet to calculate the NSR for a given set of metal grades. The NSR calculation is applied to the resource block model, with stopes then evaluated to determine if the stope value exceeds the cut-off grade. This is followed by the completion of stope and development design. Mineral Reserves are depleted to the start date and the production schedule is then completed using the Deswik scheduling software. Dilution and extraction values are applied in the scheduling software.

12.2 Dilution

Dilution at the Vazante Operation is challenging to estimate and accurately predict due to the varying mineralization geometry. The current dilution factors used are shown in Table 12-2.

Table 12-2: Mine Dilution
Nexa Resources S.A. - Vazante Polymetallic Operations

Type	Method	Long Term	Source
Operational Dilution	SLS (m) Dip<60 deg	0.25m (FW) / 0.75m (HW)	Historical
SLS (m) 60<Dip<80 deg		0.5m(HW)	Historical
SLS (m) Dip>80 deg		0 m	Historical
CAF (%)		12%	Historical
Planned Dilution	CAF (%)	Variable	Design
SLS (%)		Variable	Design

SLR notes that the planned dilution for SLS uses a new methodology which assumes an estimate of the equivalent length of slough (ELOS, m) depending on the dip of the stope, ranging from zero metres to 0.75 m in the hanging wall and zero metres to 0.25 m in the footwall. SLR is of the opinion that the dilution factors indicated in Table 12-2 appear to be on the low side, as the reported planned dilution for 2020 YE was 26.1% and the operational dilution was 19.4%, with the total dilution for 2020 totalling approximately 45.5%. For comparison, Table 12-3 below shows the 2020 Mining Quality Control program outlining dilution and recovery results for the year.



Table 12-3: Mining Quality Control 2020
Nexa Resources S.A. - Vazante Polymetallic Operations

Month	Planned Dilution (%)	Operational Dilution (%)	Mining Recovery (%)
January	35.5	15.5	78.8
February	21.3	23.7	96.9
March	15.6	20.6	97.9
April	17.3	21.2	94
May	21.1	21.8	88.6
June	24.7	22.5	81.8
July	27.1	20.3	85.5
August	28	12.8	76.9
September	30.9	20	86.5
October	28.8	20.8	94.2
November	36.7	15.4	84
December	26.7	17.7	86.1
Total	26.1	19.4	87.6

SLR has reviewed the impacts of changes to the dilution estimate. While increasing dilution could render some Mineral Reserves below cut-off grade the proportion is relatively low and overall, the Mineral Reserves are relatively insensitive to dilution fluctuations.

In SLR's opinion the high dilution is caused in part by the current cable bolting procedure, whereby bolts are installed from the undercut level and fanned into the hanging wall of the stope. SLR recommends improving the cable bolt coverage of the stope by drilling the cable bolt holes from a hanging wall access, where the cost can be justified. Additionally, SLR also recommends assessing the production drilling design to reduce the potential for dilution.

12.3 Mining Extraction

Mining extraction factors for the Vazante Operation are presented in Table 12-4. While Nexa refers to this as mining recovery, SLR's preference is to refer to this as mining extraction to avoid possible confusion between mining and milling recovery.

Table 12-4: Mining Extraction Factors
Nexa Resources S.A. - Vazante Polymetallic Operations

Method	Long Term	Source	Short Term	Source
Island Pillar	50%	Historical	50%	Historical
SLS (VRM)	98%	Historical		
SLS (OS)	83%	Historical		
Rib Pillar	60%	Historical	60%	Historical
CAF	98%	Benchmark	98%	Benchmark
Sill Pillar	35%	Design		



Mineral Reserve tonnage and metal content are affected in direct proportion to variations in extraction.

SLR is of the opinion that the mining extraction factors are reasonable. SLR notes that island pillar refers to pillars that are left at the midpoint of a 60 m long stope whereas the rib pillars are located on the ends of the stope block.

12.4 Geotechnical and Hydrological Studies

Multiple geotechnical and hydrological studies and analysis have been performed to assist in the mine planning process for the Vazante Operation.

12.4.1 Geotechnical

The methodology for stope design including sublevel intervals, pillar spacing and sizes, and ground support requirements are based on empirical methods. Mine geotechnical personnel collect and record important data that is used in empirical analysis for the design process. The Rock Mass Rating (RMR) is determined using six parameters including:

- A1, uniaxial strength of the intact rock.
- A2, rock quality designation (RQD).
- A3, spacing of discontinuities.
- A4, condition of discontinuities.
- A5, ground water conditions.
- B, orientation of discontinuities.

The RMR value is determined by the following equation: $RMR = A1 + A2 + A3 + A4 + A5 + B$, and the Modified or Adjusted RMR' is estimated by applying the factor for the dip of the structure as follows.

$$RMR' = RMR(1 - 0.4 \cos \theta)$$

Where:

θ is the angle of the hanging wall contact or dip of the structure.

Values of the various factors are taken from published tables of data developed over time by various professionals in the field of rock mechanics and used in empirical analysis. For the Vazante Operation rock masses an average RMR value of 47 was estimated and using an average dip of 61° an RMR' of approximately 40 was determined. These values can be determined for each stope in question to address the varying conditions throughout the underground mine.

The Rock Mass Quality Index (Q) was assessed using the parameters summarized in Table 12-5. These values represent the current values used at the Vazante Operation.

Table 12-5: Rock Mass Quality
Nexa Resources S.A. - Vazante Polymetallic Operations

Value	Dip	RQD	Jn	Jr	Ja	Q'
High	89	100	15	1	3	3.33
Low	28	13	15	1	2	0.43
Average	61	75	15	1	2	2.48

The factors Jn, Jr and Ja refer to joint number, joint roughness, and joint alteration, respectively. These factors allow for the calculation of the Modified Rock Mass Quality Index (Q') based on the following formula:

$$Q' = RQD / Jn \times Jr / Ja$$





The value of Q' can then be used to evaluate the Stability Number (N') which enables plotting of the value on a stability graph against the hydraulic radius (Hr), area of the opening divided by the perimeter, of the stope. Stability graphs have been developed over time based on case histories and provide a guide as to whether the opening is in a stable zone, transition zone, or caving zone. These graphs provide guidance in regard to the recommended support to stabilize the opening and control sloughing in order to control the amount of dilution entering the stope excavation.

Geotechnical data is also used to determine the factors for N' as shown in Table 12-6.

Table 12-6: Modified Stability Number
Nexa Resources S.A. - Vazante Polymetallic Operations

Value	Factor A	Factor B	Factor C	N'	Hr
High	1.0	0.3	7.9	7.4	12.5
Low	0.9	0.3	2.0	0.8	1.3
Average	1.0	0.3	5.1	3.8	5.6

N' is determine using the following formula.

$$N' = Q' \times A \times B \times C$$

Where:

A= is a measure of the ratio of intact rock strength to induced stress.

B= is a measure of the relative orientation of dominant jointing with respect to the excavation surface.

C= is a measure of the influence of gravity on the stability of the face being considered.

A range of values of each of these factors has been developed by various experts and can be used by operating mines in assessing their proper conditions.

The rock mass classification for the Vazante Operation is presented in Table 12-7.

Table 12-7: Rock Mass Classification
Nexa Resources S.A. - Vazante Polymetallic Operations

Class	Degree Alteration	Degree Fracturing	Rock Quality	Structural Pattern	Lithology	Presence of Cracks	Fragmentation of Blocks	Recovery (%)	RQD (%)
II-A	A2	F2-F3	V. Good	Slab	Dolomites	No	m ³	>95%	>60
II-B	A2	F2-F3	V. Good	Wedge	Breccia	No	m ³	>95%	>60
III-A	A2-A3	F3	V. Good	Slab	Dolomites	No	dm ³ to m ³	90% - 95%	50 to 75
III-B	A2-A3	F3	V. Good	Wedge	Breccia	No	dm ³ to m ³	90% - 95%	50 to 75
IV-A	A3	F3-F4	Good/Avg.	NA	NA	cm to dm	cm ³ to dm ³	>90%	25 to 50
IV-B	A3-A4	F3-F4	Avg./Poor	NA	NA	cm to dm	cm ³ to dm ³	75% - 95%	25 to 50
V	A3-A4	F4	V. Poor	NA	NA	cm to dm	cm ³ to dm ³	50% - 75%	<25
VI	A2	F4-F5	V. Poor	Slab	NA	No	cm ³ to dm ³	>95%	<25
VII	A4	F4-F5	V. Poor	Filito	NA	m	cm ³ to dm ³	<50%	<25
Pillars									

Independent assessment





Figure 12-1 indicates the support chart used to determine the level of support for the heading in question. The example shown is for breccia with a heading dimension of 4.5m x 5.0 m and the coloured dots indicate the minimum (red), average (yellow) and maximum (green) Q values.



Figure 12-1: Empirical Support Chart

Ground support at the Vazante Operation includes the following, depending on the condition being addressed.

- Rock bolts, rebar, swellex, split -set bolts of varying lengths up to two metres.
- Welded wire mesh,
- Cable bolts that are grouted in place (can be tensioned).
- Shotcrete (including fibre reinforced) sprayed at various thickness to obtain the required strength.

Due to the average dip of the Vazante veins, cable bolting is a prominent support method used and efforts are ongoing to improve the cable bolt pattern designs to help reduce the amount of dilution from the hanging walls of the stopes.

An example of the RMR' and N' graphs is shown in Figure 12-2 and Figure 12-3.

provides an estimate of the ELOS, on the stope hanging wall, using the adjusted RMR' plotted against the stope Hr. Figure 12-2 indicates the location of the low, average, and high N' and Hr values with respect to cable bolting case histories showing the range for the stable, transition, and caving zones experienced in hard rock mines. These curves reflect the need for good support of the stope hanging walls to help control the amount of slough created. N' indicates some case histories of cable bolting providing stability, particularly at the average Hr value at the Vazante Operation.





Figure 12-2: ELOS Graph for Vazante Mine





Figure 12-3: Stope Stability Graph

Pillars are also used to control stope dilution. These include the use of sill pillars between mining sublevels, island pillars located at the centre of stopes, and rib pillars positioned at the extremities of the stopes to reduce the potential for excess sloughing from the hanging wall contact and control dilution from adjacent filled stopes. Efforts are being made by Nexa personnel to optimize the design and positioning of the pillars to maximize economic returns. The ELOS is currently assessed by taking measurements using a scanning device such as a CMS in order to enable reconciliation of actual to design values. CMS coverage is currently completed on a monthly basis by geotechnical staff, however, the company has not been able to measure every stope. SLR notes that Nexa personnel are working to maximize the measurements and supports these efforts.





The Vazante Operation has a Ground Control Management Plan which details the support mechanisms for the various ground classifications, implementation strategy, and verification through QA/QC. Instrumentation is used to monitor critical excavation areas and critical analysis is carried out on a regular basis. Control of ground vibrations through rigorous blasting design follows industry best practices.

In SLR's opinion the geotechnical data collection and analysis, and ground control designs for the Vazante Operation are adequately addressed by Nexa personnel.

12.4.2 Hydrology

Nexa uses a FEFLOW ground water model, which was last updated in 2019, as its primary water management tool at the Vazante Operation. Given the extreme dewatering that is required to permit ongoing mining hydrologic monitoring is considered a critical element of operations. Continued calibration of flows is important to predict, plan, and install required pumping capacities for the Vazante Operation. The average dewatering rate has been estimated at an average of 13,000 m³/h to 15,000m³/h.

The capacity of the pumping stations at Vazante include the following:

- Vazante Mine
 - o 297 Level Station 19,500m³/h
 - o 140 Level Station 10,000m³/h and Phase 2 up to 20,000m³/h
- Extremo Norte
 - o 522 Level Station 2,000m³/h
 - o 347 Level Station 1,000m³/h (planned for 2020)
 - o 185 Level Station 1,000m³/h (planned for 2026)

The frequency of dolines/sinkholes at Vazante and Extremo Norte mines has been well documented over time and is discussed in further detail in Section 13.4.4 Dolines and Sinkholes of this Technical Report Summary.

SLR notes extreme rainfall events and the associated potential temporary flooding of the Santa Catarina River could present a major risk to the underground mining operations.

12.5 Cut-Off Value

A NSR cut-off value is determined using the Mineral Reserve metal prices, metal recoveries, concentrate transport, treatment, and refining costs as well as mine operating costs. The metal prices used for the for the Mineral Reserves are based on consensus, long term forecasts from banks, financial and other sources.

The cut-off value used to calculate Mineral Reserves is based on an NSR value (US\$/t processed), which can be directly compared to the mine operating costs. The NSR formula is:



The cut-off costs and NSR parameters are summarized in Table 12-8. The breakeven NSR cut-off value was estimated to be \$47.49/t processed, which Nexa has indicated is equivalent to a 3.03% Zn cut-off grade excluding any silver or lead credits. SLR considers this appropriate as this includes the contribution of all metals. An incremental cut-off value of \$34.55/t is used for certain stopes where the cost of the development to access the ore has been paid for by adjacent mined Mineral Reserves.





Table 12-8: NSR Data
Nexa Resources S.A. - Vazante Polymetallic Operations

Item	Units	Value
Metallurgical Recovery		
Zn	%	83.6
Pb	%	22.3
Cu	%	NA
Ag	%	42.0
Zn Concentrate Payable	%	85.0
Pb Concentrate Payable	%	95.0
Cu Concentrate Payable	%	97.0
Metal Prices		
Zn	US\$/t	2,494.30
Pb	US\$/t	1,956.00
Cu	US\$/t	6,457.90
Ag	US\$/oz	16.85
Transport Charges		
Zn Concentrate	US\$/t conc.	Integrated
Pb Concentrate	US\$/t conc.	278.72
Cu Concentrate	US\$/t conc.	NA
Treatment Charges		
Zn Concentrate	US\$/t conc.	0
Pb Concentrate	US\$/t conc.	142.57
Cu +RC Concentrate	US\$/t conc.	NA
Refining Charges		
Cu Concentrate	US\$/lb	
Ag in Cu Concentrate	US\$/oz	NA
Ag in Pb Concentrate	US\$/oz	1.00
Integrated Zn		
Premium	US\$/t	286.31
Conversion Cost	US\$/t	473.95
Operating Costs		
Mining	US\$/t proc.	27.47
Processing + Maintenance	US\$/t proc.	14.57
General and Administration (G&A)	US\$/t proc.	5.45
Total	US\$/t proc.	47.49





SLR notes that the metallurgical recoveries presented in Table 12-8 are averages, however, the NSR calculations use a grade-recovery relationship for each metal based on recent operating performance. Therefore, the NSR factors are variable by head grade, with average NSR factors summarized in Table 12-9. The average NSR factors are calculated using the LOM revenue contribution from each metal net of off-site costs and factors, divided by the reserve grade for that metal, and are indicative of the relative contribution of each metal unit to the economics of the mine. For most metals, a variable recovery (as a function of head grade) was used, and therefore the average NSR factors should not be applied to head grades without considering the head grade versus recovery relationship.

Table 12-9: Average NSR Factors
Nexa Resources S.A. - Vazante Polymetallic Operations

Metal	Unit	Value
Zn	US\$/%	17.32
Pb	US\$/%	0.08
Cu	US\$/%	N/A
Ag	US\$/g	0.20

SLR is of the opinion that, except as noted, the parameters and calculations used in the NSR calculation are appropriate. SLR notes that the use of an NSR cut-off grade in what is essentially a single product mine (98% revenue from zinc) is not completely necessary. Vazante Operation geologists may benefit from having the cut-off grade expressed as percent zinc as grade control at the Vazante Operation is predominantly based on visual grade estimation by Vazante Operation geologists.

12.6 Reconciliation

Ore recovery is currently assessed by taking measurements using a scanning device such as a CMS in order to enable reconciliation of actual to design values. CMS coverage is currently completed on a monthly basis by geotechnical staff, however, Nexa has not been able to measure every stope. SLR notes that Nexa personnel are working to maximize the measurements and supports these efforts.

The reconciliation data available for the underground mine is shown in Table 12-10 for the period January 1, 2020 to December 31, 2020





Table 12-10: Reconciliation Data
Nexa Resources S.A. - Vazante Polymetallic Operations

Month	Tonnes (t)	Mined Grade (% Zn)	Contained Zinc (t)	Tonnes (t)	Reserve Model Grade (% Zn)	Contained Zinc (t)
Jan 2020	101,083	9.54	9,642	89,735	10.59	9,502
Feb 2020	101,123	11.28	11,407	87,395	12.25	10,705
Mar 2020	94,909	10.90	10,345	62,115	13.35	8,292
Apr 2020	99,061	9.51	9,425	76,276	10.82	8,253
May 2020	114,518	11.26	12,891	95,418	12.10	11,543
Jun 2020	75,566	9.93	7,504	73,931	11.29	8,347
Jul 2020	93,321	10.52	9,817	88,382	12.09	10,685
Aug 2020	93,645	9.19	8,603	105,720	10.03	10,601
Sep 2020	100,058	10.23	10,240	103,690	10.82	11,224
Oct 2020	107,789	10.69	11,528	95,951	11.88	11,401
Nov 2020	96,612	9.91	9,574	101,542	10.87	11,034
Dec 2020	98,529	12.12	11,945	94,829	13.70	12,991
2020 Total	1,176,214	10.45	122,920	1,074,984	11.59	124,579

The comparison of the recovered ore to the Mineral Reserve model (as a percentage) is shown in Table 12-11. Results suggest that actual dilution is higher than estimated, as noted above.

Table 12-11: Recovered Compared to Reserve Model
Nexa Resources S.A. - Vazante Polymetallic Operations

Month	Tonnes	Grade	Contained Zinc
Jan 2020	13%	-10%	1%
Feb 2020	16%	-8%	7%
Mar 2020	53%	-18%	25%
Apr 2020	30%	-12%	14%
May 2020	20%	-7%	12%
Jun 2020	2%	-12%	-10%
Jul 2020	6%	-13%	-8%
Aug 2020	-11%	-8%	-19%
Sep 2020	-4%	-5%	-9%
Oct 2020	12%	-10%	1%
Nov 2020	-5%	-9%	-13%
Dec 2020	4%	-12%	-8%
2020 Total	9%	-10%	-1%





SLR notes that while overall mined tonnage is 9% higher than planned, there is a lower grade tertiary lens of mineralization surrounding the higher grade ore that is being recovered in some of the overbreak areas.

SLR considers the efforts put into the record keeping and reconciliation to be of good quality and in accordance with good industry practice. SLR recommends that the reconciliation results and the stope performance analysis be used to evaluate stope designs to determine where improvements in mine planning would be most advantageous.



13.0 MINING METHODS

13.1 Mine Design

The Vazante Operation consists of two mechanized underground mines, the Vazante Mine and Extremo Norte Mine, currently operating at a rate of approximately 1.5 Mtpa. The mineralized zones dip between 45° and 70° and the mine extends over a strike length of five kilometres. With the addition of the North Extension, this will increase to approximately 10 km. The Vazante Mine currently extends over a vertical depth of 300 m from surface to the 326 level. The Vazante Mine is being deepened by 186 m to the planned 140 level. There are former open pits along portions of the strike of the Vazante deposit.

There are two access ramps to the Vazante Mine and one to the Extremo Norte Mine. Mine headings range from 5 m high by 4.5 m wide ore drives to 6 m high by 5 m wide main ramps. The average stope widths based on the Measured and Indicated Mineral Resources at 2019 YE are listed in Table 13-1. The thicknesses were examined in the lower, central, and upper portions of the Vazante Mine, with the overall averages shown for the Extremo Norte Mine area. The minimum mining width for Mineral Reserve estimation is stated as four metres. While the mineralization tends to become narrower at depth, the average thickness is between nine metres and ten metres. SLR does not consider the narrow ore widths to be a major issue with respect to the Mineral Reserve estimation, however, SLR recommends that Nexa consider employing smaller mine equipment, particularly load-haul-dump units (LHDs) and production drills in narrow areas if the economics can be justified. Figure 13-1 presents a longitudinal section of the thickness contours.

Table 13-1: Stope Average Widths (2019 YE)
Nexa Resources S.A. - Vazante Polymetallic Operations

Widths (m)	Vazante				Extremo Norte
	Vazante All	Lower (Below 225 m)	Central (225 m to 326 m)	Upper (Above 326 m)	All Areas
<4	0.2%	0.1%	0.0%	0.1%	0.0%
<5	8.4%	1.4%	6.1%	1.0%	5.2%
<6	14.3%	2.5%	10.3%	1.5%	8.5%
<7	19.8%	3.2%	14.6%	2.0%	11.3%
<8	24.2%	4.0%	17.8%	2.3%	14.0%
<9	28.6%	4.8%	21.2%	2.6%	15.7%
<10	32.6%	5.1%	24.6%	2.8%	17.9%
>10	68.1%	8.3%	54.8%	5.0%	31.9%



Figure 13-1: Mine Longitudinal Section Showing Resource Thickness Contours





The Vazante Operation is designed based upon mechanized longitudinal longhole stoping for areas with a dip in excess of 45°. Longhole stopes are developed with footwall access drives parallel to the orebody. Crosscuts are driven from the footwall drive and then the ore is developed along strike. Sublevels are typically 30 m apart though the distance varies depending on the orebody. Long holes are often a combination of downholes or VRM and uppers or sublevel longhole open stopes (SLOS). Both longhole methods employ a retreat sequence along strike. The SLOS stopes are not backfilled where the VRM stopes are backfilled.

SLR completed a compilation of the dips by taking vertical slices through each of the zones and tabulating the range of dips as indicated in Table 13-2.

Table 13-2: Range of Mineralization Dips
Nexa Resources S.A. - Vazante Polymetallic Operations

Zone	Strike Length (m)	Dip Range (°)	Dip Average (°)
Lumiadeira SW	875	38-50	45
Lumiadeira NE	1,620	45-90	62
Lumiaderia Total	2,495	38-90	55
Sucuri SW	2,880	38-77	54
Extremo Norte	1,100	46-70	61
Extremo Norte	680	37-44	41

The overall average dip on the mineralized zones is 54°. As indicated in Table 13-2, most of the mining can be effectively planned using bulk longhole methods.

Ore is mucked with 5 m³ (12.5 t) LHDs working manually when possible (brow full of muck) and on remote control for mucking in the stope (non-man entry conditions). Ore is loaded into 30 t articulated haul trucks at the stope and hauled to surface stockpiles located at the portal. Oversize material is placed aside in a separate stockpile and secondary breaking is carried out with mechanical rockbreakers.

Mechanized cut and fill mining is planned for the shallower dipping ore zones, though these areas are not yet reflected in the Mineral Reserves. The stopes will be accessed by a ramp and the ore will be mined using, four to five metre high, horizontal cuts drilled with a jumbo and the ore hauled to surface. After each lift, the void will be filled with waste rock fill and the subsequent cut will be started along the strike length of the stope.

13.2 Mining Method

The Vazante Operation is in production with ongoing operations and development. The projected mine life is expected to continue to the end of 2031.

The Vazante Mine extends over a five kilometre strike length with planned heading extensions to the Extremo Norte zone. Currently, the Extremo Norte Mine operates independently of the Vazante Mine, however, there are plans to connect the Vazante Mine workings to the Extremo Norte workings.

13.2.1 Longhole Stoping

Longhole mining methods are employed for the major portion of the total Mineral Reserves at the Vazante Operation for stopes with a dip in excess of 45°. Levels and haulage drifts are designed to run parallel to, and in the footwall of, the mining blocks. Levels to access longhole stopes are spaced at a vertical interval of approximately 30 m. Crosscuts from the footwall access are generally 70 m along strike.

Both up hole and downhole drilling is carried out. Sill pillars are left as required above an area drilled with up holes. These pillars can be recovered using downholes from the level above. Schematic longhole stope configurations are shown in Figure 13-2. The mining sequence for the VRM longhole stopes is indicated in Figure 13-3.





Sill pillars are left after every second level and are designed to be ten metres in height. There are plans for the recovery of part of these pillars. SLR recommends a review of increasing sill pillar recovery as a potential future opportunity.

Rib pillars ten metres wide are included along strike between every 60 m long stope section. These rib pillars are partially recovered at the completion of the stoping, with a planned recovery of six metres of the rib pillar. The rib pillars serve only to retain the rock fill in adjacent stopes.

Longhole drilling is carried out using Simba longhole drills on up holes and downholes. Drill holes are up to 10 cm in diameter, drilled on rings spaced 2.4 m apart, and with holes spaced two metres apart on each section. The Vazante Operation has four Simba production drills in the drilling fleet with productivities averaging 20 m/h. The fleet includes one in-the-hole (ITH) drill and three top hammer type longhole drills providing the stope drilling requirements. SLR understands that the hole locations are to a large extent dictated by the longhole drill and that the Simba carrier size can limit the drill collar location and the drill hole orientation. In SLR's opinion, long hole drill layouts should be subjected to review to minimize the potential damage to the hanging wall and to obtain the best fragmentation. In areas where the mineralization is four metres wide or less, it may be preferable to acquire a smaller longhole drilling unit that is better suited to working in narrow areas. A smaller sized LHD should also be considered to permit mining closer to the actual vein geometry, which will significantly improve ore recoveries.

SLR recommends that narrow vein equipment be assessed as soon as possible to have it readily available at the time narrower areas are encountered in the lower mine.

SLR recommends completing a trial test stope using a smaller drill unit in the upper section of the Vazante Mine to assess the efficacy and optimize the drilling layouts, as a prerequisite to eventual application of the method on a larger scale in the lower levels of the mine, when a larger portion of the mine production comes from this area.

SLR observed secondary breaking on surface during the 2018 site visit. SLR recommends that the stope drill patterns be reviewed with the intent of reducing the level of stope dilution through adjustment of the drill pattern. This may require drilling an additional hole on the hanging wall contact, between the current burden spacing. A reduced explosive charge per hole, using a lower density explosive, would aid to effectively trim the hanging wall contact thereby providing a much cleaner break. The reduced blast vibration impact (a lower peak particle velocity (ppv)) would lead to a lower degree of overbreak on the hanging wall and less dilution.





Figure 13-2: VRM and SLOS Longhole Stope Layouts





Figure 13-3: VRM Longhole Stope Sequence Schematic





13.2.2 Cut and Fill Stopping

Cut and fill mining will be used for a small portion of the Vazante Operation production and this will be mostly towards the latter years of the LOM plan. These areas have not been included in the current Mineral Reserves.

Dilution will be an issue in the narrow cut and fill stopes as the four metre minimum mining width will impact upon every lift taken. SLR recommends that a stope width review be carried out for the planned cut and fill stopes to determine whether the current equipment fleet matches the orebody dimensions.

SLR recommends evaluating the use of a “shanty back” configuration on the hanging wall side of the drift to reduce dilution.

A schematic view of cut and fill mining and the necessary ramp development is shown in Figure 13-4.





Figure 13-4: Cut and Fill Stopping Schematic





13.3 Life of Mine Plan

Table 13-3 summarizes the LOM reserve plan for the years 2021 through 2031, although SLR notes that the continued conversion of Mineral Resources to Mineral Reserves will likely extend the mine life. Metal production over the LOM includes 1.21 Mt Zn, 17,900 t Pb, and 3.1 Moz Ag. The net metal recoveries are on average 83.54% for zinc, 23.9% for lead, and 42.0% for silver in the lead concentrate.

Table 13-3: LOM Production
Nexa Resources S.A. - Vazante Polymetallic Operations

Year	Tonnes (000 t)	Grade			Recovery			Recovered Metal				
		(% Zn)	(% Pb)	(g/t Ag)	(% Zn)	(% Pb)	(% Ag)	Zn (000 t)	Zn Con (000 t)	Pb (000 t)	Pb Con (000 t)	Ag (000 oz)
2021	1,520	10.36	0.26	17.4	85.97	23.9	42.0	135	347	0.9	7.6	357
2022	1,520	9.83	0.29	16.2	85.29	25.5	42.0	128	327	1.1	8.3	332
2023	1,530	9.75	0.25	16.6	85.19	23.9	42.0	127	326	0.9	7.1	344
2024	1,536	9.77	0.22	14.6	85.21	23.8	42.0	128	328	0.8	6.4	303
2025	1,530	9.79	0.21	15.1	85.23	23.8	42.0	128	327	0.8	6.1	311
2026	1,536	9.75	0.27	15.6	85.19	24.4	42.0	128	327	1.0	7.7	323
2027	1,536	7.68	0.21	10.4	82.28	23.8	42.0	97	249	0.8	6.1	215
2028	1,540	7.66	0.20	13.1	82.25	23.8	42.0	97	249	0.7	5.7	272
2029	1,531	6.83	0.22	13.3	80.97	23.8	42.0	85	217	0.8	6.3	274
2030	1,513	6.90	0.21	11.1	81.08	23.8	42.0	85	217	0.8	6.1	227
2031	1,391	6.18	0.17	7.2	79.92	-	42.0	69	176	-	4.6	135
Total	16,684	8.61	0.23	13.74	83.89	23.9	42.0	1,205	3,090	9.2	71.8	3,094

The planned mine development over the LOM totals approximately 17.5 km per year from 2021 through 2026 followed by a ramp down and finally, ceasing by 2030. The production rate and head grades are presented in Figure 13-5 and the development profile over the LOM is presented in Figure 13-6. These figures also indicate the actual production and development rates from 2008 to 2019 followed by the LOM planned rates until the year 2031.





Figure 13-5: Mine Production Profile for LOM



Figure 13-6: Mine Development Profile for LOM





13.4 Infrastructure

The Vazante Operation underground mine infrastructure comprises electrical substations spaced at various levels to provide power distribution for the mine equipment. Underground dewatering infrastructure includes the main mine sumps with the mine dewatering system requiring approximately 16 MW, or over 50% of the total mine site power demand.

Equipment maintenance is carried out in surface maintenance facilities as underground maintenance facilities are not required at the present time.

The Vazante Operation employs the “Smartmine UG” system which helps control all underground operations by monitoring the fleet with on-board computers and by tracking the progress of all tasks. Monitoring is performed through a dispatching interface in near real time, using data communication infrastructure and positioning technology. Smartmine UG is intended to deliver advanced production management, process control, mine-face cycle management, and fleet key performance indicators (KPI) in a unique 3D environment.

Underground communications are provided through a leaky feeder system allowing for effective communications.

13.4.1 Mine Access

All mine access is via ramp declines with two at the Vazante Mine and one at the Extremo Norte Mine. The Extremo Norte and Vazante mines will eventually be connected for one continuous ten kilometre strike length. Two shafts exist primarily for dewatering access ways. Shaft number one is five metres in diameter providing access to the dewatering pumping stations and is equipped with a hoist and cage system to move men and materials. The second shaft extending down to the 140 m level provides access to the pumping station and emergency egress from the area.

13.4.2 Mine Deepening Project

The two phase Mine Deepening Project (MDP) at the Vazante Operation commenced with engineering in 2013 and start of mine development in early 2017. Phase I installation was completed in 2019, providing the current capacity of 10,000 m³/h from the 140 level pump station. The Phase II development is underway with the capacity increase to 15,000 m³/h to be completed in 2022.

The MDP is shown in the schematic diagram in Figure 13-7. The figure also shows the lateral extent of the mine including the Extremo Norte portion, which has pump stations with 2,000 m³/h pumping capacity on the 522 level and 1,000 m³/h pumping capacity on the 347 and 185 levels.



Figure 13-7: Mine Deepening Project Longitudinal Section





13.4.3 Mine Dewatering

Mine water is collected and directed to the drainage gallery on the 326 level. Water flows along the drainage gallery to the 30,000 m³ capacity sump located next to the pump station on the 297 level. The pump station consists of twelve centrifugal pumps operating in parallel with a total capacity of 16,000 m³/h, plus a secondary two-stage pumping station (PS300-PS500) with a total capacity of 3,500 m³/h. The two pumping stations combined have a total capacity of 19,500 m³/h. The permitted pumping limit for the Vazante Mine is 19,823 m³/h. The permitted pumping limit for the Extremo Norte Mine is 2,000 m³/h. The combination of the Vazante and Extremo Norte mine dewatering limits represent the permitted maximum pumping flow rates in the lowest level drainage gallery to the sump. The pump station has a shaft to surface access and the pump station can be isolated from the mine by a hydrostatic door in case the pumps are not operating. The contingency plan is to seal the pump station and allow the lower parts of the mine to flood. Mine water from the Vazante Mine is pumped to the tailings area and treated flow from the tailings area flows to the Santa Catarina River below the Aroeira TSF.

Dewatering at the Vazante Operation is a critical aspect of the mine operation as a high rate of dewatering is required to enable mining to be carried out in a safe and efficient manner on a continual basis. The FEFLOW groundwater model was reviewed in 2019 in a report by Water Services and Technologies Ltda. (WST), from Belo Horizonte, Brazil. The 2018 model predicted dewatering flow rates as presented in Figure 13-8 with the contribution from the various areas of the Vazante Operation.



Figure 13-8: Mine Dewatering Rate

Figure 13-9 presents the Vazante Mine rainfall and mine pumping rate over time from 1990 to 2020 with the most recent annual rate at approximately 12,500 m³/h, well within the installed pumping capacity of the Vazante Mine. The Extremo Norte Mine has a current pumping rate of approximately 300 m³/h, well above the installed capacity.





Figure 13-9: Historical Rain and Dewatering Rates

SLR also reviewed the dewatering rate as a function of the total cumulative mine development, taking the mine development as a measure of the volume to be dewatered, the results of which are shown in Figure 13-10.

The pumping rate from 2019 to 2020 increased by approximately 5%. As indicated in Figure 13-10, a projected 5% increase per year would achieve the 20,000 m³/h rate of pumping capacity by the year 2027. Figure 13-10 shows the planned development on a cumulative basis per year until 2039.

SLR recommends that a review of the dewatering capacity be completed on an ongoing basis as development advances and actual dewatering rates dictate, to ensure that, if required, additional capacity can be installed in a timely manner.





Figure 13-10: Cumulative Development versus Pumping Rate

Figure 13-11 presents the extent of the mine workings and the current and projected water table levels up to the year 2033. The WST report provided a simulation of the water table levels and potential impact on the town of Vazante located near the Vazante Operation. SLR recommends that the water table levels be monitored as planned to help foresee any potential issues and assess mitigation measures that may be required.

Nexa has installed water gauge stations, piezometer stations, and rain stations in various locations to collect monitoring data on a continuous basis.





Figure 13-11: Mine Longitudinal Section Showing Extent of Mine Workings and Water Table Levels





13.4.4 Dolines and Sinkholes

Nexa maintains a record of all dolines and sinkholes that occur on the Vazante Operation property. A document of Karst Risk Management Standards was developed and is used by Nexa personnel to assess and track potential risks from these occurrences. Support is also provided by external consultants for specialized advice for risk management such as development of doline/sinkhole risk maps.

The risks identified by Nexa include mine flooding by karst features, inflow from the Santa Catarina River due to overflow, intense rainfall events, and subsidence from doline/sinkhole formations. These are managed through operational procedures such as mapping of fractures and features in efforts to limit rapid water drawdown as the mine is advanced.

The sinkholes registered from 2006 to July 2020 are shown in Figure 13-12 and include new, reactivated, and old sinkholes. Since 2006, 616 new, 343 reactivated, and 492 old sinkholes have been registered, for a total of 1,451. A total of approximately 2,400 sinkholes have occurred since 2001 and their locations are shown in Figure 13-13. The occurrences of dolines/sinkholes are closely monitored, and mitigation measures are in place and being constantly reviewed by Nexa and specialized consultants.



Figure 13-12: Registered Sinkholes (January 2006 to July 2020)





Figure 13-13: Registered Sinkholes (2001 to 2020)





13.4.5 Backfilling

Backfilling at the Vazante Operation consists of loose waste rock fill at the current planned rate of approximately 10,000 t per month. Since there are not always empty stopes ready for backfill material, three stockpile areas are available on surface with a total capacity of approximately 4.6 million cubic metres (Mm³), as listed below:

- Bocaina - located at the ramp 07 portal, capacity 1.8 Mm³.
- Sucuri - located at the ramp 10 portal, capacity 1.8 Mm³.
- Extremo Norte - located at the ramp 01 portal, capacity 0.97 Mm³.

SLR is of the opinion that in certain cases, there could be value in considering the use of cemented rock fill (CRF) to enable mining of certain pillars where this is economical. A trade-off analysis would be required in each particular case.

13.4.6 Ventilation

The Vazante Operation ventilation system uses main exhaust fans to draw fresh air into the mine through the access ramps and exhausts via the main exhaust raises. The average air flow totals are indicated in Table 13-4. The mine ventilation system airflow is planned using the Vouma 3D ventilation design software.

Table 13-4: Mine Ventilation Air Flow
Nexa Resources S.A. - Vazante Polymetallic Operations

Vazante Main Mine				Extremo Norte	
Upcast	Flowrate (m³/s)	Downcast	Flowrate (m³/s)	Upcast	Flowrate (m³/s)
Lumiadeira 1	157	Ramp 10	187	Shaft	120
Lumiadeira 2	180	Ramp 07	164.2		
Sucuri 1	92.8	Ramp 01	2.5	Downcast	
Sucuri 2	122	Shaft 1	74.2	Ramp	120
Sucuri 3	270	Shaft 2	81.2		

The ventilation circuit needs to comply with Brazilian National Regulation NR 22, which is based on the greatest of the following criteria:

- Maximum number of equipment with diesel engines.
- Explosives consumption in the mine.
- Monthly production tonnage.
- Number of mine headings in production.

The ventilation circuit design includes consideration of the maximum air speed for different heading types, friction factors for headings, and estimates for losses due to leakage. The key driver for the ventilation requirement is the ventilation quantity required for the diesel equipment. Airflow requirements for diesel equipment are set based upon the engine horsepower. The LOM mine airflow for the Vazante and Extremo Norte mines are shown in Figure 13-14 and Figure 13-15, respectively.

The Vazante Operation is ventilated using exhaust fans on raises. There are four 2.4 m diameter raises and a three metre diameter raise at the Vazante Mine. The fresh air enters the mine via two five metre diameter air shafts, a 2.4 m diameter raise, and three access ramps.

In the Extremo Norte Mine area, there are two three metre diameter exhaust raises, a three metre diameter intake raise, and a single access ramp for fresh air intake.





Figure 13-14: Vazante LOM Airflow



Figure 13- 15: Extremo Norte LOM Airflow

The ventilation schematic diagram for the Vazante and Extremo Norte mines is presented in Figure 13-16.





Figure 13-16: Mine Ventilation Schematic Diagram

13.5 Mine Equipment

The Vazante Operation has a fleet of mobile equipment to enable development and production activities to be completed in an efficient manner while meeting all mine regulatory requirements for underground mining operations. Table 13-5 lists the major equipment required to sustain the mine production rate. There is also miscellaneous support equipment for various surface operations and other services required by the mine.

Table 13-5: Mine Equipment
Nexa Resources S.A. - Vazante Polymetallic Operations

Equipment	Supplier	Model	Units
Trucks	Volvo	A-30	15
LHD	Cat	R-1700G	8
Jumbo Drills	Epiroc	282	5
Prod. Drills	Epiroc	Simba	4
Bolter	Epiroc/Sandvik	235S/321 7C	4
Cable Bolter	Sandvik	D421	2
Shotcrete	Normet	6050 WPC	2
Scalers	BTI	DS20	7
Scissorlift	Normet/Dux	MF540	5
Transmixer	Normet	MF500	2
Grader	Cat.	120	2
Trucks Service	Mercedes/Ford	Misc.	15
Excavator	Cat / Volvo	416C/BL70	3
Raise Bore	Redpath		1

Equipment replacement and rebuilds over the mine life will be significant with approximately \$53.9 million in capital expenditures as some of the equipment is aging.

The availability and utilization factors for the major equipment is shown in Table 13-6. The mine equipment maintenance is carried out on surface in shops that are well equipped.

The light vehicles are generally four wheel drive diesel powered compact pickups. Many of the service and flat deck trucks are single axle Ford and Scania trucks.





Table 13-6: Equipment Statistics
Nexa Resources S.A. - Vazante Polymetallic Operations

Equipment	Availability (%)	Utilization (%)
Trucks	78	74
LHD	69	62
Jumbo Drills	65	40
Prod. Drills	62	50
Bolter	61	35
Cable Bolter	52	41
Shotcrete	48	20
Scalers	59	52
Scissorlift	76	43
Grader	77	64

The Vazante Operation uses a combination of Nexa employees and external contractors. Table 13-7 lists the personnel requirements for the operations.

Table 13-7: Personnel
Nexa Resources S.A. - Vazante Polymetallic Operations

Category	No. of Personnel
Mine	
Permanent Employees	620
Contractors	83
Plant	
Permanent employees	215
Contractors	89
General & Administrative	
Permanent employees	89
Contractors	192





13.5.1 Ore and Waste Handling

Ore is all mucked by LHDs and hauled in trucks to stockpiles located at the portals where the ore is sorted by grade. Ore is hauled from the stockpiles to the crushers by surface haul trucks. Oversize material is separated out and secondary breaking is carried out using a rock breaker unit on an excavator.

Trucks are weighed on scales that are located close to the main access ramps at both the Vazante and Extremo Norte mines.

Waste, from development, is either dumped into stope voids or hauled to surface.





14.0 PROCESSING AND RECOVERY METHODS

14.1 Summary

The Vazante Operation processing facilities have a nominal design processing capacity of approximately 4,400 tpd or 1.6 Mtpa at 96% utilization and produce approximately 350,000 tonnes per annum (tpa) to 370,000 tpa of zinc concentrate and approximately 4,000 tpa to 5,000 tpa of lead concentrate that contains small amounts of silver. They consist of two adjacent plants, Plant C and Plant W, that are interconnected at various points. The key unit process steps are presented in the block flow diagram in Figure 14-1. In 2020 the Vazante Operation processed 1.62 Mt at an averaged head grade of 10.4% Zn and 0.36% Pb. Zinc concentrate produced at the Vazante Operation is sent to Nexa's Trés Marias zinc smelter approximately 250 km from Vazante.

Processing at the Vazante Operation comprises conventional crushing, grinding, flotation, concentrate dewatering, and tailings disposal. The main differences between the two plants is that Plant W incorporates a sulphide flotation stage for the recovery of a lead-silver concentrate. Both plants include crushing, grinding, and zinc flotation. Combined Plant W and Plant C tailings are thickened and filtered prior to disposal in the Pilha Garrote DSTSF. Figure 14-2 presents a simplified flowsheet for the plants.

Plant C is an older plant with an approximate capacity of 47 tonnes per hour (tph) that was historically used for the treatment of calamine ore and was subsequently converted to treat willemite ore. Plant C processes approximately 25% of the total processed tonnage. Conversely, Plant W is a modern plant, commissioned in 2003, with a capacity of approximately 145 tph. Ground ore from both plants is combined and processed through an initial bulk sulphide flotation, and the tails from the sulphide flotation are split between the two willemite flotation circuits. The sulphide circuit produces a lead-silver sulphide concentrate that is elevated in zinc. Zinc production in the sulphide circuit accounts for < 1% of total zinc production. Zinc in the willemite concentrate provides the primary revenue, while lead, silver, and zinc recovered in the bulk sulphide concentrate provide a minor by-product credit. In 2012, the Plant W sulphide circuit was added, prior to this there was no means to recover a separate lead-silver sulphide concentrate, and these metals were discarded with the tailings.





Figure 14-1: Process Block Flow Diagram





Figure 14-2: Simplified Process Flow Sheet





14.2 Plant C

Run of mine (ROM) ore is crushed in a three-stage crushing circuit in closed circuit with screens to 98% passing 9.5 mm. ROM ore is dumped into a silo and fed to the primary jaw crusher, which discharges onto a primary double deck vibrating screen. The top deck has a 38 mm aperture screen, and the bottom deck is a 16 mm x 14 mm aperture screen. Material retained on the top deck reports to two secondary jaw crushers, while material retained on the bottom deck feeds the tertiary cone crusher. The product of both secondary jaw crushers is returned to the primary vibrating screen. The primary vibrating screen bottom deck undersize is combined with the tertiary crusher discharge, which then forms the overall product from the Plant C crushing plant. This crushed ore is stored in a covered conical pile of up to 4,000 t capacity.

Crushed ore is reclaimed by FEL and fed to the Plant C grinding circuit, which consists of a 2.4 m diameter x 11 m effective length ball mill in closed circuit with three hydrocyclones. The target grind size is approximately 88% passing 150 µm. Grinding circuit product is pumped to Plant W for sulphide flotation. Sulphide flotation tails are then split, and a portion returns to Plant C where they are pumped to a conditioning tank where a sodium sulphide activator, dispersant, and amine collector are added to prepare willemite for flotation. The conditioned slurry is then processed in the zinc rougher circuit, which consists of four 8.5 m³ forced air flotation cells. Rougher concentrate is processed in the Plant C zinc cleaner cells. Cleaner concentrate is combined with the Plant W rougher concentrate to form the final zinc concentrate, while cleaner tails report to the cleaner scavengers. Cleaner scavenger concentrate is either returned to the cleaner feed or reports to the final zinc concentrate. The rougher tail is directed to the zinc scavengers, which have four 8.5 m³ cells. The scavenger concentrate recirculates to the rougher feed. Scavenger tails are then combined with the Plant W rougher scavenger tails and pumped to the tailings thickener.

14.3 Plant W

ROM ore is crushed in a four-stage crushing circuit in closed circuit with screens to 98% passing 9.5 mm. Crushed ore is homogenized on a stockpile with a capacity of approximately 6,000 t by a stacker-reclaimer before being fed to the Plant W grinding circuit, which consists of a ball mill in closed circuit with a high frequency vibrating screen. The screen undersize is approximately 88% passing 150 µm (P₈₀ of approximately 125 µm) and is directed to two conditioning tanks in series prior to feeding the Plant W sulphide flotation circuit.

The sulphide (lead-silver) flotation circuit uses methyl isobutyl carbinol (MIBC) frother, sodium sulphide activator, and potassium amyl xanthate collector (PAX). The Plant W circuit includes lead roughing and scavenging using three and two 70.0 m³ FLSmidth tank cells, respectively. Scavenger concentrate is recycled to rougher feed, while lead scavenger tails are split and the larger portion reports to the Plant W zinc flotation circuit while the remainder reports to the Plant C zinc flotation circuit. Rougher concentrate is treated in the first cleaner stage, which consists of two 10.0 m³ FLSmidth tank cells. The first cleaner tail reports to the lead first cleaner-scavenger, with the lead first cleaner-scavenger concentrate returning to the lead first cleaner and lead first cleaner-scavenger tailings returning to lead rougher feed. The lead first cleaner is followed by a second cleaner stage, which consists of one 5.0 m³ FLSmidth tank cell in closed circuit with the first cleaner. There are two additional cleaning stages in closed circuit with each other, the third and fourth cleaners, which each consist on one 0.5 m³ FLSmidth tank cell. Third cleaner tailings report to a two-stage lead third cleaner-scavenger consisting of six 0.5 m³ FLSmidth tank cells. The first two cells produce a third cleaner-scavenger concentrate that returns to the third cleaner feed, while the last four cells recirculate their concentrate to the first two cells. Tailings from the third cleaner-scavenger return to the lead first cleaner. The fourth cleaner produces the final lead concentrate, which is dewatered using a pressure filter to produce a filter cake with approximately 10% moisture. Lead concentrate is loaded onto trucks for delivery to customers. The lead cleaner circuit also included a small lead regrind mill, however, this mill was decommissioned in 2016.

The Plant W zinc circuit recovers a willemite concentrate from the lead scavenger tailings, or the grinding circuit screen undersize during periods when the lead circuit is bypassed. The zinc flotation feed is conditioned with a sodium sulphide activator, dispersant, and amine collector in a single conditioning tank. The first stage of flotation is the zinc roughers, which consist of nine 14.2 m³ forced air flotation cells. Rougher concentrate combines with Plant C zinc rougher concentrate to form the final zinc concentrate. Rougher tailings are pumped to the zinc first scavenger circuit, which has five 14.2 m³ forced air flotation cells. The first scavenger concentrate is recirculated to the zinc rougher feed. The zinc first scavengers are followed by the zinc second scavengers, consisting of an additional four 14.2 m³ cells. Second scavenger concentrate reports to Plant C flotation feed, while zinc second scavenger tailings are pumped to the tailings thickener for dewatering and disposal together with the Plant C rougher scavenger tails.





14.4 Zinc Concentrate Dewatering

Zinc concentrates from Plant W and Plant C are combined and stored in stock tanks. The combined rougher concentrates may be fed to a single G cell. The G cell, when operational, floats carbonate from the zinc rougher concentrates. This produces a low grade zinc bearing carbonate concentrate, which can sometimes be treated separately at the Três Marias smelter. When produced, this low grade concentrate is stored and dewatered in the low grade G cell pond. The final zinc concentrate is the combined Plant W and Plant C concentrates when the G cell is bypassed, or the G cell tailings when the G cell is operational. Operation of the G cell was suspended in early 2017 and is assumed not to operate in the LOM mill production plan. Final zinc concentrate is thickened in a 16 m diameter Dorr Oliver-Eimco concentrate thickener. Thickener overflow is recycled to process water, while thickener underflow is pumped to hydrocyclones. The coarser underflow is dewatered in three vacuum drum filters, while the finer overflow is dewatered in one Andritz plate and frame pressure filter. The combined cake produced contains approximately 13% moisture.

14.5 Tailings Dewatering

Combined Plant W and Plant C tailings are combined and pumped to tailings cyclones, thickener, and filters where the tailings are dewatered before being hauled to the Pilha Garrote DSTSF. Coarse cyclone underflow is hauled to the Pilha Garrote DSTSF, while cyclone overflow is thickened in the tailings thickener prior to being filtered. Overflow from the tailings thickener and filtrate are directed to the water pond within the Aroeira TSF and is then recycled in the grinding and flotation plants. Thickener underflow is filtered before being hauled to the Pilha Garrote DSTSF.

14.6 Concentrate Handling

Filtered lead concentrate is held in a small concentrate stockpile at the process plant prior to being loaded into bulk bags and onto trucks for transport to customers. Filtered zinc concentrate is stored in a zinc concentrate silo prior to being loaded into trucks for transport to the Três Marias smelter. Zinc concentrate in excess of the silo capacity can be stored in a covered stockpile and then reclaimed by FEL to be loaded into trucks.

14.7 Concentrate Sales and Processing

Zinc concentrate is trucked in bulk approximately 250 km to the Três Marias smelter. The Três Marias smelter circuit leaches concentrate from the Vazante Operation through an autoclave with recycled leach solutions to dissolve carbonates. This is primarily to remove MgO, which can affect electrolysis efficiency. Zinc silicate is then leached with sulphuric acid to zinc sulphate, with chemistry controlled to precipitate silica. The zinc bearing solution is then purified and zinc is recovered by electrolysis. Fluorine levels in leach solutions must be controlled to avoid problems with stripping zinc cathodes in the electrolytic cell house. The Três Marias smelter relies on treating a balance of sulphide concentrates that, when roasted, generate the sulphuric acid that is used to leach the concentrates. The Vazante Operation concentrate makes up approximately 70% of the feed to the Três Marias smelter. Overall zinc recovery from the Vazante Operation concentrate at Três Marias is 94.4%. The conversion costs of the Vazante Operation concentrate are projected at \$474/t recovered zinc.

Lead concentrate is loaded into bulk bags at the Vazante Operation and transported approximately 900 km to the Port of Itaguaí for shipment. Concentrate is sold in 200 t to 600 t shipments, depending on production quantities.

14.8 Energy, Water, and Process Materials Requirements

Power for the Vazante Operation is supplied from the national grid, which can provide up to 55 MW via two transmission lines. Power requirement for the operations is not expected to exceed 46 MW (for the mine and processing plants) for the remainder of the LOM.





Water from concentrate and tailings dewatering is recycled to the process via the Aroeira TSF, which is used as a water storage facility. Make-up process water is sourced from the Santa Catarina River and pumped to the processing plant. With the conversion to dry stack tailings disposal, the amount of water available for recycle to the processing plant is expected to increase.

Process consumables include:

- Forged grinding media for the ball mills
- PAX (sulphide flotation circuit collector)
- MIBC (frother)
- Sodium sulphide (willemite activator)
- Sodium carbonate (pH modifier)
- AGLP 250 (dispersant)
- Amine willemite collector
- Flocculant

14.9 Manpower

The processing plant personnel comprises management and supervisory staff, including metallurgical personnel, operators, and maintenance personnel, totalling 304 people. This number is made up of 215 permanent employees and 89 contractors and is not anticipated to change significantly in the foreseeable future.





15.0 INFRASTRUCTURE

15.1 Infrastructure

The Vazante Operation is immediately adjacent to a public highway and situated approximately 8.5 km from the town of Vazante. Site access is via paved roads to the mine office.

The Vazante Operation surface infrastructure is presented in Figure 15-1 to Figure 15-4, with the main access portals, ventilation raise breakthroughs to surface, surface plant, administration, and tailings facilities, and ancillary installations such as the air strip indicated.

15.1.1 Yards and Roads

The roads and yards to and in the vicinity of the administration offices area are all paved. The paved sections are regularly cleaned to remove the mud and dirt brought in by vehicles coming from the mine roads. The yards are well maintained and there are sidewalks in all areas.

15.1.2 Power

Electrical power is supplied from the national grid via two independent transmission lines at 138 kV, which can provide up to 55 MW. There are two 23/40 MVA transformers in the surface substation at the Vazante Operation and power is distributed to other areas of the mine at 13.8 kV and 440 V via transformer secondaries to power mine equipment. The power demand by 2026 is expected to reach approximately 46 MW as dewatering demands continue to grow. A new transmission line from Paracatu to Vazante of 60 MW capacity is under construction by Companhia Energética de Minas Gerais S.A (CEMIG) and is expected to be completed in March 2021. There are two 700 kVA diesel generators on site to provide backup power in case of main line interruption. The price of electrical energy is budgeted at R\$0.277/kWh.

15.1.3 Mine and Process Water

The Vazante Mine generates a significant amount of water that is pumped to surface for discharge. The dewatering capacity of the Vazante and Extremo Norte Mines has been increased to approximately 20,000 m³/h. The main pump rooms on the 297 Level and 140 Level have been designed to handle this quantity. Process water is obtained from the Santa Catarina River and pumped to the processing plant.





Figure 15-1: Vazante Mine Surface Infrastructure





Figure 15-2: Site Plan





Figure 15-3: General Site Layout, Process Plant Area





Figure 15-4: General Site Layout, Administration Area





15.1.4 Aroeira Tailings Impoundment Area

Tailings from the process plant were regularly deposited in the Aroeira TSF, a conventional slurried tailings storage facility located immediately below the processing plant, until mid-2019. Tailings from the plant flow by gravity to the TSF. The Aroeira TSF remains in operation for the collection of underground mine dewatering and as the water supply storage dam for the processing plant. The Aroeira TSF is also used for tailings disposal when the infrastructure of the new facility (i.e., Pilha Garrote) is temporarily down for maintenance. Nexa informed SLR that approximately 30% of the tailings production in 2020 was deposited in the Aroeira TSF. Water is reclaimed from the Aroeira TSF pond to the processing plant via a floating barge and pump.

The Aroeira TSF was the primary operating TSF until 2019 and was designed by Geoconsultoria with construction commencing in 1999 and operation in January 2001. The initial cross valley dam was built to an elevation of 603 m with a compacted earth fill embankment with internal drainage including a chimney drain and downstream blanket. The dam has undergone eight downstream raises, the first three using compacted earth fill and the remaining with compacted earth and cycloned underflow tailings. The final embankment raise to elevation of 626 m was reached in 2014. The maximum height of the dam is 43 m. The crest length is 695 m, with average downstream and upstream slopes of 1V:2.3H and 1V:1.4H, respectively. The downstream slope is vegetated. The total storage capacity is estimated at 14.9 Mm³ with the current volume of stored tailings and water estimated by Geoconsultoria at 12.2 Mm³ (drawing CM18-DE-011 Rev. 6 dated 31 August 2020). In addition to providing tailings storage, the Aroeira TSF also has the function of recirculating and clarifying water and receives pumped water from the underground mines.

The Aroeira TSF was built in the valley of a tributary of the Santa Catarina River, a tributary of the Paracatu River, which belongs to the São Francisco River basin. The Aroeira TSF's drainage basin area is approximately 330 ha, with no diversion ditching around the TSF. The Aroeira TSF is shown in plan and typical cross section in Figure 15-5.

The Aroeira TSF has been classified according to ANM Ordinance No. 70.389 of 05/17/2017. A dam classification “B” with a risk category of “Low” and potential associated damage of “High” has been assigned. The TSF has also been classified in terms of Failure Modes and Effect Analysis (FMEA) in accordance with the Normative Deliberation of the State Council for Environmental Policy (COPAM) No. 87, of 06/17/2005 as Class III - “High Potential for Environmental Damage”.

The tailings and embankment cover an area of approximately 100 ha. Tailings are deposited from the upstream embankment crest and perimeter of the Aroeira TSF. Deposition of tailings from the crest is to provide an upstream beach of at least 40 m wide adjacent to the embankment.

A shaft spillway was constructed in the initial phase for the life of the Aroeira TSF and consists of an inlet structure on the left shoulder of the dam which passes into a drop shaft and through a pipeline under the embankment (with energy dissipaters) and exits at the downstream toe of the embankment. The exit is into a reinforced, open concrete channel that passes into a rockfill lined section and then into the Santa Catarina River. The current inlet level of the decant tower is at elevation 621.5 m (Geoconsultoria drawing CM18-DE-011 Rev. 6 dated 31 August 2020).

Dam monitoring consists of instrument measurements and field inspections. Field inspections (regular routine inspection) are carried out fortnightly by Nexa personnel responsible for its operation, and every six months by an external consultant (Geoconsultoria). Piezometers and water level indicators are measured every two weeks, surface landmarks monthly, pluviometry, the graduated level of the reservoir and the flow meters are read daily. The data is reviewed by an external consultant (Geoconsultoria) on a monthly basis. Nexa utilizes an Integrated Dam Management System (referred to as SIGBar), which provides guidelines for document management, monitoring, evaluation, risk analysis, compliance with standards and legislation, training of personnel, operation of structures and other provisions.

The latest review by Geoconsultoria that was reviewed by SLR was dated 30 August 2019 (Relatório Técnico CM18-RT57 Rev.0). Geoconsultoria’s report states the dam safety condition is “Satisfactory” without the presence of erosions, cracks, or other features indicative of instability.

A risk assessment of the Aroeira TSF and associated infrastructure was completed in 2017 by Geoconsultoria (Relatório Técnico CM39-RT-01 Rev. 4). The method of analysis used was a variant of FMEA. SLR relies on the conclusions of Geoconsultoria (Relatório Técnico CM18-RT57 Rev.0) and provides no conclusions or opinions regarding the stability of the listed dams and impoundments.





15.1.5 Tailings Storage in Pilha Garrote

The estimated active life of the Aroeira TSF was end of 2020/early 2021. In August 2019, Vazante implemented a new tailings disposal practice consisting of filtering and stacking tailings in the Pilha Garrote DSTSF constructed west of the Aroeira TSF. The tailings management consists of cyclones, vibratory screens, thickening, and filtering. Total tailings are pumped from the processing plant via pipeline to the cyclone station from where the underflow is transported by truck to the Pilha Garrote DSTSF, where it is dumped, spread, and compacted. Cyclone overflow is thickened and the underflow tailings from the thickener are pumped to the new filtration plant, located to the north east and adjacent to the Pilha Garrote DSTSF, from where the filter cake is transported by truck to the DSTSF. Water recovered at the filter plant and from the thickener overflow is piped to the Aroeira TSF.

The Pilha Garrote DSTSF has been designed with an average external slope of 1V:2.5H with 10 m high vertical lifts, intermediate slopes of 1V:2H and five metre wide benches. Surface runoff from the Pilha Garrote DSTSF is collected in a ditch at the toe of the facility and flows under gravity to the north-west side of the Aroeira TSF. The final height of the Pilha Garrote DSTSF will be 120 m and provide storage of approximately 8.6 Mm³. The Pilha Garrote DSTSF plan and typical cross section are presented in Figure 15-6.

Nexa plans on completing a progressive reclamation of the Pilha Garrote DSTSF as early as possible. Following the same practice implemented by Nexa for the Aroeira TSF, regular safety inspections of Pilha Garrote including geotechnical stability will be conducted by Geoconsultoria.

15.1.6 Former Tailings Storage Facilities

Other structures present at the Vazante Operation include the Antiga TSF and reservoir Modules I, II, and III. Of these structures, Module III is currently the only in operation. Module III is a geomembrane lined facility and serves as a sedimentation dam and reservoir for water supply when the Aroeira TSF undergoes maintenance.

The characterization of the structure of the Antiga TSF was revisited in 2016 and no longer considered a dam based on the definition of dam within the Brazilian legislation since the area is filled with mine waste material, it has been re-vegetated and there is no permanent water ponding. The revised characterization was approved by the State Environment Foundation (FEAM for its acronym in Portuguese), the regulatory body, in 2016.

15.1.7 Waste Rock Storage Facilities

Several waste rock facilities are present at the Vazante Operation as a result of historical open pit mining activities. Currently, waste is only brought to surface for storage if backfilling is not possible. Waste is currently used to backfill the mined-out Morro da Usina and Sucuri open pits. The Bocaina pit is also designated for waste storage in the future, if required.





Figure 15-5: Aroeira Tailings Storage Facility Plan View and Dam Typical Cross-Section





Figure 15-6: Pilha Garrote Dry Stack Tailings Storage Facility Plan View and Typical Cross Section





16.0 MARKET STUDIES

16.1 Markets

The Vazante Operation produces separate zinc silicate and lead sulphide concentrates. All the zinc concentrate is processed at Nexa’s Três Marias smelter in Brazil, approximately 250 km from the Vazante Operation, while the lead concentrate is sold on the open market. The principal commodities produced from these concentrates are zinc, lead, and silver, which are freely traded at prices and terms that are widely known so that prospects for sale of any production are virtually assured. Zinc represents 97% of Vazante’s gross revenue, while lead and silver contribute 3% of the revenue.

Market information is based on the industry scenario analysis prepared by Nexa’s Market Intelligence team in July 2020 based on information sourced from different banks and independent financial institutions, economy and politics research groups, and metals consultants.

Nexa’s Market Intelligence team notes that the industry has progressed from volatile markets in 2019 due to US/China trade wars, Brexit, and development economies slowing down, to more uncertainty in 2020 due to the COVID-19 pandemic, a plunging global economy, the oil crisis, and the US elections. All these factors have affected the market fundamentals.

The SLR has reviewed the market studies and analyses and is of the opinion that the results support the assumptions in this Technical Report Summary.

Nexa provided information regarding sales contracts for lead concentrate produced at the Vazante Operation. According to this information, sales contracts are in place with concentrate traders for the sale of the lead concentrate. SLR has reviewed the terms of the contracts in place and considers them to be consistent with current industry norms.

16.1.1 Zinc

16.1.1.1 Demand

The major market drivers for zinc demand are construction and infrastructure, transportation and vehicles production, industrial machinery production, batteries, and renewable energy. All these industries have been affected by the COVID-19 pandemic which has caused the global economy to slow down. As a result, zinc metal demand has also decreased in 2020, by approximately 10% year over year.

Nexa’s Market Intelligence team examined several scenarios for demand recovery and future growth and settled on a base case that forecasts pre-COVID-19 levels of demand in the second half of 2022, with a demand compound annual growth rate (CAGR) of approximately 1.3% from 2023 to 2025. In 2019, they had forecasted a CAGR of approximately 1.7% between 2019 and 2024.

16.1.1.2 Supply

Nexa’s Market Intelligence team’s supply forecast analysis was based on the following industry information: zinc mine start-up and closure, mine production guidance, disruption allowance evaluation, project pipeline, and cost evaluation for 2020 onwards. Nexa’s forecast analysis results are summarized as follows:

- Mine disruption factor: Based on independent data, Nexa has forecast a mine disruption factor of 4% for China and 4% until 2023 and 2% to 3% for 2024 and 2025 for the rest of the world (ROW).
- Project Pipeline: The analysis considered greenfield projects forecast to begin production between 2020 and 2025.
- Zinc concentrate production evolution - Global: Recent market conditions due to the COVID-19 pandemic have affected mines worldwide, reducing investments and causing mine closures. As a result, zinc supply might be limited in the long term.





- China concentrate evolution: China zinc concentrate supply is expected to increase by 3% through the 2020 to 2025 cycle, but significantly depends on the ability of China’s small mines to survive amid lower price levels and volatile market conditions.
- Zinc Global Market Balance: Based on the above considerations, Nexa’s forecast is for a significant zinc supply surplus in 2020 and 2021, with an increase in demand starting in the second half of 2022. From 2024 onwards, the global demand will exceed zinc supply.

16.1.1.3 Zinc Price Outlook

Zinc prices depend on variations in supply, demand, and the perceived supply/demand balance. The most commonly referenced currency for zinc transactions is US dollars. Nexa’s Market Intelligence team, based on its analysis of zinc supply, demand, global balance, and zinc prices, forecasts stressed zinc prices in 2021 and 2022 (between US\$ 2,000/t Zn and US\$ 2,300/t Zn), with a potential price increase to greater than US\$ 2,700/t Zn starting in 2024 to 2025, and a long term price of US\$ 2,449/t Zn. Figure 16-1 presents the results of Nexa’s analysis.



Source: Nexa, 2020e

Figure 16-1: Zinc Price Outlook (2020-2025)

16.1.2 Lead and Silver

Lead and silver in conjunction represent 3% of Vazante’s gross revenue. Given their low impact on Vazante’s revenue mix, Nexa has based its lead and silver price forecast solely on consensus prices and correlation analysis published by metal market analysts and financial institutions.

16.1.2.1 Lead Price Outlook

Lead represents 1% of Vazante’s gross revenue. Nexa’s lead prices were chosen considering a spread applied on the zinc prices curve. These spreads are commonly used and monitored by the market, based on a strong correlation between the two metals. For the cycle 2021 to 2025 a growing spread between US\$ 350/t Pb to US\$ 700/t Pb was considered. Nexa forecasts increasing lead prices between 2021 and 2025 (between US\$ 1,869/t Pb and US\$ 2,247/t Pb), and a lower long-term price of US\$ 1,910/t Pb. Figure 16-4 presents the results of Nexa’s lead analysis.





Figure 16-4: Lead Price Outlook (2020-2025)

16.1.2.2 Silver Price Outlook

Silver represents 2% of Vazante’s gross revenue. Nexa’s silver prices were chosen based on the median of consensus quotes/prices published by banks and institutions on a monthly basis. The silver forecast curve in Figure 16-5 presents the median silver price considering 23 different institutional sources. Nexa forecasts declining silver prices between 2021 and 2025 (between US\$ 17.30/oz Ag and US\$ 16.40/oz Ag), with a potential long-term price increase to US\$ 16.87/oz Ag.





Figure 16-5: Silver Price Outlook (2020-2025)

16.2 Contracts

16.2.1 Concentrate Sales

The Vazante Operation produces separate zinc silicate and lead sulphide concentrates. All the zinc concentrate is processed at Nexa’s Três Marias smelter in Brazil approximately 250 km from the Vazante Operation, while the lead concentrate is sold on the open market with contracts in place with concentrate traders.

16.2.1.1 Zinc Concentrate

Due to the ore mineralogy, zinc concentrate produced at the Vazante Operation is elevated in silica, calcium, magnesium, and carbonates resulting from the presence of carbonate gangue (predominantly dolomite). Nexa’s Três Marias zinc smelter in Brazil includes a processing circuit specifically configured to process the zinc silicate concentrate produced at the Vazante Operation and as a result, all of the zinc concentrate produced at the Vazante Operation is processed at the Três Marias smelter where zinc metal is produced. The Vazante Operation concentrate accounts for approximately 70% of the feed to the Três Marias smelter. Deleterious elements affecting the Três Marias smelting operation are controlled at the Vazante Operation to ensure that they do not exceed the limits imposed by the smelter.

16.2.1.2 Lead Concentrate

The lead concentrate produced at the Vazante Operation is sold on the open market. Nexa provided information regarding sales contracts for lead concentrate produced at the Vazante Operation. According to this information, sales contracts are in place with concentrate traders for the sale of the lead concentrate. SLR has reviewed these contracts in place and their terms are considered to be consistent with industry norms. Since the lead concentrate produced at the Vazante Operation contains less than the preferred 45% lead, (typically the concentrate contains approximately 23% lead), the concentrate is subject to a small penalty charge, reported to be less than \$1.00/t.





16.2.2 Service Contracts

Various operational support services are provided by contractors, including maintenance, consulting, concentrate haulage, environmental monitoring, information technology and communications, security, and janitorial services. There are currently 61 contractors providing services to the Vazante Operation.





17.0 ENVIRONMENTAL STUDIES, PERMITTING, AND PLANS, NEGOTIATIONS, OR AGREEMENTS WITH LOCAL INDIVIDUALS OR GROUPS

The information presented in this section is based on documentation provided by Nexa for review. No site visit was conducted in support of the preparation of Section 17 of this Technical Report Summary.

17.1 Environmental Aspects

17.1.1 Mine Operation Overview

The Vazante Operation is located in the western portion of the state of Minas Gerais, Brazil, approximately 8.5 km east of the town of Vazante, 253 km southeast of Brasília and 370 km northwest of Belo Horizonte. Open pit mining at the Vazante Operation commenced in 1969, while underground mining began in 1982. The Vazante Operation is in production with ongoing operations and development, with the projected mine life expected to continue to the end of 2040.

Open pit mining at the Vazante Operation was suspended in 2008 and currently the Vazante Operation is comprised of the following main facilities:

- Two underground mines (Vazante and Extremo Norte).
- An ore blending and reclaim facility.
- Two processing plants (Plant W and Plant C) referred to as USICON W/C.
- Aroeira TSF.
- Pilha Garrote DSTSF and tailings filtering plant.
- Waste rock storage facilities.
- Water management facilities and infrastructure.
- Ancillary buildings and infrastructure (administration, warehouse, storage, vehicle maintenance, laboratory, domestic waste management facilities, waste management, etc.)

Other structures present at the Vazante Operation include the Antiga TSF and Modules I, II, and III to the west of the concentrator plant site. These facilities are currently inactive, with the exception of Module III which is still in operation.

The Vazante Operation is the largest zinc operation in Brazil, processing approximately 1.5 Mtpa. Vazante Operation concentrates are sent to Nexa’s Três Marias zinc smelter complex, located approximately 250 km away. Processing on site is conducted in Plant W and Plant C, including crushing, grinding, and flotation. Concentrate is filtered for transport to the Três Marias smelter while combined Plant W and Plant C tailings are thickened and filtered prior to disposal in the DSTSF. Electricity supply is generated by hydroelectric power stations managed by Votorantim Energia.

Between 1969 and 2002 the Vazante Operation ore was processed in a former beneficiation plant and the tailings were deposited in the Antiga TSF. The area of the old tailings dam (Antiga TSF) is a containment basin formed by dikes up to 10 m high divided into modules, which received tailings from ore processing in the past. The area of the old modules and dam was developed south of the former beneficiation plant on the bed of the Barroquinha stream, which was diverted. The former beneficiation plant operations were interrupted due to ground geotechnical instability triggered by the formation of sinkholes resulting from the local geology and lowering of the phreatic level. The former beneficiation plant was decommissioned in 2005.

The Pilha Garrote DSTSF currently receives the tailings stream generated at the new beneficiation plant (USICON W/C) whereas the Aroeira TSF provides clarification of the water pumped from the underground mines. Module III remains active to receive water from the underground mines during the maintenance of the pumping system of the Aroeira TSF.

There is no accommodation complex at the Vazante Operation. Mine personnel commute from the municipality of Vazante to the operations.





17.1.2 Environmental Baseline

The environmental baseline summary presented in this section was taken from Amec (2017).

17.1.2.1 Climate

The region is classified as warm (calid) sub-humid with four to five dry months annually. Average temperatures vary between 13°C and 27°C in the winter and between 18°C and 30°C in the summer. The historical average annual rainfall is 1,441.5 mm, with more than 80% occurring during the rainy season, which runs from October to March. The predominant wind directions are northeast to southwest.

17.1.2.2 Air Quality and Noise Levels

Air quality monitoring between January 2014 and August 2016 included measurements of total suspended particles (TSPs), inhalable particles, sulphur dioxide (SO₂) and nitrogen oxide (NO₂) at five sampling points. Results included:

- Concentrations of TSPs and inhalable particles were below the maximum permitted values established by the Ministry of Environment (CONAMA) for all monitoring points during the 2015 sampling program. For 2014, exceedances were registered for both parameters during the dry season in the monitoring station near the roads. No evidence of mitigating measures was noted to be in place. For the Extremo Norte monitoring point one value (July 2014) was found to be above the limit. CONAMA Resolution No. 03/1990 allows one exceedance for each parameter for each year, therefore the readings were not considered to be out of compliance.
- Concentrations of SO₂ were below the maximum permitted values for 2014 and 2015 in all monitoring stations, except one value.
- Results of NO₂ were below the maximum permitted values.

17.1.2.3 Water Quality

Water sampling points were established in the Santa Catarina River to assess water quality and contamination. In addition, the Instituto Mineiro de Gestão das Águas 16-1 (IGAM) monitored water quality in the State of Minas Gerais using two monitoring stations in the Santa Catarina River, over a 34 quarter period, running from March 2008 to June 2016. According to the monitoring results in 2014 and 2015, parameters in the Santa Catarina River that exceeded the maximum limit values (COPAM/CERH-MG No. 01/2008) were suspended solids, turbidity, cadmium, and lead.

The Environmental Impact Assessment (EIA) for the USICON W/C indicates acceptable dissolved oxygen levels in the Santa Catarina River. In addition, total solids and turbidity were below the maximum limit, and had a very low concentration compared to the maximum limit established by COPAM 010/86. Cadmium and lead were found to be below the laboratory analytical detection limits.

The IGAM results also identified bacteriological contamination of water at both sampling points, consisting of thermotolerant coliforms, and E. coli.

17.1.2.4 Hydrology

The Vazante Operation is located on the Santa Catarina River sub-basin, which is a tributary of the Paracatu River in the São Francisco River basin. The Santa Catarina River has a drainage area of 1,182 km². Its main tributaries are the Carrapato creek, and Carranca, Indaiazinho, and Arrepido streams. The Santa Catarina River has a dendritic drainage pattern. Near the municipality of Vazante, the Santa Catarina River runs through carbonate lithologies and a flattened topography.

17.1.2.5 Groundwater

Groundwater monitoring at the Vazante Operation commenced in 1989, based on a piezometer network. The numbers of piezometers in the network has steadily increased, from an initial 28 to over 155 currently. Pumping by the Vazante Operation has lowered water levels in some of the aquifers.





17.1.2.6 Biological Considerations

From the primary data obtained for the EIA for the expansion and modification of the concentrator plant, the following protected species according to the International Union for Conservation of Nature (IUCN) and Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) lists were identified within the influence area of the Vazante Operation:

- Three bird species (2015 to 2016) within the direct influence area were classified as near threatened according to IUCN.
- Five mammal species (2015 to 2016) within the direct and indirect influence area were listed in Appendix I and II of CITES.

A threatened species management plan, developed by Ecolab in 2016, is currently in place for the Vazante Operation.

17.1.2.7 Social and Heritage Considerations

The 2010 census documented approximately 211,560 persons living in the micro-region of Paracatu. The municipality of Vazante is the third largest in the region, with a population of approximately 20,600, or approximately 9% of the micro-region. Population emigration into the area is approximately 4% to the municipality, and approximately 5% overall to the micro-region of Paracatu.

The municipality of Vazante has public, state, and private schooling available, and a small private tertiary institution. The illiteracy rate for those above 18 is lower than the average for the state of Minas Gerais as a whole.

17.1.3 Environmental Studies and Key Environmental Issues

Two types of environmental documents must be presented to the national authorities in the first stage of the licensing process (Licença Prévia). The EIA is a set of technical reports destined to instruct the licensing process, while the report on environmental impacts, Relatório de Impacto Ambiental (RIMA), is the document which reproduces EIA conclusions, in an accessible and easy language. The RIMA's purpose is to inform the public. EIAs and RIMAs are normally accompanied by a third document, the Environmental Control Plan, Plano de Controle Ambiental (PCA).

The following environmental studies have been prepared for the Vazante Operation:

- EIA/RIMA for the new beneficiation plant for the Vazante Mine, 2000
- EIA/RIMA/PCA for the Vazante underground mine (Villemita), 2001
- EIA/RIMA for Extremo Norte, 2009
- PCA for Extremo Norte, 2011
- PCA for the concentrator plant (USICON W/C), 2011
- EIA/RIMA/PCA for the Lead Project, 2011
- EIA/RIMA/PCA for the Pilha Garrote DSTSF Project, 2016
- EIA/RIMA/PCA for the expansion and modification of the concentrator plant (USICON W/C), 2017
- Study of alternatives for future use of the mining unit following its decommissioning, 2017
- Review of the Pilha Garrote DSTSF Project, 2017
- Environmental Control Report and PCA for the expansion and modification of the concentrator plant (USICON W/C), 2018

The EIAs present the identification of potential environmental effects resulting from project activities for the construction, operation, and closure stages. The mitigation measures are mostly addressed through a number of environmental control programs presented in the EIAs rather than identifying specific mitigation activities.

The Vazante Operation environmental management programs have been developed based on the potential environmental effects identified through the various EIAs conducted for the Vazante and Extremo Norte mine operations, listed above. The environmental management programs presented in the EIAs and PCAs for the Vazante Mine (EcoLab, 2018) are as follows:





- Environmental management and control of the operation works.
- Risk management and emergency response.
- Cleaning and maintenance of vehicles and equipment.
- Mine closure environmental plan.
- Solid waste management.
- Water resources.
- Liquid effluents control.
- Atmospheric emission control.
- Vegetation removal control.
- Recovery of degraded areas.
- Social communication and social-environmental information.
- Environmental training and education.

The environmental management programs presented in the EIAs and PCAs for the Extremo Norte Mine (BRANDT, 2011) are as follows:

- Control of erosive processes.
- Management and control of rainfall water and liquid effluents.
- Monitoring of liquid effluents.
- Monitoring of surface water quality and groundwater quality.
- Hydrological and hydrogeological monitoring.
- Management and control of solid waste.
- Atmospheric emissions control.
- Equipment maintenance.
- Monitoring of air quality and ambient noise.
- Monitoring and control of environmental legacy components.
- Monitoring and salvage/relocation of fauna.
- Protection and monitoring of underground cavities.
- Restoration actions.
- Waste rock environmental control.
- Contingency plan.
- Conceptual mine closure.
- Rehabilitation of degraded areas.
- Social communication.
- Research, rescue, and valuation of historical and archaeological remains.
- Environmental education.
- Training of labour workers and prioritization program.

In the SLR QP's opinion, the environmental management programs for the Vazante Operations are adequate to address potential issues related to environmental compliance.





The following 2020 annual environmental reports were provided for SLR's review:

- Report for the Extremo Norte Mine operation addressing Condition 1 from Operation Licence No. 005/2016, related to administrative process COPAM No. 104/1988/056/2014 (Nexa, 2020a)
- Report for the Vazante Mine operation addressing Condition 1 from Operation Licence No. 051/2019, related to administrative process COPAM No. 104/1988/063/2018 (Nexa, 2020b)

According to information provided by Nexa to SLR, monitoring of fauna was expected to be carried out only during the Installation Licence phases of the Vazante Operation (currently all active licenses correspond to the Operating License phase). Although it is not a requirement in the Operation Licences, SLR recommends considering the implementation of a monitoring program for flora and fauna for the Vazante Operation. SLR notes that the environmental management programs for the biological environment address fauna but not flora.

17.1.3.1 2020 Monitoring Report for the Extremo Norte Mine Operation

The Nexa (2020a) report documents the monitoring program completed in 2019, which was comprised of four components:

- Liquid effluents
- Solid waste residues and oily effluents
- Atmospheric emissions (air quality)
- Noise

The water monitoring results were compared against Norm COPAM-CERH 01/08. According to the annual monitoring report (Nexa, 2020a), the parameters evaluated in 2019 for pit dewatering and domestic wastewater were in compliance with the permissive limits established by the legislation. The laboratory employed to conduct water quality analyses at the Vazante Operation is accredited by the National Institute of Metrology (Inmetro for the acronym in Portuguese). Water quality monitoring results and laboratory certificates have been documented in the annual monitoring report.

Nexa (2020a) states that disposal of solid and oily waste residues at the Extremo Norte Mine is conducted in compliance with the applicable norms and legislation at a national and state level, with appropriate controls for segregation, collection, and transport of residues. A table documenting details of the disposal such as type of residue, source, transportation company, and final disposal destination is included in the annual monitoring report. Burning of residues, disposal in non-licensed landfills or incinerators, and disposal in natural water bodies is forbidden.

Results of the air quality monitoring program were compared against maximum permissible limits presented in CONAMA No. 03/1990 and CONAMA No. 491/2018 resolutions. According to the annual monitoring report (Nexa, 2020a), the parameters evaluated in 2019 (TSP, PM₁₀, SO₂ and NO₂) at four monitoring locations were in compliance with the legislation. The air quality monitoring reports prepared by Limnos, an external laboratory retained by Nexa, are appended to the annual monitoring report. Data measuring reports from Medicoes Ambientais Consultoria, a consulting firm retained by Nexa, are also appended to the annual monitoring report.

Results of the ambient noise monitoring program were compared against maximum permissible limits presented in CONAMA No. 03/90, which is the most stringent norm on ambient noise and assures compliance with CONAMA No. 10.100/90. According to the annual monitoring report (Nexa, 2020a), the monitoring results for the two campaigns conducted in 2019 at six monitoring locations were in compliance with the legislation for five locations. In one location the maximum permissible limits were slightly exceeded due to noise sources (i.e. local fauna) not related to the mining activity. The noise monitoring reports prepared by Limnos are appended to the annual monitoring report.





17.1.3.2 2019 to 2020 Environmental Programs at the Vazante Mine Operation

The objective of the Nexa (2020b) report is to provide information about the implementation of activities in 2019 and 2020 in agreement with the following environmental control plans specifically related to the Pilha Garrote DSTSF Project:

- Risk management and emergency response
- Cleaning and maintenance of vehicles and equipment
- Mine closure environmental plan
- Solid waste management
- Water resources
- Liquid effluents control
- Atmospheric emission control
- Control of erosive processes
- Recovery of degraded areas
- Social communication and social-environmental information
- Environmental training and education
- Air quality monitoring
- Geotechnical monitoring

Nexa states in the (Nexa, 2020b) report that the applicable environmental programs and plans have been carried out satisfactorily in compliance with conditions from Operation Licence No. 051/2019.

Water quality monitoring reports are prepared quarterly to document the monitoring results for effluents and the receiving water bodies. These quarterly reports are submitted to the Regional Environment Superintendence (SUPRAM-NOR) in compliance with Condition 01 of Operation Licence No. 10/2012 (COPAM No. 104/1988/049/2011). The results of the analyses for all the evaluated parameters are presented and compared against the maximum permissible limits established by the current legislation. Contextualization and rationale for deviations that occurred during the reported period are provided in the (Nexa, 2020b) report. The report from the fourth quarter of 2019 was provided to SLR as an example. Based on the documentation available for review, the SLR QP is not aware of any compliance issues raised by the authorities associated with the Vazante Mine water quality monitoring program.

Regarding the domestic wastewater effluents, the 2019 monitoring results displayed exceedances for biological oxygen demand (BDO), chemical oxygen demand (COD), phenols, and suspended solids. Nexa attributed the exceedances to the initial period for stabilization of the new biological treatment system, which relies on anaerobic bacteria for degradation of organic matter. A significant improvement was observed by the fifth month of operation (November 2019) of the treatment system with only two exceedances of BDO in January 2020 and April 2020.

Results of the Vazante Mine air quality monitoring program were compared against maximum permissible limits presented in CONAMA No. 03/1990 and CONAMA No. 491/2018 resolutions. According to the annual monitoring report (Nexa, 2020b), the parameters evaluated in 2019 (TSP, PM₁₀, SO₂ and NO₂) at four monitoring locations were in compliance with the legislation except, for one exceedance of PM₁₀ at one monitoring location.

SLR understands that the requirement for submission of quarterly reports (water quality and gas monitoring) was suspended temporarily in the state of Minas Gerais on March 20, 2020 through Decree 47.890 due to the public health emergency situation triggered by the COVID-19 pandemic.

SLR did not identify any environmental issues from the documentation available for review that could materially impact the ability to extract the mineral resources and mineral reserves at the Vazante Operation.

17.1.4 Environmental Management System

Nexa utilizes SIGBar for the TSFs, which provides guidelines for document management, monitoring, evaluation, risk analysis, compliance with standards and legislation, training of personnel, operation of structures and other provisions.

The environmental programs defined in the PCAs are an integral part of the Environmental Management System for adoption of measures aimed at the prevention, mitigation, and control of potential environmental impacts resulting from mining activities.





According to Nexa’s website and 2019 Annual Report, Nexa identifies and manages the main risks from both an operational and strategic point of view, reducing and mitigating impacts to maintain business sustainability. Nexa has an integrated management system that establishes the guidelines that govern the conduct of the business, with a focus on quality management of environmental, health and workplace safety, and social responsibility issues. In addition, Nexa follows applicable environmental laws and regulations pertaining to its business in each country where it operates (Nexa, 2019).

Nexa has stated the following environmental goals in its 2020 Annual Report:

- 75% recirculation and lower specific use of water.
- Reduce the specific emission of greenhouse gases by 5%.
- Decrease the disposal of tailings in dams and a 50% reduction in the specific generation of mining and smelting waste.
- Ensure that 100% of the units have a pre-prepared future use alternative studies and updated decommissioning plans, in line with the sector’s benchmark standards.

17.2 Mine Waste and Water Management

17.2.1 Environmental Geochemistry

There is no specific geochemical testing protocol or guideline within the Brazilian regulations for geochemical characterization of mine waste. The only existing standard related to testing for classification of solid waste is norm ABNT-NBR 10.004. The classification standard from this norm is usually used to classify solid waste from sanitary landfills based on the results of leaching the material to be classified with acetic acid, and also based on the results of sample solubilization with distilled water.

Tailings characterization, including laboratory testing, was carried out by Hidrogeo Assessoria Ambiental Ltda (Hidrogeo) (2016) and was conducted in accordance with the Brazilian norm ABNT-NBR 10.004. The Hidrogeo concluded that the tailings should be classified as Class II-A, non-hazardous and inert, in accordance with the norm.

According to Nexa no indication of acid generation nor metal leaching has been identified through water quality monitoring conducted for several years of operation. SLR recommends that Nexa consider conducting additional geochemistry testing and characterization ahead of mine closure following international guidelines and common practices to investigate the potential for developing acid rock drainage (ARD) and/or metal leaching in the long term. The characterization should be used to confirm the closure strategy and closure water management plan requirements to assure compliance with applicable water quality standards during post-closure.

17.2.2 Tailings Management

Tailings are currently disposed as filtered tailings at the Pilha Garrote DSTSF. The Aroeira TSF is currently used as a water storage facility and for tailings disposal when the infrastructure of the Pilha Garrote is temporarily down for maintenance. Waste rock is used for backfilling or disposed of at surface in mined-out open pits. Descriptions of the Aroeira TSF and Pilha Garrote DSTSF are provided in Section 15 of this Technical Report Summary.

According to the tailings characterization conducted by Hidrogeo and discussed above, there is no potential for leaching of metals or release of sulphates from the tailings. Based on this premise, there is no plan to reduce water infiltration through the tailings at closure. The preferred option for closure of the Aroeira TSF is to construct a saddle/spillway in the natural terrain near the right dam abutment and to profile the surface of the tailings in order to eliminate the accumulation of water on the surface.

Regular dam safety inspections have visually confirmed that the tailings beach of the Aroeira TSF between the dam and the tailings pond is greater than 40 m. The Aroeira TSF has been classified in accordance with ANM as classification “B” with a risk category of “Low” and potential associated damage of “High”. The Aroeira TSF has also been classified in terms of FMEA as Class III - “High Potential for Environmental Damage”.





Dam monitoring of the Aroeira TSF consists of instrument measurements and field inspections. Dam monitoring data is reviewed by an external consultant (Geoconsultoria) on a monthly basis. Fortnightly inspections are completed by Nexa personnel and Geoconsultoria who inspect the Aroeira TSF twice annually. Nexa utilizes SIGBar which provides guidelines for document management, monitoring, evaluation, risk analysis, compliance with standards and legislation, training of personnel, operation of structures and other provisions.

The latest review by Geoconsultoria that was reviewed by SLR was dated 30 August 2019 (Relatório Técnico CM18-RT57 Rev.0). Geoconsultoria’s report states the dam safety condition is “Satisfactory” without the presence of erosions, cracks, or other features indicative of instability.

17.2.2.1 Recommendations:

- The Golder closure report (No.: RT-006_169-525-2593_03-J 75, dated January 2018) recommends that a more detailed assessment be made of the impact of ore processing on the potential for release of sulphates from the tailings at the Pilha Garrote DSTSF.
- The placement and compaction of the filtered and cyclone tailings during the wet season must be considered.
- Dust generation from the Pilha Garrote DSTSF during the dry season must be considered.
- The water balance for the Aroeira TSF must be reviewed to determine the impact of use as a water management facility, increased mine dewatering, and surface runoff from the Pilha Garrote DSTSF.

17.2.3 Water Management

Limited information on water management details was provided in the documentation reviewed by SLR, in particular regarding design details. The description of the site water management system presented in this subsection is taken from Golder (2018).

Industrial effluents from the Vazante Operation are directed to the Aroeira TSF together with surface runoff from the crushing area, chemical laboratory area, and channel network for surface water collection. Underground mine dewatering is pumped to surface and conveyed via gravity to the Aroeira TSF tailings pond through a concrete channel. Excess water collected in the tailings pond is released to the Santa Catarina River through the shaft spillway located near the Aroeira TSF left abutment.

The latest hydrological and hydraulic study, carried out in May 2017 and presented in Geoconsultoria’s No. CM64-RT03 report, verified the adequacy of the spillway capacity for floods with a return period of 10,000 years, while maintaining a freeboard of 1.29 m. The regular dam safety inspections include the spillway in order to verify its unobstructed operation.

A monthly monitoring program is in place, checking water quality from a sampling point at the Aroeira TSF spillway outlet into the Santa Catarina River. Samples collected are analyzed for physical, chemical, and biological parameters by an independent third-party laboratory. The Aroeira TSF is the primary water storage facility on-site and is used for recirculation of water for ore processing, and for water clarification to remove suspended solids through gravity settling, providing a clarified liquid effluent.

Tailings are currently disposed as filtered tailings in the Pilha Garrote DSTSF constructed west of the Aroeira TSF. The Pilha Garrote DSTSF includes an underdrain system to ensure that infiltration is adequately captured for stability purposes. The Aroeira TSF remains in operation for the collection of underground mine dewatering and as the water supply storage dam for the processing plant.

Domestic wastewater from administrative areas, including the dressing rooms and bathrooms, is treated in the sanitary effluent treatment plant located in the administration area. A second sanitary effluent treatment plant is located between the crushed ore yard and the Aroeira TSF for treatment of domestic wastewater from the USICON W/C concentrator plant area.

Dewatering from the Extremo Norte Mine is pumped to the sump located at the bottom of the inactive Pit 5A. After undergoing a decantation process by gravity, the water is pumped into a channel for discharge to the Ouro Podre Stream.





According to Golder (2018), Nexa is planning to connect the galleries of the Extremo Norte Mine and main Vazante Mine in 2025 so all mine dewatering will be directed to the main pumping station (EB N-297) installed at the 297 m level of the Vazante Mine.

According to Golder (2018), diversion channels that direct freshwater to natural watercourses have been implemented to reduce the volume of water to be managed at the various mine facilities.

No information on site wide water balance modelling or an accompanying flow logic diagram was found in the documents reviewed. Updating the water balance modelling is of particular relevance when considering the MDP that is underway with the water pumping capacity increase at the bottom of the mine from 10,000 m³/h to 15,000 m³/h to be completed in 2022. The implementation of the MDP would increase the underground mine dewatering rate discharged to the Aroeira TSF pond. Conversely, water from the tailings stream is no longer collected in the Aroeira TSF pond since tailings disposal ceased at this facility. If there is a net reduction of water volume collected in the Aroeira TSF pond relative to the current operation, the availability of sufficient make-up water for ore processing under various climatic conditions will have to be confirmed through water balance modelling. If there is a net increase of water volume collected in the Aroeira TSF pond, the incremental effluent discharge to the Santa Catarina River will have to be determined through water balance modelling. The change in effluent discharge rate could influence water quality in the Santa Catarina River.

As noted in Section 17.2.2 Tailings Management of this Technical Report Summary, SLR recommends conducting additional water balance modelling of the Aroeira TSF to determine the impact of use as a water management facility, increased mine dewatering, and surface runoff from the Pilha Garrote DSTSF. Different climate scenarios should be simulated to account for years with annual precipitation below and above the statistical average (i.e. dry and wet years).

Nexa has developed a data management system for the Vazante Operation to document data associated with the water balance and the water management system. The water inventory at the site, water use for operations, and environmental water monitoring are tracked on a monthly basis and compared on an annual basis against previous years in order to identify trends and track improvements.

17.2.3.1 Surface Water Quality Monitoring

The main effluent generated from the Vazante Operation in terms of flow and potential environmental impact is the water pumped from the underground mines. Mine dewatering is conveyed to the Aroeira TSF, the Extremo Norte Mine sump (located at the bottom of Pit 5A) and Module III, when the Aroeira TSF is temporarily inactive for maintenance. From these three collection points clarified water is released to the Santa Catarina River and the Ouro Pobre Stream, downstream of the Vazante and Extremo Norte mines, respectively.

The Vazante Operation has a systematic monitoring network for surface water quality in streams within the area of influence, and effluents generated during the operations. Monitoring frequencies are daily or monthly depending on the location. Report submission to the authorities takes place quarterly. The monitoring network includes the following 26 flow measuring locations (Golder, 2018):

- Seven stations in the Santa Catarina River.
- Two stations in the Barroquinha Stream.
- One station in the Indaiá Stream.
- Two stations in the Ouro Podre Stream.
- One location for treated effluent at the Módulo III overflow structure.
- One location for untreated effluent from the underground mines before discharging to the Aroeira TSF.
- One location for untreated effluent from the Aroeira TSF underdrain system.
- One location for treated effluent at at the Aroeira TSF spillway outlet.
- Four locations for effluents associated with wastewater treatment from vehicle washing and maintenance.
- Five locations for effluents associated with domestic wastewater treatment.
- One location for effluent from the Extremo Norte Mine sump.





17.2.3.2 Groundwater Quality Monitoring

Based on information presented in Golder (2018), monitoring of groundwater from wells appears to take place at 20 locations. Eight of these locations correspond to the Extremo Norte Mine.

The monthly monitoring of groundwater is carried out in compliance with Condition 01 of Operation Licence No. 10/2012 and reports are required to be submitted every six months. Toxicity parameters are also monitored at four stations and submitted annually (Amec, 2017).

SLR was not provided groundwater quality reports for review, and therefore, SLR has not corroborated if reports documenting groundwater monitoring results were prepared and submitted to SUPRAM-NOR in 2019 or 2020.

17.3 Project Permitting

17.3.1 Current Permits, Approvals and Authorizations

The main activity of the Vazante Operation is defined as “open pit or underground mining in karstic areas with or without treatment” involving tailings disposal, waste rock disposal, and infrastructure works (Golder, 2018). The current operating licences, as provided by Nexa in October 2020, are listed in Table 17-1

Table 17-1: Operating Licences
Nexa Resources S.A. - Vazante Polymetallic Operations

Process PA/COPAM/No.	Certificate No.	Licensing Objective	Issue Date (DD/MM/YYYY)	Expiration Date (DD/MM/YYYY)	Status
104/1988/033/2006	Operation Licence 264/2012-2017	Mining and processing of zinc ore	17/9/2007	17/9/2012	Inactive (superseded by Operation Licence 028/2013- 2019)
104/1988/049/2011	Operation Licence 010/2012-2017	Open pits, process plant, tailings dam, waste dump, roads for mineral and waste transport, drainage channels, energy substations and gas station	19/4/212	19/4/2017	Under renewal through COPAM No. 104/1988/059/2016
104/1988/052/2012	Operation Licence 015/2012-2017	Lead and silver recovery project	26/6/2012	26/6/2017	Under renewal through COPAM No. 104/1988/059/2016
104/1988/053/2012	Operation Licence 028/2013-2019	Underground mining and emulsion tank	18/7/2013	18/7/2019	Under renewal through COPAM No. 104/1988/059/2016
104/1988/056/2014	Operation Licence 005/2016-2020	Extremo Norte Project	31/3/2016	31/3/2020	Under renewal through COPAM No. 104/1988/059/2016
104/1988/064/2018	Operation Licence 038/2019-2029	Reprocessing of deposited tailings	23/4/2019	12/4/2029	Active
104/1988/063/2018	Operation Licence 051/2019-2029	Tailings stack and mineral treatment unit (dry stack)	31/5/2019	27/4/2029	Active





Licences associated with water management and water use are listed in Table 17-2. Renewal applications have been lodged, where applicable, for the water licences in use.

Table 17-2: Licences for Water Management and Water Use
Nexa Resources S.A. - Vazante Polymetallic Operations

Agency	Purpose	File Number	Issue Date (DD/MM/YYYY)	Expiration Date (DD/MM/YYYY)	Status
SUPRAM-NOR	Construction of a dam on Santa Catarina tributary. Waste disposal and recovery of water for industrial use	01805/2008-2013	6/10/2008	6/10/2013	Active under renewal application No. 0910318/2013 filed on 5/24/2013 (Case 10107/2013)
IGAM	Barrel Stream remediation	02986/2009-2014	18/11/2009	18/11/2014	Active under renewal application 17988/2014
SUPRAM-NOR	Underground pumping for Extremo Norte Mine	01887/2011-2016	29/6/2011	29/6/2016	Active under renewal application No. 21392/2016 (22/6/2016)
SUPRAM-NOR	Palmito stream diversion	00218/2013-2016	4/2/2013	26/6/2016	Inactive (superseded by 2467/2018-2023)
SUPRAM-NOR	Underground pumping for Vazante Mine	1672/2013-2019	31/7/2013	18/7/2019	Renewal in progress by Process No. 43659/2019 (16/7/2019)
SUPRAM-NOR	Santa Catarina River water catchment	201/2014-2016	11/2/2014	26/6/2016	Inactive (superseded by 2282/2016)
SEMAD	Santa Catarina River water catchment	2282/2016	17/11/2016	31/3/2020	Inactive (superseded by 1707136/2020)
SUPRAM-NOR	Diversion of the Palmito stream to build the Aroeira TSF	2467/2018-2023	16/5/2019	8/6/2023	Active
SUPRAM-NOR	Water intake from Santa Catarina River for industrial purposes	1707136/2020	15/9/2020	15/9/2030	Active





Certificate No. 1370.01.0021690/2020-38 for absence of acid drainage was issued in 2020, valid for one year (to be renewed annually). Certificate No. 1370.01.0021690/2020-38 on annual report on storm water drainage system was issued in 2020, valid for one year (to be renewed annually). Certificate No. R0079622/2018 stipulating no evidence of leakage or contamination in the dam area was issued in 2018, valid for two years (to be renewed every two years).

17.3.2 Environmental Licensing and Approval

The description in this section was taken from Amec (2017). Mining activities are subject to mandatory environmental licensing by the Federal or State Environmental Agency, depending on the potential environmental impact. Environmental licenses are granted prior to mine construction, installation, expansion, or operation.

Generally, the environmental licensing is a three-stage process:

- A Preliminary License (LP) must be obtained during the planning stage evaluation. An EIA and a closure and remediation plan must be prepared during the LP stage. Public hearings are usually called to present the EIA to the communities and authorities. The LP usually imposes conditions that must be complied with by the mining company. The environmental authority will also set the amount of the environmental compensation, which is a minimum of 0.5% of the projected development investment.
- An Installation Licence (LI) is required prior to construction. The holder must present a PCA for approval. Once the PCA is approved, an LI is granted and usually has conditions attached specific to the operation. A mining concession can only be granted by the Minister of Mines once the holder has obtained an LI.
- An Operations Licence (LO) is granted once construction is complete and inspection by the environmental authorities confirms that the conditions imposed in the LI and commitments made in the PCA have been kept.

Although the Brazilian legal system provides for two types of titles, one for exploration and one for mining, it does grant security that the holder of an exploration licence can mine any deposit that is discovered within the granted title. The government is required to grant a mining concession to an entity that has explored for, identified a Mineral Resource, obtained ANM approval of the exploration report, filed applications for a mining concession in a timely manner, and obtained an LI.

Reasons for not granting a mining concession would be on the grounds of public interest, or if the Federal Government considers that it could have a negative effect on certain interests which are more important than mineral exploitation. In the latter instance, in those cases where a final exploration report has already been approved, a mining concession applicant is entitled to be indemnified by the Federal Government for any expenses incurred relating to the completed exploration work.

Brazil has a concept that is termed “environmental conservation units”, which can be created by either the Federal Government, States, or Municipalities, and can be either total protection conservation units, where industrial activities such as mining cannot take place, or sustainable use conservation units, where some industrial activities (including mining) may be carried out as long as they comply with regulatory requirements. Every environmental conservation unit in Brazil must have its own management plan that sets out the regulations for the administration and occupation of the unit. The plan includes regulations applicable to the zone that surrounds the unit.

17.4 Social or Community Requirements

17.4.1 General Context

The closest community to the Vazante Operation is the municipality of Vazante, located approximately 8.5 km east, with a population of approximately 20,600 residents. The closest major urban centre is Brasilia, approximately five hours away via roadways (250 km), with a population of approximately 4.7 million residents. This section presents the results of the social review based on a review of Nexa’s policies, programs, social risk management systems, and/or social performance against relevant International Finance Corporation (IFC) Performance Standards (PSs). While the IFC PSs have been used as a framework this social review does not represent a detailed audit of Nexa’s compliance with IFC PSs or specific guidelines. Nexa’s social performance is benchmarked against the following 2012 IFC PSs:





- **PS1: Social and Environmental Assessment and Management Systems** requires that companies identify, assess, and mitigate the social and environmental impacts and risks they generate throughout the lifecycle of their projects and operations. From a social perspective, the requirement includes: a comprehensive social assessment; identification of critical social impacts and risks; community consultation and engagement; information disclosure; mitigation plans to address impacts and risks; and development of an organizational structure with qualified staff and budgets to manage the overall social management system.
- **PS2: Labour and Working Conditions** incorporates the International Labour Organization conventions that seek to protect basic worker rights and promote effective worker/management relations.
- **PS4: Community Health and Safety** declares the project's duty to avoid or minimize risks and impacts to community health and safety and addresses priorities and measures to avoid and mitigate project related impacts and risks that might generate community exposure to risks of accidents and diseases.
- **PS5: Land Acquisition and Involuntary Resettlement** considers the need for land acquisition or involuntary resettlement of any individual, family or group; including the potential for economic displacement.
- **PS7: Indigenous Peoples** considers the presence of Indigenous groups, communities, or lands in the area that may be directly or indirectly affected by projects or operations.
- **PS8: Cultural Heritage.** This standard is based on the Convention on the Protection of the World Cultural and Natural Heritage. The objectives are to preserve and protect irreplaceable cultural heritage during a project's operations, whether or not it is legally protected or previously disturbed and promote the equitable sharing of benefits from the use of cultural heritage in business activities.

SLR notes that PS3 Resource Efficiency and Pollution Prevention and PS6 Biodiversity Conservation correspond to environmental performance standards, which have been discussed at the beginning of Section 17 of this Technical Report Summary.

17.4.2 Social and Environmental Assessment and Management Systems

At a corporate level, Nexa has adopted the guidelines of the International Integrated Reporting Council (IIRC) and the standards for the Global Reporting Index (GRI). The IIRC guidelines promote a cohesive and integrated approach to reporting on organizational activities. The GRI standards provide best practices for public reporting on economic, environmental, and social impacts in order to aid Nexa and its shareholders and stakeholders understand their corporate contribution to sustainable development. These standards were reported on in the most recent Nexa Annual Report (Nexa, 2020c). With respect to social issues, the 2019 Annual Report provided details of corporate activities aligning with the following GRI Standards:

- Employment
- Occupational health and safety (OHS)
- Non-discrimination
- Training and education
- Diversity and equal opportunities
- Freedom of association and collective bargaining
- Child labour
- Forced or compulsory labour
- Human rights assessment
- Local communities
- Social assessment of suppliers
- Socio-economic compliance





Nexa’s 2019 Annual Report also includes reporting on corporate progress towards several sustainable development goals. With respect to social environment issues, these include:

- Gender equality
- Decent work and economic growth
- Good health and well-being
- Peace, justice, and strong institutions
- Quality education
- Reduced inequalities
- Sustainable cities and communities
- Responsible consumption and production
- Life below water

Nexa has a corporate compliance policy (PC-RCC-CCI-005-EN) meant to guide Nexa representatives and third parties. The compliance policy includes the following policies and procedures:

- Code of Conduct
- Anti-Corruption Policy
- Money Laundering and Financing Terrorism Prevention Policy
- Antitrust/Competition Policy
- Insider Trading Policy
- Disclosure Policy
- Compliance Program Manual
- Money Laundering and Financing Terrorism Prevention Manual
- Gifts and Hospitality Procedure
- Relationships with Government Representatives Procedure
- Travel and Entertainment Procedure
- Integrity Due Diligence Procedure
- Conflict of Interests Procedure

With respect to the Vazante Operation, Nexa has developed and utilizes a number of social management programs and tools to help the company work with the nearby communities. These include:

- Risk analysis matrices
- Stakeholder tracking
- Social Characterization Plan
- Vazante Community Relations Plan (Local Development Plan)

In order to better understand the specific issues of the community and address the concerns that arise at the Vazante Operation, Nexa implements a Complaints and Requests Register guided by the Request, Consultation, Claims and Complaints Procedure. It details roles, responsibilities, and commitments to collect and respond to the public in a fair and equitable manner. All communications and complaints are recorded, investigated, evaluated, and resolved in accordance with the Procedure. The process aims to provide Nexa with a better understanding of the local population and related issues. Nexa also maintains a matrix of stakeholders, which is a database with relevant information, such as personal data, a record of interactions, and stakeholder roles and influence in the community. At the time of writing, most complaints and requests in 2020 had already been resolved, with few high-priority complaints about site operations.





Nexa maintains a Risk Register for the Vazante Operation called the business risk matrix that documents potential opportunities and relevant challenges. These risks are reviewed by theme and corresponding actions and mitigation measures are proposed. The aim of the business risk matrix is to help Nexa enable local development and open dialogue and develop a social action strategy. The process of defining the social action strategy includes:

- A characterization process so that the local social context and its relationship with the business are better understood and can guide the definition of a strategic agenda;
- Strategy development with a long term vision; and
- Preparation of the investment plan with definition of actions for implementation in the medium/long term.

These social management tools are supported by a 2015 Social Characterization Plan completed to increase the understanding of the local socio-economic environment, the salient issues to the community, a vision and actions for targeted activities, an investment plan and roadmap to improve socio-economic conditions. The 2015 Social Characterization Plan is a comprehensive research and evidenced based document, which draws upon secondary and primary data (i.e., community surveys and stakeholder interviews). As described above, the Local Development Plan (LDP) was elaborated through a process of studies and consultations with the public in 2017, which guide the portfolio of Nexa social projects at the Vazante Operation.

In the SLR QP’s opinion the grievance mechanism in place and the social management programs and tools for the Vazante Operations, are adequate to address potential issues related to local communities.

17.4.3 Labour and Working Conditions

Corporately, Nexa has affirmed its commitment to safe and positive labour and working conditions. The relevant sustainable development targets identified by Nexa include, but are not limited to:

- Achieving full and productive employment and decent work for all women and men, including young people and persons with disabilities, and equal pay for work of equal value by 2030.
- Protecting labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular migrant women, and persons in precarious employment.

Across all its operations, Nexa reports that 100% of its workers in Brazil are covered by collective bargaining units. At the Vazante Operation, employees are covered by various collective agreements depending on their role and type of employment. Each of these are valid to October 2020 with some expiring by April 2022. Vazante employs 966 employees with a smaller number of interns (approximately 17) and apprentices (approximately 29). According to the 2015 Social Characterization Plan, the majority of direct workers were located within the local community.

Nexa has adopted OHS policies to ensure the protection and promotion of the safety, human health, and welfare of employees. Corporately, Nexa reports on its health and safety performance and highlights safety as its greatest asset. Several corporate initiatives are aimed at promoting safety, ensuring workers and contractors are trained, and that processes are in place to address any incidents that arise. Nexa has a management standard that outlines the process to communicate, classify, analyze, and record potential accidents (near misses) and accidents in order to improve health and safety measures. Nexa also reports on the health and safety performance at all of their sites.

At the Vazante Operation, the Critical Safety Analysis in 2019 indicates that in both 2018 and 2019 there were no fatal accidents and that overall, the health and safety performance was similar in both years (with some small improvements in 2019 as compared to 2018). There were two serious injuries in 2019 (compared to three in 2018), and 18 other events with injuries in 2019 and 2018.

Corporately, Nexa has stated its commitment to internationally recognized human rights and prohibits any violation of human rights in its operations and suppliers. Suppliers are asked to provide information regarding both social responsibility and human rights preservation. Nexa reported that in 2019, there were no complaints of non-compliance with any requirements related to human rights impacts, across all of its operations. Furthermore, Nexa is also seeking to review all outside suppliers for their conformity with human rights ethics. As of 2019, approximately half of its suppliers had been reviewed, with no known records of any human rights violations.





There are procedures in place for employees and contractors to report grievances and ethical violations, including directly to management, via telephone and online. At the time of writing, there were no specific reports on the number of grievances or ethical violations relevant to the Vazante Operation.

Employees working underground shifts work for six days in a row. Each daily shift is comprised of six hours underground with one hour at the surface. Following a six day shift, employees are off for three days, which provides staff with sufficient opportunities to rest between scheduled work activities. Nexa has tried to hire from the local workforce when possible, both for skilled and unskilled workers. Outreach is conducted to the local community through social and employment programs. According to the distribution of employees presented in the 2015 Social Characterization Plan, approximately 95% of the direct workforce is sourced from the State of Minas Gerais, and at least 50% of the direct workforce comes from the Vazante municipality.

Employees have access to a number of benefits including paid vacations and holidays, financial bonuses, health, education, overtime, living allowance, and other employment bonuses.

17.4.4 Community Health and Safety

Corporately, Nexa has made several commitments to improve community health and safety, as well as the overall well being of community members. The municipality of Vazante has identified waste removal and treatment and access to clean drinking water as major issues. Nexa has also identified these as areas for targeted action to help communities build the required infrastructure and facilitate these development projects. Solid waste management is one of two major priorities for Nexa at the Vazante Operation, as documented in it's 2017 Community Relations Plan. This project will support the development of recycling and waste collection, sorting, and management facilities and services. The second priority is economic development and diversification, in recognition of the growth that has occurred at Vazante in step with the development of the Vazante Operation. Nexa has targeted a number of social activities to support local education and training as well as explore other economic opportunities such as tourism in order to diversify the local economy.

Nexa supports social health and community well being through a number of other initiatives which align with specific axes of operation. These include, but are not limited to:

- Children and Youth
 - o Partnership for the Valorization of Education
- Public Management and Social Participation
 - o We Are All
 - o Citizen Initiative
 - o Social Agenda
- Socio-Environmental
 - o Environmental Education Programs
 - o People Caring for the Waters
 - o Good Water
 - o Recycling and Composting Programs
- Economic Development
 - o Enjoy - Support for Public Management - Tourism Plan
 - o Good Rural Practices
 - o Qualification of Local Entrepreneurs





Collectively, these projects seek to improve local socio-economic conditions and support a more diverse and educated workforce.

Due to the COVID-19 pandemic, in 2020, there was a re-assessment of the proposed projects and adequacy of Nexa's social portfolio, ensuring compliance with the health protocols for the safety of Nexa employees and the community. The efforts were focused on preventing the spread of COVID-19.

17.4.5 Land Acquisition and Involuntary Resettlement

At the time of writing, there does not appear to be any land acquisition or involuntary resettlement associated with the Vazante Operation. Therefore, SLR is of the opinion that PS5 is not applicable.

17.4.6 Indigenous Peoples

There are no Indigenous peoples in the vicinity of the Vazante Operation. Therefore, SLR is of the opinion that PS7 does not appear to be applicable.

17.4.7 Cultural Heritage

There is a management standard specific to the Vazante Operation (PGU-VZ-HSM-MOM-005-EN) which outlines guidelines in the case of occurrence of fossils, or materials of archaeological, prehistoric, historic, or artistic interest in the underground cavities or properties related to the Vazante Operation. This document provides clear guidelines for site operators should any such articles of interest be discovered in accordance with local legislation and other requirements.

17.4.8 Conclusions and Recommendations

SLR's review of social aspects indicates that, at present, Nexa's Vazante Operation is a positive contribution to sustainability and community well being. Nexa has established and continues to implement its various corporate policies, procedures, and practices in a manner consistent with relevant IFC PSs. Nexa has, and continues to make, a positive contribution to the communities most affected by the site operations and has done a thorough job in documenting potential effects on stakeholders and protecting the rights, health, and safety of its employees.

At this time, there are no specific recommendations to improve Nexa's social performance at the Vazante Operation. Outreach, dialogue, and clear documentation should continue, particularly through the COVID-19 pandemic.

17.5 Mine Closure Requirements

17.5.1 Regulatory Requirements

Mining companies must submit studies to the environmental authorities related to the mitigation and compensation measures to obtain an LI. These studies must address the reclamation and decommissioning of the mined areas, describing the measures to be implemented throughout the mining process in order to prevent severe degradation of the area and to minimise impacts on the environment.

The decommissioning plan for a project must also be filed with the ANM for purposes of evaluation and determination of further measures and requirements in relation to the efficiency and safety of the mining activities.

Approval for mine closure is granted by the MME when the applicant can prove compliance with the decommissioning plan, especially environmental conditions.

The mining regulatory norm NRM No. 20/2001 establishes administrative and operational procedures in case of mine closure (definitive cessation), suspension (temporary cessation), and resumption of mining operations. NRM No. 20/2001 also outlines the content requirements of the Mine Closure Plan.

The mining regulatory norm NRM No. 21/2001 establishes administrative and operational procedures in case of rehabilitation of mined and impacted areas. According to this norm, rehabilitation projects must be prepared by legally qualified technicians and submitted to the ANM for evaluation.





In the State of Minas Gerais there are several norms dealing with the environmental aspects of mining and its industrial units. For the preparation of the Mine Closure Plan, the Normative Resolution COPAM 127/2008 must be considered, which establishes guidelines and procedures for environmental assessment of the mine closure phase. This norm conceptualizes mine closure as “a process that covers the entire mine life, from the stage of economic feasibility studies to the closure of the mining activity, including the closure, rehabilitation and future use of the impacted area”.

The mine closure must be planned from the beginning of the project. The essential objectives of the mine closure are as follows:

- Ensure that environmental, social, and economic impacts are mitigated after closure.
- Maintain the project area in safe and stable conditions through the implementation of the best control and monitoring techniques.
- Adjust the area impacted by mining activities for future use in a manner consistent with the socio-environmental and economic characteristics of the area of influence of the project.

The mining company must file the Mine Closure Plan with the state environmental agency, at least two years prior to closure. The same obligation applies to companies that have their registrations and authorizations annulled, revoked, or declared expired by the ANM, or companies addressing closure of an abandoned mine site. For projects classified as Class 5 and Class 6, a public hearing must be held in the municipality where the project is located 180 days after submitting the Mine Closure Plan to the environmental agency, in order to present it to interested parties and gather suggestions and opinions regarding closure activities.

In the event that mining activities need to be temporarily suspended due to fortuitous events, natural disasters, technical impediments, economic problems, or court decisions, the mining company must communicate the situation to the environmental agency and present a detailed report addressing the mine conditions, covering:

- The description of the current situation in the area, with an emphasis on physical and biological aspects.
- The definition of the actions that will be carried out during the temporary suspension, aiming at maintaining the safety conditions of the mined area and existing structures, the continuity of environmental rehabilitation, and the definition of monitoring parameters and frequency.
- The schedule for implementing the actions.
- The cost estimate for carrying out the actions.
- The forecast for the resumption of mining activity.

Such reports must be filed within 180 days, counted from the date of the interruption of activities. Resumption of activities by the mining company must be communicated to the environmental agency in advance.

Other important state regulations are:

- The Normative Resolution COPAM No. 62/2002 and its respective amendments (COPAM, 2002), which stipulate the criteria for dams, including closure aspects.
- Normative Resolution COPAM No. 76/2004, which stipulates aspects related to interference with permanent preservation areas.
- Normative Resolution COPAM No. 127/2008, which establishes the guidelines and procedures for environmental assessment of the mine closure phase, in addition to establishing the mandatory elaboration of the closure plan.
- Joint Normative Resolution COPAM / CERH-MG No. 01/2008, which stipulates the classification of water bodies and environmental guidelines for their classification and establishes the conditions and standards for effluent discharges.
- Joint Normative Resolution COPAM-CERH No. 02/2010, which institutes the state program for the management of contaminated areas and establishes guidelines and procedures for the protection of soil quality.
- Normative Resolution COPAM No. 166/2011, which amends Annex I of DN COPAM-CERH No. 02/2010, establishing reference values for soil quality.





Joint Normative Resolution COPAM-CERH No. 01/2008 is the norm that regulates the limit values for the concentration of pollutants from effluents discharged into water bodies in the State of Minas Gerais.

17.5.2 Mine Closure Plan

The following Mine Closure Plans are approved for the Vazante Operation (Amec, 2017):

- Vazante Mine decommissioning plan (conceptual phase) from 2008 and updated in 2013.
- Waste rock facility and open pit rehabilitation plan from 2011.
- Extremo Norte Mine decommissioning plan (conceptual phase) from 2012.
- Former process plant decommissioning plan (executive phase) from 2013.

A copy of the most recent Mine Closure Plan titled Detailed Decommissioning Actions Project for Vazante (Golder, 2018) was provided to SLR by Nexa. The Mine Closure Plan was developed with consideration to applicable norms and legal requirements as well as the guideline developed by Votorantim Metais Holding (VMH) for implementation, preparation and contracting closure studies and projects for decommissioning of mines, industrial units and other units that belong to VMH (Guideline PG-VM-HSMQ-040 Revision 2.2).

The Mine Closure Plan has been designed to address remediation of the operational areas, and to meet Brazilian engineering requirements for such plans at a conceptual level. The current plan provides the minimum requirements for the effective planning of mine closure activities, including the necessary provisioning of resources. The plan identifies three key phases:

- Pre-closure Phase: period of approximately seven years from 2021 to 2027, considering end of operations in 2027. Activities for this period are associated with field surveys, complementary studies, and development of environmental programs for the closure and post-closure phases.
- Closure Phase: decommissioning activities to be carried out in 2028 (approximate duration of one year).
- Post-closure Phase: period of approximately 10 years from 2019 to 2038 focused on environmental stabilization, monitoring and verification of physical, chemical, biological, and socioeconomic stability and evaluation of performance indicators. It also includes continuous maintenance activities and implementation of potential corrective actions, if required.

The Mine Closure Plan for the Vazante Mine covers the following components:

- Underground mine.
- Mined-out open pits from historical mining activities (Bocaina, Sucuri Central, Morro da Usina, Sucuri South, Portaria, and Cercado).
- Waste rock facilities (Depósito N°1 and Cercado).
- Antiga and Aroeira TSFs.
- Processing plants for willemite and calamine (Plant W and Plant C).
- Ancillary infrastructure (administrative and operational support facilities).

The Mine Closure Plan for the Extremo Norte Mine covers the following components:

- Underground mine.
- Mined-out open pits from historical mining activities (3A, 5A and 6A).
- Ancillary infrastructure (power distribution, roads, administrative facilities).

The Mine Closure Plan assumes most facilities will be dismantled, and equipment removed from the site. Closure of processing plant areas will consist of removal of buildings and structures, implementation of drainage systems and revegetation. Zinc concentrations in the soil are naturally high, and the levels in the plant area reflect the natural concentrations. As a result, no topsoil replacement is anticipated to be required. No remedial recontouring is expected, as the site is flat, can be readily revegetated, and no significant water management issues are expected.





Underground openings will be blocked off, and the water table allowed to re-establish. Closure of waste rock dumps (at this time inactive) will involve land contouring, drainage and erosion controls, and revegetation activities.

Closure of the Aroeira TSF will involve the following:

- Water pumping to remove the tailings pond.
- Breaching at the right abutment and construction of outlet channel to allow water drainage during post-closure.
- Re-contouring of surface of deposited tailings.
- Sealing of the shaft spillway.
- Construction of surface drainage channels.
- Topsoil placing and revegetation.

Closure of the Pilha Garrote DSTSF will involve construction of a surface drainage system, placing of topsoil, and revegetation. The Pilha Garrote DSTSF will undergo progressive reclamation, with the potential to commence it early in the facility lifecycle.

The mine closure premise at this time is that the tailings deposited in the TSFs have no potential for release of sulphate and affect the quality of surface water and groundwater in the surroundings.

Post-closure monitoring would be undertaken over a 10 year period (conceptually 2029 to 2038), and would include monitoring of the following key areas:

- Geotechnical stability every two months for the initial five years and every six months afterwards.
- Drainage structures and erosion every two months for the initial five years and every six months afterwards.
- Surface water quality and groundwater quality every six months.
- Revegetation weekly and quarterly during the first year and every six months afterwards.
- Terrestrial and aquatic fauna every six months.

17.5.3 Closure Cost Estimate and Financial Assurance for Closure

A closure cost estimate was developed and included in the 2018 Mine Closure Plan, which includes detailed cost sheets. The margin of error in the accuracy estimate was stated to be between -30% and 50% (Golder, 2018). The 2018 Mine Closure Plan states that no contingency was included in the cost estimate. The total current value estimated in Brazilian Reais (R\$) in 2018 for the remaining LOM is as follows (excluding local taxes):

- Pre-closure Phase (2017 to 2027) R\$12,780,000 US\$2,529,792
- Closure Phase (2028) R\$234,227,826 US\$46,365,234
- Post-Closure Phase (2029 to 2038) R\$24,204,648 US\$4,791,293
- Total closure cost R\$271,212,474 US\$53,686,319

SLR used an exchange rate of R\$5.0555:US\$1.00 (December 10, 2020) to convert the closure cost estimate to US Dollars. The total value of R\$271,212,474 corresponds to a present value of R\$144,280,435 (US\$28,560,211) considering an annual discount rate of 7.83% and disregarding inflation.

A financial assurance was provided by Nexa consistent with the internal Corporate Policy PC-COP-GCT-022-EN that establishes general guidelines for decommissioning considering the Asset Retirement Obligation (ARO) procedure and environmental liabilities. The ARO is an accounting procedure that requires companies to recognize the fair value of future obligations for the dismantling and removal of long lived assets, in order to ensure their balance sheets are more accurate. From an environmental perspective, they refer to future obligations to restore/recover the environment to ecological conditions that are similar to those existing before the start of the project or activity. In cases where it is impossible to return to the pre-existing conditions, there is an obligation to carry out compensatory measures to be agreed with the relevant entities.

The ARO for the Vazante Operation in 2018 was calculated as R\$253,945,481 (US\$50,268,330). The remaining R\$17,266,993 (US\$3,417,989) from the total closure cost correspond to the environmental liabilities.





18.0 CAPITAL AND OPERATING COSTS

SLR reviewed capital and operating costs required for mining and processing of Mineral Reserves at the Vazante Operation. Costs were supplied to SLR by Nexa. Vazante Operation consists of an operating mine, therefore, the capital and operating cost estimates were prepared based on recent operating performance and the current operating budget for 2020. The cost estimates are accurate to within +/- 10%. SLR considers these cost estimates to be reasonable. All costs in this section are expressed in US dollars.

18.1 Capital Costs

Sustaining capital costs were estimated by Nexa, with the majority of the costs consisting of mine development and heavy mobile equipment needed to replace the aging fleet. Sustaining capital costs are summarized in Table 18-1.

Table 18-1: Sustaining Capital Cost Estimate
Nexa Resources S.A. - Vazante Polymetallic Operations

Category	Sustaining Costs (US\$ millions)
Safety, Health & Environmental	4.8
Heavy Mobile Equipment	53.9
Expansion	18.5
Modernization	6.0
Horizontal Development	94.7
Vertical Development	23.6
Sustaining	27.4
Operational Working Capital	-7.6
Closure	38.5
Total	259.9

18.2 Operating Costs

Operating costs estimated by Nexa, averaging \$68.6 million per year were estimated for mining, processing, and G&A. Operating cost inputs such as labour rates, consumables, and supplies were based on Nexa operating data. A summary of operating costs is provided in Table 18-2.

Table 18-2: Operating Cost Estimate
Nexa Resources S.A. - Vazante Polymetallic Operations

Parameter	Total LOM (US\$ millions)	Average Year (US\$ millions/yr)	LOM Unit Cost (US\$/t)
Mining	447.7	40.7	26.83
Processing	222.8	20.3	13.36
G&A	84.5	7.7	5.06
Total	755.0	68.6	45.25

SLR notes that capital and operating costs are reported in R\$, and that the foreign exchange rate R\$:US\$ has a significant impact on costs.





19.0 ECONOMIC ANALYSIS

The economic analysis contained in this Technical Report Summary is based on Vazante’s Mineral Reserves, economic assumptions provided by Nexa, and the capital and operating costs as presented in Section 18 of this Technical Report Summary.

19.1 Economic Criteria

19.1.1 Physicals

- Mine life: 11 years (between 2021 and 2031):
- Underground ore tonnes mined: 16.684 Mt
 - o Zinc grade: 8.61% Zn
 - o Lead grade: 0.23% Pb
 - o Silver grade: 13.73 g/t Ag
- Processed:
 - o Total Ore Feed: 16.684 Mt
 - \$ Zinc grade: 8.61% Zn
 - \$ Lead grade: 0.23% Pb
 - \$ Silver grade: 13.73 g/t Ag
 - o Contained Metal:
 - \$ 1.437 Mt Zn
 - Zinc:
 - \$ 0.038 Mt Pb
 - Lead:
 - \$ 7.367 Moz Ag
 - Silver:
 - o Metallurgical Recoveries at LOM average grades (recoveries vary as a function of head grade):
 - \$ Zn recovery 83.6%
 - \$ Pb recovery 22.3%
 - \$ Ag in Pb recovery 42.0%
 - o Recovered Metals:
 - \$ 1.205 Mt Zn
 - Zinc:
 - \$ 0.092 Mt Pb
 - Lead:
 - \$ 3.094 Moz Ag
 - Silver:
 - o Payable Metals:
 - \$ 1.138 Mt Zn
 - Zinc:
 - \$ 0.0158 Mt Pb
 - Lead:
 - \$ 2.939 Moz Ag
 - Silver:

19.1.2 Revenue

- Revenue is estimated based on the following LOM average metal prices:
 - o Zinc price: US\$2,491/t Zn





- o Lead price: US\$1,960/t Pb
- o Silver price: US\$17.01/oz Ag
- Net Revenue includes the benefit of zinc smelting at cost (rather than at commercial third-party terms), due to integration with Nexa's Três Marias refinery.
- Logistics, Treatment and Refining charges:
 - o LOM average Transportation/Logistics charges:
 - \$ Zinc concentrate to Três Marias refinery: US\$16.7/t concentrate
 - \$ Lead concentrate to Asia: US\$278.7/t concentrate
 - o Treatment Charges:
 - \$ LOM average TC for lead concentrate: US\$200.4/t concentrate
 - \$ LOM average refined zinc conversion costs at Três Marias: US\$477/t
 - o Refining Charges:
 - \$ Silver in lead concentrate: US\$1.00/oz Ag
- LOM Net Revenue after Treatment and Refining charges is US\$2,627 million.

19.1.3 Capital Costs

- LOM sustaining capital costs of US\$228.9 million.
- Closure costs of US\$38.5 million were included at the end of the Mineral Reserves based LOM in year 2032.

19.1.4 Operating Costs

- LOM unit operating cost average of:
 - o Mine Development: US\$7.77/t mined
 - o Underground Mining: US\$19.07/t mined
 - o Processing: US\$13.36/t milled
 - o G&A: US\$5.06/t milled
- Total unit operating costs of US\$45.25/t milled.
- LOM operating costs of US\$755 million.

19.1.5 Taxation and Royalties

- Corporate income tax rate in Brazil is 34%.
- CFEM royalty rate: 2%.
- SLR has relied on a Nexa taxation model for calculation of income taxes applicable to the cash flow.

19.2 Cash Flow

SLR reviewed the Vazante Operation LOM after-tax cash flow model to confirm the economics of the LOM plan. The model does not take into account the following components:

- Financing costs
- Insurance
- Overhead cost for a corporate office

A cash flow summary is presented in Table 19-1. All costs are in Q4 2020 US dollars with no allowance for inflation.



Table 19-1: After-Tax Cash Flow Summary
Nexa Resources S.A. - Vazante Polymetallic Operations

Vazante		Cash Flow Summary			Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
		Inputs	UNITS	TOTAL	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
MINING																
Underground																
	Production	'000 tonnes	16,684	1,520	1,520	1,530	1,536	1,530	1,536	1,536	1,540	1,531	1,513	1,391		-
	Zn Grade	%	8.6%	10.4%	9.8%	9.8%	9.8%	9.8%	9.8%	7.7%	7.7%	6.8%	6.9%	6.2%	0.0%	0.0%
	Pb Grade	%	0.2%	0.3%	0.3%	0.2%	0.2%	0.2%	0.3%	0.2%	0.2%	0.2%	0.2%	0.2%	0.0%	0.0%
	Cu Grade	%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Ag Grade	oz/t	0.44	0.56	0.52	0.54	0.47	0.48	0.50	0.33	0.42	0.43	0.36	0.23		-
	Au Grade	oz/t	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Contained Metal in ROM																
	Zn	'000 tonnes	1,437	157.6	149.5	149.2	150.0	149.8	149.8	117.9	118.0	104.6	104.4	86.0		-
	Pb	'000 tonnes	38	4.0	4.4	3.8	3.4	3.2	4.1	3.2	3.0	3.3	3.2	2.4		-
	Cu	'000 tonnes	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ag	kozsz	7,367	850.7	791.4	818.8	721.8	740.4	769.6	511.1	646.9	653.2	540.5	322.1		-
	Au	kozsz	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PROCESSING																
Mill Feed		'000 tonnes	16,684	1,520	1,520	1,530	1,536	1,530	1,536	1,536	1,540	1,531	1,513	1,391		-
Head grade																
	Zn Grade	%	8.6%	10.4%	9.8%	9.8%	9.8%	9.8%	9.8%	7.7%	7.7%	6.8%	6.9%	6.2%	0.0%	0.0%
	Pb Grade	%	0.2%	0.3%	0.3%	0.2%	0.2%	0.2%	0.3%	0.2%	0.2%	0.2%	0.2%	0.2%	0.0%	0.0%
	Cu Grade	%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Ag Grade	oz/t	0.44	0.56	0.52	0.54	0.47	0.48	0.50	0.33	0.42	0.43	0.36	0.23		-
	Au Grade	oz/t	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Contained Zn	'000 tonnes	1,437	157.6	149.5	149.2	150.0	149.8	149.8	117.9	118.0	104.6	104.4	86.0		-
	Contained Pb	'000 tonnes	38	4.0	4.4	3.8	3.4	3.2	4.1	3.2	3.0	3.3	3.2	2.4		-
	Contained Cu	'000 tonnes	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Contained Ag	koz	7,367	850.7	791.4	818.8	721.8	740.4	769.6	511.1	646.9	653.2	540.5	322.1		-
	Contained Au	koz	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Recovery																
	Zn Recovery	%	120527.5%	135	127	127	128	128	128	97	97	85	85	69		-
	Pb Recovery	%	1794.4%	2	2	2	2	2	2	2	1	2	2	1		-
	Cu Recovery	%	0.0%	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ag Recovery	%	309396.5%	357	332	344	303	311	323	215	272	274	227	135		-
Concentrate Production																
	Zn Concentrate	'000 tonnes	3,090	347.3	326.9	325.9	327.7	327.4	327.2	248.8	248.9	217.2	217.0	176.2		-
	Zn	%	39.00%	39.0%	39.0%	39.0%	39.0%	39.0%	39.0%	39.0%	39.0%	39.0%	39.0%	39.0%		0.0%
	Pb Concentrate	'000 tonnes	72	7.6	8.3	7.1	6.4	6.1	7.7	6.1	5.7	6.3	6.1	4.6		-
	Pb	%	25.00%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%		0.0%
	Ag	oz/t	43.1	47.2	40.0	48.3	47.6	51.2	42.0	35.4	47.9	43.8	37.3	29.6		-
Zn equivalent		kt /year	1,241	140.2	131.7	130.8	130.8	130.6	131.3	99.7	100.0	87.8	87.4	70.5		-
REVENUES																
Metal Prices																
	Zn price	US\$/t	\$2,463.81	\$2,219.00	\$2,298.00	\$2,539.00	\$2,720.00	\$2,928.00	\$2,449.00	\$2,449.00	\$2,449.00	\$2,449.00	\$2,449.00	\$2,449.00	\$2,449.00	\$2,449.00
	Pb price	US\$/t	\$1,927.46	\$1,950.25	\$1,898.00	\$1,957.00	\$2,039.00	\$2,247.00	\$1,910.00	\$1,910.00	\$1,910.00	\$1,910.00	\$1,910.00	\$1,910.00	\$1,910.00	\$1,910.00
	Cu price	US\$/t	\$6,573.44	\$6,070.50	\$6,137.00	\$6,277.00	\$6,351.00	\$6,639.00	\$6,627.00	\$6,627.00	\$6,627.00	\$6,627.00	\$6,627.00	\$6,627.00	\$6,627.00	\$6,627.00
	Ag price	US\$/oz	\$16.92	\$19.05	\$17.11	\$16.95	\$16.40	\$16.40	\$16.87	\$16.87	\$16.87	\$16.87	\$16.87	\$16.87	\$16.87	\$16.87
	Au price	US\$/oz	\$1,516.08	\$1,900.50	\$1,613.00	\$1,553.00	\$1,466.00	\$1,466.00	\$1,500.00	\$1,500.00	\$1,500.00	\$1,500.00	\$1,500.00	\$1,500.00	\$1,500.00	\$1,500.00
	FX Rate	BRL/USD	\$4.81	\$5.05	\$4.84	\$4.85	\$4.80	\$4.80	\$4.80	\$4.80	\$4.80	\$4.80	\$4.80	\$4.80	\$4.80	\$4.80
Payable Metal																
	Zn	'000 tonnes	1,138	127.9	120.4	120.0	120.7	120.6	120.5	91.6	91.6	80.0	79.9	64.9		-
	Pb	'000 tonnes	16	1.7	1.8	1.6	1.4	1.3	1.7	1.3	1.2	1.4	1.3	1.0		-
	Ag	kozsz	2,939	339.4	315.8	326.7	288.0	295.4	307.1	203.9	258.1	260.6	215.7	127.9		-
Zn Metal																
	Selling Price	US\$/t conc	\$2,263.00	\$2,016.12	\$2,065.60	\$2,306.41	\$2,483.89	\$2,692.31	\$2,213.35	\$2,213.10	\$2,218.98	\$2,217.71	\$2,205.22	\$2,178.96		-
	Volume	'000 tonnes	1,138	127.9	120.4	120.0	120.7	120.6	120.5	91.6	91.6	80.0	79.9	64.9		-
	Revenues	US\$ '000	\$2,575,310	\$257,865	\$248,659	\$276,749	\$299,742	\$324,567	\$266,677	\$202,763	\$203,344	\$177,378	\$176,201	\$141,365		-
Pb Concentrate																
	Selling Price	US\$/t conc	\$887.36	\$1,025.56	\$822.10	\$960.58	\$942.45	\$1,046.34	\$856.76	\$757.18	\$945.35	\$884.08	\$785.87	\$666.96		-
	Concentrate	'000 tonnes	72	7.6	8.3	7.1	6.4	6.1	7.7	6.1	5.7	6.3	6.1	4.6		-
	Revenues	US\$ '000	\$63,692	\$7,758	\$6,828	\$6,838	\$6,007	\$6,355	\$6,590	\$4,589	\$5,362	\$5,533	\$4,780	\$3,051		-
(=) TOTAL Gross Revenues		US\$ '000	\$2,639,002	\$265,623	\$255,486	\$283,587	\$305,749	\$330,922	\$273,266	\$207,353	\$208,706	\$182,912	\$180,981	\$144,416		-
	Zn Concentrate	%	98%	97%	97%	96%	98%	98%	98%	98%	97%	97%	97%	98%		0%
	Pb Concentrate	%	2%	3%	3%	2%	2%	2%	2%	2%	3%	3%	3%	2%		0%
(-) Royalties		US\$ '000	\$12,093	\$1,098	\$1,119	\$1,122	\$1,117	\$1,122	\$1,129	\$1,089	\$1,106	\$1,106	\$1,084	\$1,003		-
	CFEM	US\$ '000	\$12,093	\$1,098	\$1,119	\$1,122	\$1,117	\$1,122	\$1,129	\$1,089	\$1,106	\$1,106	\$1,084	\$1,003		-
Vazante		Cash Flow Summary			Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
		Inputs	UNITS	TOTAL	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
(=) TOTAL Net Revenues		US\$ '000	\$2,626,909	\$264,525	\$254,367	\$282,465	\$304,632	\$329,800	\$272,138	\$206,264	\$207,601	\$181,806	\$179,898	\$143,414		-
		US\$/t														

	Pre-tax NPV at 8.00% discounting	8.00%	US\$ '000	\$1,054,809	\$ 146,109	\$ 116,352	\$ 144,333	\$ 150,535	\$ 158,989	\$ 107,242	\$ 65,112	\$ 65,395	\$ 45,489	\$ 46,162	\$ 27,980	\$(18,889)
	Pre-tax NPV at 9.00% discounting	9.00%	US\$ '000	\$1,016,581	\$ 145,437	\$ 114,755	\$ 141,045	\$ 145,757	\$ 152,529	\$ 101,941	\$ 61,326	\$ 61,027	\$ 42,061	\$ 42,292	\$ 25,399	\$(16,989)
	Pre-tax NPV at 10.00% discounting	10.00%	US\$ '000	\$980,593	\$ 144,774	\$ 113,193	\$ 137,862	\$ 141,171	\$ 146,388	\$96,947	\$ 57,791	\$ 56,987	\$ 38,919	\$ 38,778	\$ 23,077	\$(15,295)
After-Tax																
	Pre-tax NPV at 8.00% discounting	8.00%	US\$ '000	\$677,289	\$ 85,838	\$ 66,075	\$ 91,481	\$ 97,235	\$ 104,342	\$69,414	\$ 45,035	\$ 45,673	\$ 32,025	\$ 33,014	\$ 26,047	\$(18,889)
	Pre-tax NPV at 9.00% discounting	9.00%	US\$ '000	\$651,794	\$ 85,443	\$ 65,168	\$ 89,397	\$ 94,149	\$ 100,102	\$65,983	\$ 42,416	\$ 42,623	\$ 29,612	\$ 30,246	\$ 23,644	\$(16,989)
	Pre-tax NPV at 10.00% discounting	10.00%	US\$ '000	\$627,816	\$ 85,054	\$ 64,281	\$ 87,379	\$ 91,187	\$ 96,072	\$62,751	\$ 39,971	\$ 39,801	\$ 27,400	\$ 27,733	\$ 21,482	\$(15,295)





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Nexa Resources S.A. | Vazante Polymetallic Operations, **SLR Project No: 233.03245.R0000**
Technical Report Summary - February 15, 2021



19.2.1 Cash Flow Analysis

Mine economics have been evaluated using the discounted cash flow method, using mid-year discounting convention, and taking into account annual processed tonnages and zinc, lead, and silver grades. The associated process recovery, zinc, and lead concentrate grades, metal prices, operating costs, refining and transportation charges, royalties, and capital expenditures were also considered. The economic analysis confirmed that the Vazante Mineral Reserves are economically viable. The pre-tax net present value (NPV) at a 9% base discount rate is US\$1,017 million and the after-tax NPV at a 9% base discount is US\$652 million.

The summary of the results of the cash flow analysis is presented in Table 19-2.

Table 19-2: Cash Flow Analysis
Nexa Resources S.A. - Vazante Polymetallic Operations

Item	Discount Rate	Units	Value
Pre-tax NPV at 8% discount	8%	US\$ million	1,055
Pre-tax NPV at 9% discount	9%	US\$ million	1,017
Pre-tax NPV at 10% discount	10%	US\$ million	981
After-Tax NPV at 8% discount	8%	US\$ million	677
After-Tax NPV at 9% discount	9%	US\$ million	652
After-tax NPV at 10% discount	10%	US\$ million	628

The undiscounted pre-tax cash flow is US\$1,468 million, and the undiscounted after-tax cash flow is US\$954 million. For this cash flow analysis, the internal rate of return (IRR) and payback are not applicable as there is no negative initial cash flow (no initial investment to be recovered).

19.3 Sensitivity Analysis

Project risks can be identified in both economic and non-economic terms. Key economic risks were examined by running cash flow sensitivities on after-tax NPV at an 9% discount rate. The following items were examined:

- Metal prices
- Head grade
- Metallurgical recovery
- Operating costs, and
- Capital costs

After-tax sensitivity over the base case has been calculated for -20% to +20% (for head grade), -10% to +5% (for recoveries), -20% to +20% (for metal prices), and -5% to +15% (operating costs and capital costs) variations to determine the most sensitive parameter of this project. The sensitivities are shown in Table 19-3 and Figure 19-1.





Table 19-3: After-Tax Sensitivity Analysis
Nexa Resources S.A. - Vazante Polymetallic Operations

Head Grade		NPV at 9% (US\$ million)
80%	Zn:6.89% Pb:0.18% Ag:10.99 g/t	389
90%	Zn:7.75% Pb:0.21% Ag:12.36 g/t	520
100%	Zn:8.61% Pb:0.23% Ag:13.73 g/t	652
110%	Zn:9.47% Pb:0.25% Ag:15.11 g/t	785
120%	Zn:10.33% Pb:0.27% Ag:16.48 g/t	920

Zn Recovery		NPV at 9% (US\$ million)
90%	75.9%	536
98%	79.7%	594
100%	83.9%	652
103%	86.0%	681
105%	88.1%	709

Metal Prices		NPV at 9% (US\$ million)
80%	Zn:\$0.90/lb Pb:\$0.71/lb Ag:\$13.61/oz	387
90%	Zn:\$1.02/lb Pb:\$0.80/lb Ag:\$15.31/oz	520
100%	Zn:\$1.13/lb Pb:\$0.89/lb Ag:\$17.20/oz	652
110%	Zn:\$1.24/lb Pb:\$0.98/lb Ag:\$18.71/oz	783
120%	Zn:\$1.36/lb Pb:\$1.07/lb Ag:\$20.41/oz	914

Operating Costs (US\$ million)		NPV at 9% (US\$ million)
95.0%	717	668
97.5%	736	660
100.0%	755	652
107.5%	811	627
115.0%	868	603

Total Capital Costs (US\$ million)		NPV at 9% (US\$ million)
95.0%	251	661
97.5%	258	656
100.0%	265	652
107.5%	284	638
115.0%	304	624





Figure 19-1: After-Tax NPV Sensitivity Graph

The after-tax NPV is most sensitive to head grade, then to metal prices, followed by recovery, operating costs, and capital costs.





20.0 ADJACENT PROPERTIES

SLR is not aware of any significant deposits or properties adjacent to the Vazante Operation.





21.0 OTHER RELEVANT DATA AND INFORMATION

No additional information or explanation is necessary to make this Technical Report Summary understandable and not misleading.





22.0 INTERPRETATION AND CONCLUSIONS

SLR offers the following conclusions by area.

22.1 Geology and Mineral Resources

- Mineral Resources have been estimated for three styles of mineralization – hypogene (willemite) mineralized zones, where mining currently takes place; supergene (calamine) mineralization, located near surface; and tailings contained within the Aroeira TSF.
- As prepared by Nexa and adopted by SLR, the Vazante Measured and Indicated Mineral Resources, effective as of December 31, 2020 and exclusive of Mineral Reserves, comprise 6.3 Mt at grades of 6.88% Zn, 0.16% Pb, and 7.1 g/t Ag, containing 432.3 kt Zn, 10.2 kt Pb, and 1.44 Moz Ag. In addition, Inferred Mineral Resources comprise 13.8 Mt, at grades of 6.86% Zn, 0.18% Pb, and 9.5 g/t Ag, containing 950.2 kt Zn, 25.5 kt Pb, and 4.2 Moz Ag. Mineral Resources are reported on a 100% Nexa attributable ownership basis.
- Mineral Resources have been classified in accordance with the definitions for Mineral Resources in S-K 1300, which are consistent with CIM (2014) definitions.
- The geological data and procedures are adequate for the estimation of Mineral Resources and comply with industry standards.
- The “Reasonable Prospects for Economic Extraction” requirement of S-K 1300 resource definitions is satisfied by:
 - o Reporting panels that have been created so as to achieve the required spatial continuity, cut-off grade, and minimum width criteria for the underground hypogene mineralization.
 - o Open pit shells for the supergene mineralization.
 - o The use of the original topographical surface as a constraint for the tailings mineralization.
- Location data for the supergene and tailings drill holes is stored in a surface UTM coordinate system, while the hypogene drill data has been converted to an underground mine grid coordinate system.

22.2 Mining and Mineral Reserves

- The Vazante Operation deposits support an average production rate of 1.5 Mtpa over the LOM, producing from 69,000 t Zn per year to 135,000 t Zn per year contained in zinc concentrate depending on head grade.
- Deposit geometry and geomechanical properties are amenable to bulk longhole mining methods. The SLS methods used at the Vazante Mine consist of a combination of downholes or VRM where stopes are backfilled with run of mine rock and up-holes or SLOS which are not backfilled.
- As prepared by Nexa and adopted by SLR, the Vazante Proven and Probable Mineral Reserves, effective as of December 31, 2020, comprise 16.7 Mt at grades of 8.61% Zn, 0.23% Pb, and 13.7 g/t Ag, containing 1.44 Mt Zn, 38,000 t Pb, and 7.37 Moz Ag. Mineral Reserves are reported on a 100% Nexa attributable ownership basis.
- Mineral Reserves have been classified in accordance with the definitions for Mineral Reserves in S-K 1300, which are consistent with CIM (2014) definitions.
- Dilution and extraction estimates include:
 - o Dilution – planned dilution for SLS assumes an estimate of the ELOS (m) depending on the dip of the stope, ranging from zero metres to 0.75 m in the hanging wall and zero metres to 0.25 m in the footwall.
 - o Pillars are also used to control stope dilution. These include the use of sill pillars between mining sublevels, island pillars located at the centre of stopes, and rib pillars positioned at the extremities of the stopes to reduce the potential for excess sloughing from the hanging wall contact and control dilution from adjacent filled stopes.
 - o Extraction – initial selection of resources by stope optimization and design, plus additional factors of 83% to 98% by mining method, and 35% to 60% for pillar recovery.





- The Vazante Operation requires extreme dewatering to operate, with pumping capacity increasing over time as total mine workings increase in size. The pumping rates in 2020 averaged approximately 12,500 m³/h, which while in excess of recent modelling, is well within the installed pumping capacity of the Vazante Operation (20,000 m³/h).
- The second of a two-phase MDP is underway with the water pumping capacity to increase at the bottom of the mine from 10,000 m³/h to 15,000 m³/h to be completed in 2022.

22.3 Mineral Processing

- Recovery of zinc from silicate minerals is not common, however, processing via flotation works in a manner similar to recovery of zinc from sulphides. Recovery of zinc metal from zinc silicate concentrates, however, is quite different compared to recovery from sulphides, requiring hydrometallurgical processing at a dedicated facility such as Nexa's Três Marias smelter.
- Zinc recovery has been shown to be related to head grade. The head grade of the processing plant feed is forecast to decrease over the remainder of the LOM, therefore, recovery and zinc concentrate production are also forecast to decrease over the remainder of the LOM, even though the ore processing rate is forecast to continue at current rates until the final year in the LOM.
- In the SLR QP's opinion, the use of past operating performance to derive a head grade versus recovery relationship for zinc (and lead) is reasonable and adequate to predict future plant performance for future head grades and ore types similar to those processed in the past few years.
- Plant feed is supplemented from time to time with small amounts of willemite tailings recovered from the Aroeira TSF and blended with the fresh ore, however, Nexa is considering increasing the tailings reprocessing rate to up to 10% of plant feed. Pilot plant test work using column flotation has been conducted to assess the possibility of processing tailings separately to improve zinc recovery and results have been positive. Variability test work on samples of tailings from the Aroeira TSF is underway to help evaluate the variability of metallurgical response of the tailings.
- Nexa has identified calamine resources in the Extremo Norte deposit area and along the strike length, as well as in historical tailings (the Aroeira TSF), and potential calamine resources in other historical tailings deposits. Nexa is conducting test work on calamine mineralization from the Extremo Norte area to try to improve on historical calamine processing performance, which was characterized as challenging with zinc recovery of only 50%.
 - o Bench-scale open circuit rougher-scavenger test work using conventional mechanical cells achieved approximately 23% Zn in concentrate at a recovery of up to 70%. An open circuit cleaner test produced a concentrate grading 39% Zn (the target zinc grade for concentrate being processed at Nexa's Três Marias smelter) and a recovery of 63%.
 - o Pilot plant test work at the Vazante Operation using conventional mechanical cells demonstrated that overall zinc recovery of up to 50% at concentrate grades over 37% was possible. The majority of zinc losses (approximately 60%) were to the fines fraction (< 38 µm) removed prior to flotation and occurring mainly as hemimorphite. Nexa noted that the use of column cells rather than mechanical cells could provide some improvement in yield due to the large proportion of fines in the feed, and that further assessment of collectors and fatty acids was necessary to improve the recovery of hemimorphite.

22.4 Environment & Social

- No environmental issues were identified from the documentation available for review that could materially impact the ability to extract the Mineral Resources and Mineral Reserves. The Vazante Operation has all the environmental operational licences required for operation according to Brazilian legislation. The approved licences address the authority's requirements for mining extraction and operation activities. The Vazante Operation has not applied for new permits and SLR is not aware of any new projects or modification to the existing operations triggering permitting processes. Four active Operation Licences are in the process of renewal through COPAM No. 104/1988/059/2016.





- The environmental programs defined in the Environmental Control Plans, PCAs are an integral part of the Environmental Management System for adoption of measures aimed at the prevention, mitigation, and control of potential environmental impacts resulting from mining activities. Results of the environmental programs including monitoring of water quality, air quality and noise are documented in annual reports submitted to the authorities (SUPRAM-NOR). The SLR QP is not aware of non-compliance issues raised by the authorities. In the SLR QP's opinion, the environmental management programs for Vazante are adequate to address potential issues related to environmental compliance.
- Nexa utilizes an Integrated Dam Management System (referred to as SIGBar) which provides guidelines for document management, monitoring, evaluation, risk analysis, compliance with standards and legislation, training of personnel, operation of structures and other provisions.
- Tailings are currently disposed of as filtered tailings at the Pilha Garrote DSTSF. The Aroeira TSF, the former primary location for tailings disposal until August 2019, will remain operational as a water storage facility.
- Regular dam safety inspections have visually confirmed that the tailings beach of the Aroeira TSF between the dam and the tailings pond is greater than 40 m.
- Dam monitoring consists of instrument measurements and field inspections. Dam monitoring data is reviewed by an external consultant (Geoconsultoria) on a monthly basis. Fortnightly inspections are completed by Nexa personnel and every six months by Geoconsultoria. The latest review by Geoconsultoria that was reviewed by SLR was dated 30 August 2019 (Relatório Técnico CM18-RT57 Rev.0). Geoconsultoria's report states the dam safety condition is "Satisfactory" without the presence of erosions, cracks, or other features indicative of instability.
- A Mine Closure Plan has been developed for all the Vazante Operation components within the context of Brazilian legislation and consideration to the VMH guideline for decommissioning (Guideline PG-VM-HSMQ-040 Revision 2.2). The most recent Mine Closure Plan and cost estimate were completed in January 2018.
- A social baseline description, assessment of socio-economic impacts, and identification of socio-economic environment programs have been completed as part of the environmental impact assessments carried out to mitigate negative impacts and maximize positive benefits of the Vazante Operations. These components are generally consistent with social impact assessment practices. Nexa has developed and utilizes a number of social management programs and tools to help it work with the nearby communities (risk analysis matrices, stakeholder tracking, social characterization plan and local development plan). In the SLR QP's opinion the grievance mechanism in place and the social management programs and tools for the Vazante Operations, are adequate to address potential issues related to local communities.
- Nexa hires from the local workforce when possible, both for skilled and unskilled workers. Outreach to the local community is conducted through social and employment programs.
- No social issues were identified from the documentation available for review. The review of social aspects indicates that, at present, Nexa's operations at the Vazante Operation are a positive contribution to sustainability and community wellbeing. Nexa has established and continues to implement its various corporate policies, procedures, and practices in a manner consistent with relevant International Finance Corporation (IFC) Performance Standards (PSs). Nexa has, and continues to make, a positive contribution to the communities most affected by the site operations and has done a thorough job in documenting potential effects on stakeholders and protecting the rights, health, and safety of its employees.

22.5 Costs and Economic Analysis

- The LOM operating cost forecast reflects the existing operating status of the Vazante Operation. SLR has reviewed recent operating costs and is of the opinion that the forecast is appropriate for the Vazante Operation. Nexa also needs to continue assessing operating efficiencies and approaches in efforts to improve operating costs in the different cost centres.
- The economics of the Vazante Operation are robust over the LOM, confirming that the Mineral Reserves are economically viable. The economic analysis indicates an after-tax net present value (NPV), at a 9% base discount rate, of \$652 million.





23.0 RECOMMENDATIONS

SLR offers the following recommendations by area.

23.1 Geology and Mineral Resources

- 1. The coordinates for all supergene related drill holes be converted into the local mine grid coordinates so that the results from all Mineral Resource estimation activities can then be integrated with any underground mining activities that have been or are planned to be carried out in this area.
- 2. The drill hole dips for the drill holes examined be confirmed by direct visual inspection of the departing drill hole orientation at the drilling face.
- 3. The drill hole data relating to the tailings mineralization be converted into the mine grid coordinate system to more easily integrate the information for the underground mine.

23.2 Mining and Mineral Reserves

- 1. In SLR's opinion high mine dilution at the Vazante Operation is caused in part by the current cable bolting procedure, whereby bolts are installed from the undercut level and fanned into the hanging wall of the stope. The cable bolt coverage of the stope should be improved by drilling the cable bolt holes from a hanging wall access, where the cost can be justified. Additionally, SLR also recommends assessing the production drilling design to reduce the potential for dilution.
- 2. SLR observed secondary breaking on surface during the 2018 site visit. The stope drill patterns should be reviewed with the intent of reducing the level of stope dilution through adjustment of the drill pattern. This may require drilling an additional hole on the hanging wall contact, between the current burden spacing. A reduced explosive charge per hole, using a lower density explosive, would aid to effectively trim the hanging wall contact thereby providing a much cleaner break. The reduced blast vibration impact (a lower ppv) would lead to a lower degree of overbreak on the hanging wall and less dilution.
- 3. Dilution will be an issue in the narrow cut and fill stopes, which are not yet reflected in Mineral Reserves, as the four metre minimum mining width will impact upon every lift taken. A stope width review should be carried out for the planned cut and fill stopes to determine whether the current equipment fleet matches the orebody dimensions.
- 4. Narrow vein equipment should be assessed as soon as possible to have it readily available at the time narrower areas are encountered in the lower levels of the mine.
- 5. A trial test stope using a smaller drill unit in the upper section of the mine should be completed to assess the efficacy and optimize the drilling layouts, as a prerequisite to eventual application of the method on a larger scale in the lower levels of the mine, when a larger portion of the mine production comes from this area.
- 6. The use of a "shanty back" configuration on the hanging wall side of the drift should be evaluated to reduce dilution.
- 7. Given the extreme dewatering that is required to permit ongoing mining, hydrologic monitoring is considered a critical element of operations. Continued calibration of flows is recommended to predict, plan, and install required pumping capacities for the Vazante Operation.
- 8. The water table levels should be monitored as planned to help foresee any potential issues and assess mitigation measures that may be required.
- 9. The use of CRF is recommended to enable mining of certain pillars where this is economical. A trade-off analysis would be required in each case.
- 10. The reconciliation results and the stope performance analysis should be used to evaluate stope designs to determine where improvements in mine planning would be most advantageous.





23.3 Mineral Processing

1. Continue the variability test work and process development on samples of Aroeira willemite tailings to assess the variability of metallurgical response and provide an estimate of overall recovery from the willemite portion of the tails that can be used in economic studies of the installation of a dedicated tailings processing circuit.
2. Calamine processing test work: continue process development test work to improve recovery, including the evaluation of collectors for improved recovery of hemimorphite, and consider options that may help to improve recovery from calamine mineralization such as:
 - o Separate processing of calamine and willemite mineralization.
 - o A coarser primary grind for calamine mineralization and evaluation of the effect of a coarser primary grind on the proportion of fines in the flotation feed and zinc (and zinc mineral) deportment to fines.
 - o Separate processing of the fines fraction to recover hemimorphite in a purpose-built fines processing circuit, which could also be used for processing historical calamine tailings.
3. Consider developing a combined strategy for processing historical tailings and calamine ore, since the two feeds, or portions of the feeds (e.g., calamine fines) may require similar equipment for processing; this strategy could then help with test work planning, production, and financial planning.

23.4 Environment & Social

1. Although it is not a requirement in the Operation Licences, SLR recommends considering the implementation of a monitoring program for flora and fauna for the Vazante Operation.
2. The Golder closure report (No. RT-006_169-525-2593_03-J 75, dated January 2018) recommends that a more detailed assessment be made of the impact of ore processing on the potential for release of sulphates from the tailings at the Pilha Garrote DSTSF.
3. The placement and compaction of the filtered and cyclone tailings during the wet season should be considered.
4. Dust generation from the Pilha Garrote DSTSF during the dry season must be considered.
5. The water balance for the Aroeira TSF must be reviewed through additional water balance modelling to determine the impact of use as a water management facility, increased mine dewatering and surface runoff from the Pilha Garrote DSTSF. Different climate scenarios should be simulated to account for years with annual precipitation below and above the statistical average (i.e. dry and wet years). The water balance modelling should be used to investigate changes in water availability for ore processing and changes in effluent discharge rates to the Santa Catarina River.

23.5 Cost and Economic Analysis

1. Continuously monitor costs and exchange rates and lock in costs as soon as possible to eliminate economic uncertainty.
2. Continue efforts towards improving efficiencies and approaches to mining and development operations as opportunities arise in these areas.





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25.0 RELIANCE ON INFORMATION PROVIDED BY THE REGISTRANT

This Technical Report Summary has been prepared by SLR Consulting Ltd (SLR) for Nexa. The information, conclusions, opinions, and estimates contained herein are based on:

- Information available to SLR at the time of preparation of this Technical Report Summary,
- Assumptions, conditions, and qualifications as set forth in this Technical Report Summary, and
- Data, reports, and other information supplied by Nexa and other third party sources.

For the purpose of this Technical Report Summary, and in particular the completion of Section 3, SLR has relied on ownership information provided by Nexa in its internal legal opinion dated April 28, 2020 (Votorantim, 2020) and an internal legal opinion by Guilherme Simões Ferreira, Legal Department - Nexa Resources, dated 17 July 2020 (Ferreira, 2020). SLR has not researched property title or mineral rights for Vazante and expresses no opinion as to the ownership status of the property.

SLR has relied on Nexa for guidance on applicable taxes, royalties, and other government levies or interests, applicable to revenue or income from the Vazante Operation.

Except for the purposes legislated under provincial securities laws, any use of this Technical Report Summary by any third party is at that party’s sole risk.





26.0 DATE AND SIGNATURE PAGE

This report titled “Technical Report Summary on the Vazante Polymetallic Operations, Minas Gerais, Brazil” dated February 15, 2021, and effective December 31, 2020, was prepared and signed by:

SLR Consulting (Canada) Ltd. **(Signed)** *SLR Consulting (Canada) Ltd.*

Dated at Toronto, ON
February 15, 2021



Nexa Resources S.A. | Vazante Polymetallic Operations, **SLR Project No: 233.03245.R0000**
Technical Report Summary - February 15, 2021





Technical Report Summary on the Aripuanã Zinc Project, State of Mato Grosso, Brazil
SLR Project No: 233.03252.R0000

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Technical Report Summary - January 15, 2021



CONTENTS

1.0 EXECUTIVE SUMMARY	1-1
1.1 Summary	1-1
1.2 Economic Analysis	1-8
1.3 Technical Summary	1-10
2.0 INTRODUCTION	2-1
2.1 Site Visits	2-1
2.2 Sources of Information	2-2
2.3 List of Abbreviations	2-3
3.0 PROPERTY DESCRIPTION	3-1
3.1 Location	3-1
3.2 Land Tenure	3-1
3.3 Encumbrances	3-8
3.4 Royalties	3-8
4.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY	4-1
4.1 Accessibility	4-1
4.2 Climate	4-1
4.3 Local Resources	4-1
4.4 Infrastructure	4-1
4.5 Physiography	4-2
5.0 HISTORY	5-1
5.1 Prior Ownership	5-1
5.2 Exploration and Development History	5-1
5.3 Historical Resource Estimates	5-2
5.4 Past Production	5-2
6.0 GEOLOGICAL SETTING, MINERALIZATION, AND DEPOSIT	6-1
6.1 Regional Geology	6-1
6.2 Local Geology	6-4
6.3 Property Geology	6-4
6.4 Mineralization	6-8
6.5 Deposit Types	6-9
7.0 EXPLORATION	7-1
7.1 Exploration	7-1
7.2 Drilling	7-7
8.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY	8-1
8.1 Sample Preparation and Analysis	8-1
8.2 Quality Assurance and Quality Control	8-3
8.3 Sample Security	8-10





8.4	Conclusions	8-10
9.0	DATA VERIFICATION	9-1
9.1	Nexa	9-1
9.2	SLR Audit of Drill Hole Database	9-1
10.0	MINERAL PROCESSING AND METALLURGICAL TESTING	10-1
10.1	Introduction	10-1
10.2	Metallurgical Sampling	10-1
10.3	Metallurgical Testing	10-5
10.4	Summary	10-41
11.0	MINERAL RESOURCE ESTIMATES	11-1
11.1	Summary	11-1
11.2	Comparison with Previous Estimate	11-6
11.3	Net Smelter Return Cut-Off Value	11-8
11.4	Topography	11-9
11.5	Arex, Link, and Ambrex	11-9
11.6	Babaçú	11-46
11.7	Risks and Uncertainties to Mineral Resources	11-63
12.0	MINERAL RESERVE ESTIMATES	12-1
12.1	Summary	12-1
12.2	Dilution	12-2
12.3	Extraction	12-3
12.4	Cut-off Value	12-3
13.0	MINING METHODS	13-1
13.1	Summary	13-1
13.2	Mine Design	13-1
13.3	Mining Method	13-6
13.4	Underground Mining Fleet	13-6
13.5	Labour	13-6
13.6	Geotechnical Considerations	13-10
13.7	Ventilation	13-14
13.8	Backfill	13-15
13.9	Production Schedule	13-16
14.0	PROCESSING AND RECOVERY METHODS	14-1
14.1	Process Description	14-1
14.2	Labour	14-10
15.0	INFRASTRUCTURE	15-1
15.1	Planned Infrastructure	15-1
15.2	Waste Management	15-1
15.3	Waste Production	15-1
15.4	Water Collection and Treatment	15-7





15.5	Power Supply	15-8
15.6	Water Supply	15-8
15.7	Site Access	15-9
16.0	MARKET STUDIES	16-1
16.1	Markets	16-1
16.2	Contracts	16-7
17.0	ENVIRONMENTAL STUDIES, PERMITTING, AND PLANS, NEGOTIATIONS, OR AGREEMENTS WITH LOCAL INDIVIDUALS OR GROUPS	17-1
17.1	Environmental Setting	17-1
17.2	Corporate Policy and Commitments	17-3
17.3	Environmental Studies	17-4
17.4	Emergency Preparedness and Response	17-8
17.5	Mine Waste Management	17-8
17.6	Water Management	17-9
17.7	Project Permitting	17-11
17.8	Social or Community Requirements	17-11
17.9	Mine Closure Requirements	17-27
18.0	CAPITAL AND OPERATING COSTS	18-1
18.1	Capital Costs	18-1
18.2	Operating Costs	18-4
19.0	ECONOMIC ANALYSIS	19-1
19.1	Economic Criteria	19-1
19.2	Cash Flow Analysis	19-2
19.3	Sensitivity Analysis	19-6
20.0	ADJACENT PROPERTIES	20-1
21.0	OTHER RELEVANT DATA AND INFORMATION	21-1
22.0	INTERPRETATION AND CONCLUSIONS	22-1
22.1	Geology and Mineral Resources	22-1
22.2	Mining and Mineral Reserves	22-1
22.3	Mineral Processing	22-2
22.4	Environment	22-3
22.5	Social	22-3
22.6	Construction Progress	22-4
22.7	Costs and Economics	22-4
23.0	RECOMMENDATIONS	23-1
23.1	Geology and Mineral Resources	23-1
23.2	Mining and Mineral Reserves	23-1
23.3	Mineral Processing	23-1
23.4	Environment	23-1





23.5	Social	23-2
23.6	Costs and Economics	23-3

24.0	REFERENCES	24-1

25.0	RELIANCE ON INFORMATION PROVIDED BY THE REGISTRANT	25-1

26.0	DATE AND SIGNATURE PAGE	26-1





Table 1-1: Cash Flow Summary	1-9
Table 1-2: Summary of Mineral Resources – September 30, 2020	1-13
Table 1-3: Summary of Mineral Reserves – September 30, 2020	1-14
Table 1-4: Pre-Production Capital Costs Forecast Prior to the End of 2020	1-18
Table 1-5: Operating Cost Estimate	1-19
Table 3-1: Exploration Authorization Permits	3-1
Table 3-2: Surface Rights	3-6
Table 3-3: Royalty Data	3-8
Table 7-1: Anglo American and Karmin Exploration – 1999 to 2002	7-1
Table 7-2: Babaçú NW Exploration Target Potential – September 30, 2020	7-4
Table 7-3: Drill Hole Database	7-7
Table 8-1: Certified Reference Materials	8-4
Table 9-1: Summary of SLR Audits of the Resources Database	9-2
Table 10-1: Phase I – LCT 2 Results	10-6
Table 10-2: CWi Results	10-7
Table 10-3: SMC Results	10-8
Table 10-4: SPI Results	10-8
Table 10-5: BWi Results	10-10
Table 10-6: Ai Results	10-11
Table 10-7: RWi Results	10-11
Table 10-8: Summary of Key Optimization LCT Results	10-14
Table 10-9: LCT 028 Conditions and Results– Arex Stratabound Master Composite	10-17
Table 10-10: LCT 011 Conditions and Results– Arex Stringer Master Composite	10-18
Table 10-11: LCT 025 Conditions and Results– Arex Stringer Master Composite	10-19
Table 10-12: LCT 030 Conditions and Results– Arex Blended (75% Stratabound, 25% Stringer)	10-20
Table 10-13: LCT 009 Conditions and Results– Ambrex Stratabound Master Composite	10-21
Table 10-14: LCT 029 Conditions and Results– Ambrex Stratabound Master Composite	10-22
Table 10-15: Summary of Settling Tests Using Magnafloc 10 Flocculant (3 g/t)	10-24
Table 10-16: Summary of Filtration Test Work Conducted by Andritz	10-28
Table 10-17: LCT 003F2 Conditions and Results – Link Stringer Composite	10-30
Table 10-18: LCT 004F2 Conditions and Results – Stringer Global Composite	10-31
Table 10-19: LCT 005F2 Conditions and Results – Link Stratabound Composite	10-32
Table 10-20: LCT 006F2 Conditions and Results – Ambrex Stringer Composite	10-33
Table 10-21: LCT 007F2 Conditions and Results – Ambrex Stratabound Composite	10-34





Table 10-22: LCT 008F2 Conditions and Results – Strata Global Composite	10-35
Table 10-23: 2018 Pilot Plant Samples	10-36
Table 10-24: Head Assays – Quarterly Composites	10-37
Table 10-25: Head Assays and Test Results – Quarterly Composite BLEND	10-39
Table 10-26: Comminution Data Used for Grinding Circuit Simulations	10-40
Table 11-1: Summary of Mineral Resources – September 30, 2020	11-2
Table 11-2: Mineral Resources by Type and Area – September 20, 2020	11-3
Table 11-3: Comparison with Previous Mineral Resource Estimates	11-7
Table 11-4: Comparison with Previous Mineral Resource Estimates	11-11
Table 11-5: Arex, Link, and Ambrex Grade Capping Levels	11-17
Table 11-6: Arex, Link, and Ambrex Uncapped versus Capped Assay Statistics	11-19
Table 11-7: Arex, Link, and Ambrex Composite Statistics	11-23
Table 11-8: Arex, Link, and Ambrex Correlogram Parameters	11-26
Table 11-9: Arex, Link, and Ambrex Block Model Setup	11-30
Table 11-10: Arex, Link, and Ambrex Sample Selection Strategy	11-31
Table 11-11: Nexa Search Ellipse Ranges for Classification Criteria - Arex, Link, and Ambrex	11-35
Table 11-12: Babaçú Grade Capping Levels	11-48
Table 11-13: Babaçú Uncapped versus Capped Assay Statistics	11-49
Table 11-14: Babaçú Composite Statistics	11-52
Table 11-15: Babaçú Block Model Setup	11-53
Table 11-16: Babaçú Sample Selection Strategy	11-54
Table 11-17: Comparison Between ID ³ and NN Means - Babaçú	11-57
Table 12-1: Summary of Mineral Reserves – September 30, 2020	12-1
Table 12-2: Dilution	12-2
Table 12-3: Extraction Percentage	12-3
Table 12-4: NSR DATA	12-4
Table 13-1: Development Dimensions	13-6
Table 13-2: Main Underground Mining Fleet	13-7
Table 13-3: Site Personnel	13-9
Table 13-4: Backfill Specification	13-16
Table 13-5: Production Schedule	13-17
Table 14-1: Key Process Design Criteria	14-1
Table 17-1: Environmental Impacts and Management Measures (GeoMinAs, 2017)	17-5
Table 17-2: Socio-Economic Impacts and Management Measures (GeoMinAs, 2017)	17-14
Table 17-3: Impacts on Indigenous Communities and Identified Management Measures (Comtexto Consulting, 2018)	17-25





Table 17-4: Summary of Pre-Closure, Closure, and Post-Closure Activities (SETE, 2018)	17-29
Table 18-1: Pre-Production Capital Costs Forecast Prior to the End of 2020	18-1
Table 18-2: Sustaining Capital Cost Estimate	18-2
Table 18-3: Operating Cost Estimate	18-4
Table 19-1: After-Tax Cash Flow Summary	19-3
Table 19-2: Sensitivity Analyses	19-7
FIGURES	
Figure 3-1: Location Map	3-3
Figure 3-2: Property Map	3-4
Figure 3-3: Surface Rights	3-7
Figure 6-1: Regional Geology	6-2
Figure 6-2: Geological Map of the Amazonian Shield	6-3
Figure 6-3: Property Geology	6-5
Figure 6-4: Stratigraphic Column	6-6
Figure 6-5: Cross Section of Local Geology	6-7
Figure 6-6: Target Model	6-11
Figure 7-1: Location of Babaçú NW Exploration Target	7-5
Figure 7-2: Conceptual Vertical Section Showing the Babaçú NW Exploration Target	7-6
Figure 7-3: Drill Hole Collar Map – Arex, Link, and Ambrex	7-10
Figure 8-1: Control Chart for CRM AP0004: Zinc	8-5
Figure 8-2: Control Chart for CRM AP0004: Lead	8-6
Figure 8-3: Control Chart for CRM AP0001: Copper	8-6
Figure 8-4: 2005 to 2020 Results of Blank Samples (Zinc, Lead, and Copper)	8-7
Figure 8-5: Analysis of Field Duplicate Data (Lead)	8-8
Figure 8-6: Analysis of Coarse Reject Duplicate Data (Zinc)	8-8
Figure 8-7: Analysis of Pulp Reject Duplicate Data (Copper)	8-9
Figure 8-8: Analysis of External Laboratory Checks (Zinc)	8-10
Figure 9-1: Density Measurements at Ambrex by Rock Unit	9-3
Figure 9-2: Density Measurements at Arex by Rock Unit	9-4
Figure 10-1: Location of 2017 Arex Metallurgical Samples	10-3
Figure 10-2: Location of 2017 Ambrex Metallurgical Samples	10-4
Figure 10-3: Simplified Sequential Flotation Circuit	10-13
Figure 10-4: Variation of Metal Assays in Flotation Products	10-25
Figure 10-5: Variation of Metal Distribution in Flotation Products	10-26





Figure 10-6: Yield Stress versus Solids Percentage	10-27
Figure 10-7: Viscosity versus Solids Percentage	10-27
Figure 11-1: Isometric View Showing the Potentially Mineable Shapes Used for Reporting	11-5
Figure 11-2: 3D Isometric View of the Arex, Link, and Ambrex Wireframes	11-12
Figure 11-3: Arex Geological Model	11-13
Figure 11-4: Link Geological Model	11-14
Figure 11-5: Ambrex Geological Model	11-15
Figure 11-6: Capping Analysis for Body=117 (Arex)	11-21
Figure 11-7: Cu Capping Analysis for Body=606 (Ambrex Stringer)	11-22
Figure 11-8: Comparison of Histograms for Assay and Composite Length - Arex, Link, and Ambrex	11-24
Figure 11-9: Correlation Matrices by Type and Area - Arex, Link, and Ambrex	11-25
Figure 11-10: Arex Stratabound Correlograms (Plotted as Variograms)	11-28
Figure 11-11: Ambrex Stringer Correlograms (Plotted as Variograms)	11-29
Figure 11-12: Global Variograms Used for Classification Criteria - Arex and Ambrex	11-36
Figure 11-13: Arex, Link, and Ambrex Final Classification Designation	11-37
Figure 11-14: Comparison Between OK and NN Means (Stratabound) - Arex, Link, and Ambrex	11-39
Figure 11-15: Comparison Between OK And NN Means (Stringer) - Arex, Link, and Ambrex	11-40
Figure 11-16: Swath Plot - Stratabound - Easting	11-41
Figure 11-17: Swath Plot - Stringer - Easting	11-42
Figure 11-18: Arex Vertical Section Showing Zn and Cu Block versus Composite Grades	11-43
Figure 11-19: Link Vertical Section Showing Zn and Cu Block versus Composite Grades	11-44
Figure 11-20: Ambrex Vertical Section Showing Zn and Cu Block versus Composite Grades	11-45
Figure 11-21: Plan View of Ambrex and Babaçú Mineralization Wireframes	11-47
Figure 11-22: Babaçú Capping Analysis for Stringer	11-50
Figure 11-23: Histograms for Assay (Left) and Composite (Right) Lengths - Babaçú	11-51
Figure 11-24: Correlation Matrices by Mineralization Type - Babaçú	11-53
Figure 11-25: Babaçú Final Classification Designation	11-56
Figure 11-26: Babaçú Zn Stratabound Swath Plot - Easting	11-58
Figure 11-27: Babaçú Pb Stratabound Swath Plot - Easting	11-58
Figure 11-28: Babaçú Ag Stratabound Swath Plot - Easting	11-59
Figure 11-29: Babaçú Cu Stringer Swath Plot - Easting	11-59
Figure 11-30: Babaçú Au Stringer Swath Plot - Easting	11-60
Figure 11-31: Babaçú Vertical Sections Showing Zn Block versus Composite Grades	11-61
Figure 11-32: Babaçú Vertical Sections Showing Cu Block versus Composite Grades	11-62
Figure 13-1: Aripuanã Long Section	13-2





Figure 13-2: Arex Long Section	13-3
Figure 13-3: Link Long Section	13-4
Figure 13-4: Ambrex Long Section	13-5
Figure 13-5: Perspective 3D Solid Geomechanical Schematic	13-11
Figure 13-6: Ventilation Requirements	13-15
Figure 14-1: Simplified Process Flow Sheet	14-4
Figure 15-1: General Site Plan	15-3
Figure 15-2: TMF Stack 1 Plan View (End of Phase 3)	15-4
Figure 15-3: Double Lining and Leak Detection System for TMF (Stack 1) and Waste Rock Facility (Stack 2)	15-6
Figure 15-4: Engineered Wetlands Concept	15-7
Figure 15-5: Aripuanã Wetland Water Treatment	15-8
Figure 16-1: Zinc Price Outlook (2020 to 2025)	16-2
Figure 16-2: Refined Copper Market Balance (2020 to 2025)	16-3
Figure 16-3: Copper Price Outlook (2020 to 2025)	16-4
Figure 16-4: Lead Price Outlook (2020-2025)	16-5
Figure 16-5: Silver Price Outlook (2020-2025)	16-6
Figure 16-6: Gold Price Outlook (2020-2025)	16-6
Figure 19-1: Pre-Tax Sensitivity Analysis Example	19-6





1.0 EXECUTIVE SUMMARY

1.1 Summary

SLR Consulting Ltd (SLR) was retained by Nexa Resources S.A. (Nexa, or the Company) to prepare an independent Technical Report Summary on the Aripuanã Zinc Project (Aripuanã or the Project), located in the state of Mato Grosso, Brazil. The purpose of this Technical Report Summary is to support the disclosure of updated Mineral Resource and Mineral Reserve estimates. This Technical Report Summary conforms to United States Securities and Exchange Commission's (SEC) Modernized Property Disclosure Requirements for Mining Registrants as described in Subpart 229.1300 of Regulation S-K, Disclosure by Registrants Engaged in Mining Operations (S-K 1300) and Item 601 (b)(96) Technical Report Summary. SLR visited the property in February and June 2017. SLR has prepared this amended Technical Report Summary to provide additional information about metallurgical recoveries and lead, silver, and gold markets, and to disclose the accuracy of the cost estimates. SLR notes that the effective date of the technical information contained herein remains September 30, 2021.

Nexa is a publicly traded company on the Toronto Stock Exchange (TSX) and the New York Stock Exchange (NYSE). It is a reporting issuer in all provinces and territories of Canada and is under the jurisdiction of the Ontario Securities Commission.

Nexa is a large-scale, low-cost, integrated zinc producer with over 60 years of experience developing and operating mining and smelting assets in Latin America. Nexa has a diversified portfolio of polymetallic mines (zinc, lead, copper, silver, and gold) and also greenfield projects at various stages of development in Brazil and Peru. In Brazil, Nexa owns and operates two underground mines, Vazante and Morro Agudo (Zn and Pb). It also operates two zinc smelters in Brazil (Três Marias and Juiz de Fora). In Peru, Nexa operates the El Porvenir (Zn, Pb, Cu, and Ag), Cerro Lindo (Zn, Cu, Pb, and Ag), and Atacocha (Zn, Cu, Pb, Au, and Ag) mines, as well as the Cajamarquilla zinc smelter near Lima. Nexa's development projects in Peru include Magistral, Shalipayco, Florida Canyon (JV with Solitario), Hilarión, and Pukaqaqa. In Brazil, Nexa is developing the Aripuanã Zinc Project (Zn, Pb, Cu, Au, and Ag), which is currently under construction.

The Project is 100% owned by Mineração Dardanelos Ltda. (Dardanelos), a wholly-owned subsidiary of Nexa.

To date, the focus of exploration activities on the Project has been the Arex, Link, Ambrex, and Babaçú deposits, which contain the current Mineral Resources and Mineral Reserves. A feasibility study (FS) was completed in 2018, and construction began in July 2019. Earthworks are complete, surface facilities are under construction, and underground development is underway, with mechanical completion expected in Q4 2021 and production scheduled to begin in 2022.

1.1.1 Conclusions

SLR offers the following conclusions for each area:

1.1.1.1 Geology and Mineral Resources

- The Aripuanã deposits are located within the central-southern portion of the Amazonian Craton, in which Paleoproterozoic and Mesoproterozoic lithostratigraphic units of the Rio Negro-Juruena province (1.80 Ga to 1.55 Ga) predominate.
- The Aripuanã polymetallic deposits are typical volcanogenic massive sulphide (VMS) deposits associated with felsic bimodal volcanism. Four main elongate mineralized zones, Arex, Link, Ambrex, and Babaçú, have been defined in the central portion of the Project.
- Two separate material types have been identified – massive sulphide stratabound Zn-Pb mineralization, and Cu-Au bearing stringer mineralization found in the footwall of the stratabound zones.
- The drilling, sampling, sample preparation, analysis, and data verification procedures meet or exceed industry standard, and are appropriate for the estimation of Mineral Resources.





- As prepared by Nexa and adopted by SLR, the Aripuanã Measured and Indicated Mineral Resources, effective as of September 30, 2020, comprise 8.1 million tonnes (Mt) at 2.1% Zn, 0.7% Pb, 0.3% Cu, 0.4 g/t Au, and 22 g/t Ag for 169,000 tonnes (t) Zn, 60,000 t Pb, 25,000 t Cu, 98,000 ounces (oz) Au, and 5.8 million ounces (Moz) Ag. Mineral Resources are reported on a 100% Nexa attributable ownership basis.
- Inferred Mineral Resources comprise 39.5 Mt at 3.3% Zn, 1.2% Pb, 0.3% Cu, 0.6 g/t Au, and 34 g/t Ag for 1.3 Mt Zn, 482,000 t Pb, 131,000 t Cu, 737,000 oz Au, and 43.0 Moz Ag.
- Based on additional drilling completed since 2018, the Babaçú deposit has been incorporated into the Project's Mineral Resource estimate. The deposit remains open and presents exploration potential beyond the current Mineral Resources. Limited exploration has identified additional mineralized bodies including Massaranduba to the south and Arpa to the north.

1.1.1.2 Mining and Mineral Reserves

- The deposits support a production rate of 2.2 million tonnes per annum (Mtpa), producing an average of 70,000 t of zinc per annum (tpa) (zinc equivalent of 119,000 tpa, after converting other metals based on net revenue).
- Deposit geometry and geomechanical properties are amenable to bulk longhole mining methods, in primary/secondary or longitudinal retreat sequencing, depending on thickness.
- As prepared by Nexa and adopted by SLR, the Aripuanã Proven and Probable Mineral Reserves, effective as of September 30, 2020, comprise 23.5 Mt at grades of 3.7% Zn, 1.4% Pb, 0.25% Cu, 0.31 g/t Au, and 34 g/t Ag, containing 859,800 t Zn, 319,000 t Pb, 59,700 t Cu, 236,100 oz Au, and 25.9 Moz Ag. Mineral Reserves are reported on a 100% Nexa attributable ownership basis.
- Dilution and extraction estimates include:
 - Dilution – planned (captured within stope designs) and additional unplanned dilution applied as factors ranging from 5% to 15%, by mining method.
 - § SLR's preference is to apply dilution as a hanging wall/footwall distance, rather than a global percentage (as has been done in estimating Mineral Reserves). The percentage approach applies too much dilution to larger stopes and not enough to smaller stopes.
 - § SLR reviewed the impact of this methodology and found that using percentage dilution may introduce small inaccuracies to some individual stope estimates, however, it has little impact on the overall estimate.
 - Extraction – initial selection of resources by stope optimization and design, plus additional factors of 85% to 100% (100% dilution only occurs during development), by mining method.
- The stope shapes are based on optimizer output, with some editing and manual redesign. There will be opportunities to reduce planned dilution and increase extraction after infill drilling and before mining as part of the short-term planning process.
- The Arex, Link, and Ambrex deposits are not directly connected underground, making it difficult to share slow-moving mobile equipment efficiently. Fleet unit numbers are adequate to achieve the proposed mine production with limited sharing.

1.1.1.3 Mineral Processing

- The results of the metallurgical test work form the basis for the current engineering design of the sequential talc, copper, lead, and zinc flotation circuit.
- Stringer and stratabound mineralization have been tested separately and in blends of various proportions. Different comminution results and recovery kinetics were observed during bench-scale test work for the different mineralization. The decision was initially made to process the two material types separately on a campaign basis, however, continued test work on blends indicated that acceptable recoveries and concentrate grades can be achieved when processing blended ore.





- Process performance is projected as:
 - Stratabound Zinc – 89.5% recovery to Zn concentrate. Silver recovery to this concentrate will be 10%.
 - Stratabound Lead – Variable recovery in the range of 80% to 90% with a life of mine (LOM) average of 84.5% to Pb concentrate. Gold and silver recoveries to this concentrate will be 20% and 55%, respectively.
 - Stratabound Copper – 67.6% to Cu concentrate. Gold and silver recoveries to this concentrate will be 50% and 20%, respectively.
 - Stringer Copper – Variable recovery in the range of 85% to 95% with a LOM average of 86.9% recovery to Cu concentrate. Gold and silver recoveries to this concentrate will be 63% and 50%, respectively.
 - Regression models have been developed from the test work to relate recovery to head grade for each of the metals and have been used to estimate recovery in the cash flow model for the LOM.
- Test work in late 2019 and early 2020 by SGS GEOSOL on composites representing ore to be processed in the first nine quarters of operation (based on the FEL3 LOM plan) confirmed that acceptable recoveries and concentrate grades could be achieved. While zinc and copper recoveries were within expected ranges, lead recovery was below expectations. However, since many of the locked cycle tests (LCT) using these composites did not reach equilibrium, recoveries and concentrate grades need to be verified.
- Pilot plant test work is being conducted by Nexa at its Vazante Mine using blended (stratabound and stringer) bulk ore samples drawn from the run of mine (ROM) stockpile at Aripuanã. Results from this test work were not available at the time of writing this Technical Report Summary.
- Grinding circuit simulations were conducted to evaluate the capacity of the grinding circuit when processing different ore types. The simulations indicated that throughput would be limited to 216 tonnes per hour (tph) (4,730 tpd) for stringer ore and 289 tph (6,300 tpd) for stratabound ore, with throughput between these two cases for blends of stringer and stratabound ore. SLR estimated that throughput of stringer ore of up to 5,000 tpd could be achieved for ore corresponding to the 75th percentile of hardness values determined during test work, rather than the higher hardness values used in the grinding circuit simulations.
- Talc (non-sulphide fines) removal by flotation is sometimes required prior to sequential flotation of Cu, Pb, and Zn. Copper losses to the talc concentrate can be recovered by reverse copper flotation from the talc concentrate, which will be implemented in the processing plant if required.
- Concentrates are expected to be generally clean without penalizable levels of deleterious elements.

1.1.1.4 Environment

- No environmental issues were identified from the documentation available for review that could materially impact the ability to extract the Mineral Resources and Mineral Reserves.
- Nexa maintains a list of permits for the Project along with any relevant expiry dates, which was provided to SLR. These include installation and operating licenses. Nexa reports regularly to the Mato Grosso environmental regulatory agency (SEMA) on compliance with conditions of Installation License No. 69614/2018 for the Project.
- Nexa has assessed the environmental impacts of the Project in the 2017 Environmental Impact Assessment (EIA) for all Project phases, taking into account the baseline conditions. Management programs and monitoring plans were included in the EIA to mitigate the identified impacts, and further detail on these programs and plans were provided in a stand-alone Environmental Control Plan in 2018. The EIA and subsequent management plans are comprehensive in the detail they provide. Some aspects such as resource use efficiency are yet to be considered by the developing Project. In the SLR Qualified Person's (QP) opinion the proposed environmental plans are adequate to address issues related to environmental compliance.
- Nexa reports that it has ISO systems in place and has committed to complying with all relevant legal requirements.





1.1.1.5 Social

- The 2017 EIA includes a social baseline description, assessment of socio-economic impacts, and management plans detailing measures to prevent, minimize, or mitigate the identified socio-economic impacts. These components are generally consistent with social impact assessment practices. Since the completion of the 2017 EIA, Nexa has continued to monitor socio-economic indicators. This monitoring program is focused on the potential impacts for the various phases of the Project. Nexa implements a complaint register to gather and respond to complaints from the public. In the SLR QP's opinion the social management programs and tools for Aripuanã are adequate to address potential issues related to local communities and Indigenous Peoples.
- Consultations with Indigenous Peoples regarding Project impacts and mitigations were undertaken. A study of the Indigenous communities was carried out to assess the environmental and socio-cultural impacts arising from the Project.
- The agreement signed with the artisanal miners cooperative establishes a consent from Nexa for use of 517 ha for artisanal mining activities for a period of two and a half years, which may be renewed for an equal period. The assigned area has no interference with the mining concession area related to the Aripuanã Project, which is located in another mining right owned by Nexa. The agreement also establishes that all environmental damages arising from the artisanal mining activity in the assigned area will be the cooperative's responsibility, and Nexa is exempt from any environmental liabilities arising from their activities.
- Nexa plans to employ mostly local people averaging approximately 65% local employees. Nexa reports that 54% of job vacancies in 2019 were filled by women.
- Nexa's developing the Project contributes positively to community well-being and development. The Project has provided assistance to the local authorities and communities in responding to the current COVID-19 pandemic. Nexa has established environmental and social management programs, as well as health and safety programs for its employees. Corporate policies, procedures, and practices are implemented in a manner consistent with relevant International Finance Corporation (IFC) Performance Standards.

1.1.1.6 Construction Progress

- Detailed engineering is 99% complete.
- Physical construction progress has been estimated by Nexa to be 55.37% as of the end of December 2020.
- 70% of long-lead equipment has been delivered to site.
- Pre-commissioning and commissioning are scheduled for the second half of 2021, with ramp-up to full production starting in 2022.
- Delays from the original schedule include:
 - o Delays in completion of detailed engineering and outcomes of detailed engineering resulting in increases in quantities including earthworks and construction materials, investment in mine development, consumables, and spare parts, among others.
 - o Additional infrastructure services due to issues experienced during earthworks activities.
 - o Additional scope such as new equipment and infrastructure items in the process plant and in the tailings dry stack piles.
 - o Increase in third-party services.
 - o Upgrades at the Dardanelos power substation.
 - o Logistics constraints on the upgrade of the Aripuanã river bridge.
 - o The COVID-19 pandemic.





1.1.1.7 Costs and Economics

- Pre-production capital costs remaining from 2021 onward total approximately US\$234 million.
- Contingency comprises 7.6% of direct and indirect capital costs.
- Operating costs average US\$34.35 per tonne over the LOM, with higher unit costs at the start and end when full production is not achievable.
- Long-term metal prices (from 2026 onwards) are based on Nexa’s projections. Nexa’s long term price model uses multiple variables including supply (mine and refined), demand, cost drivers, capital cost, and other key elements. The long-term prices derived are in line with the consensus forecasts from banks and independent institutions and are as follows: US\$1.11/lb Zn, US\$0.87/lb Pb, US\$3.01/lb Cu, US\$1,500/oz Au, and US\$16.87/oz Ag.
- Smelter terms are projected by Nexa based on selling 46% of produced concentrates directly to China and 54% to Nexa’s internal smelters and are consistent with industry benchmarks.
- The after-tax Net Present Value (NPV) at a 9% discount rate is \$356 million, and the Internal Rate of Return (IRR) is 31.9%.
- This NPV and IRR does not include capital expenditures to date. Capital costs up to Q2 2020 amounted to US\$201 million. Nexa has forecast expenditures of US\$117 million in H2 2020, US\$227 million in 2021 and US\$1 million in 2022, totalling US\$547 million. An additional US\$201 million of sustaining capital is estimated during the LOM, which includes US\$66 million in mine development and US\$20 million in mine closure cost. Considering capital expenditures to date, the Project’s after-tax NPV at a 9% discount rate is US\$27 million, and the IRR is 9.8%.

1.1.2 Recommendations

SLR offers the following recommendations for each area:

1.1.2.1 Geology and Mineral Resources

1. Infill areas where poorly angled drill holes are driving the geological interpretation.
2. Investigate the use of density weighting during compositing and interpolation.
3. Following up with additional step out drilling at Babaçu to increase the Mineral Resources.
4. Drill the Babaçu NW Exploration Target to convert the exploration target to Mineral Resources.
5. Continue to review minor issues with certain Certified Reference Materials (CRMs) used in analytical quality assurance procedures.

1.1.2.2 Mining and Mineral Reserves

1. Review and optimize stope shapes after infill drilling and before mining as part of the short-term planning process.
2. Implement a rigorous grade control program during operations, to assess the impact of the various material grades and effectiveness of blending on the process recovery.

1.1.2.3 Mineral Processing

1. Confirm the recovery and concentrate grade values derived from earlier test work that have been used in project cash flow calculations by completing the ongoing pilot test work at Nexa’s Vazante Mine using bulk blended ore samples simulating the processing of stringer and stratabound material together. This test work may also provide opportunities to optimize flotation conditions to maximize recovery and concentrate quality.
2. Using the talc flotation circuit configuration arrived at during test work at SGS GEOSOL in early 2020, confirm talc rejection efficiency and copper losses through pilot test work at Vazante Mine.





1.1.2.4 Environment

1. Develop and implement a project-specific environmental policy.
2. Revise the management plans on a regular basis and improve them where relevant based on feedback such as monitoring data or stakeholder comments. An action should therefore be specifically included in the management plans which describes how and when these plans will be revised and updated.
3. Ensure that the environmental monitoring plans are being implemented according to the Environmental Control Plan.
4. Compare monitoring results to relevant international standards, e.g., IFC standards specified in various guideline documents, in addition to local or national applicable standards.
5. Nexa has indicated that all third-party water users were identified, and the monitoring program was developed taking these users into account. Information should be maintained on potential sensitive receptors with respect to impacts such as dust generation, noise and third-party water surface and groundwater users so that these receptors can be monitored as relevant in order to ensure that all potential Project impacts are adequately managed.

The following recommendations associated with tailings disposal are proposed for the next phase of the design:

1. Classify the tailings management facility (TMF) in terms of the Global Tailings Standard or the Canadian Dam Association. The classification may require more conservative design criteria in terms of flood management and seismic loading.
2. Consider the stability assessment of the individual components of the double lined system and the interface between the components in the stability analyses. In particular, the interface between the smooth side of the geomembrane and the sand leakage detection layer.
3. Complete a deformation analysis to determine if the long-term strain of the high density polyethylene geomembrane is within acceptable limits.
4. Implement measures to control dust generation from the slopes of the TMF and internal access roads and ramps during the dry season.
5. Implement requirements to allow the progressive rehabilitation of the slopes.
6. Implement deposition planning for the wet season and the associated logistical requirements for the use and management of the inflatable warehouses.
7. Investigate the extent of the colluvial layer within the foundation of the TMF to provide a more accurate estimate of the volume of material that must be removed.
8. Carry out an initial assessment of the stability of the capping clay layer on the intermediate bench slopes to determine if slope flattening is required for closure.
9. Determine a source of clay with suitable quality for use as a lining and capping material.
10. Complete a formal risk assessment.

1.1.2.5 Social

1. Nexa has conducted extensive stakeholder engagement with communities in the area, including Indigenous Communities. As the Project evolves, Nexa should develop a stakeholder engagement plan going forward and update this plan regularly. A separate plan should be developed for engagement with Indigenous Communities. The Engagement with Indigenous Communities plan should specifically determine if these stakeholders are satisfied with the risks, impacts, and management measures identified for the Project. All stakeholder engagement plans should consider the current COVID-19 pandemic in terms of how interaction with stakeholders can be achieved both effectively and safely for as long as the pandemic is a factor.
2. Revise the social management plans on a regular basis and improve where relevant, based on feedback such as monitoring data or stakeholder comments. An action should therefore be specifically included in the management plans which describes how and when these plans will be revised and updated.
3. Clearly document the socio-economic monitoring program and methods and include benchmarks.





4. Develop and implement site-specific occupational, health, and safety plans.
5. Develop and implement a Chance Find procedure for heritage resources.
6. Maintain clear records on any worker grievances or ethical violations, if not done already.
7. Consider implementing preferential hiring, training, and development of Indigenous Peoples specifically.

1.1.2.6 Costs and Economics

1. Continuously monitor costs and exchange rates and lock in costs as soon as possible to eliminate economic uncertainty.

1.2 Economic Analysis

The economic analysis contained in this Technical Report Summary is based on Aripuanã's Mineral Reserves, economic assumptions provided by Nexa, and capital and operating costs as presented in Section 18 of this Technical Report Summary. A summary of the key criteria is provided below.

1.2.1 Economic Criteria

1.2.1.1 Physicals

- LOM processing of 23.5 Mt, grading 3.7% Zn, 1.4% Pb, 0.3% Cu, 34 g/t Ag, and 0.3 g/t Au
- Metallurgical recoveries at the LOM average head grades (recoveries vary as a function of head grade) of 89.4% Zn, 83.4% Pb, 67.5% Cu, 70.0% Ag, and 70.0% Au for stratabound material, and 88.8% Cu, 50.0% Ag, and 63.0% Au for stringer material.
- LOM average metal payable of 85% Zn, 95% Pb, 96% Cu, 83% Ag, and 83% Au.
- LOM payable metal of 713,000 t Zn, 251,000 t Pb, 41,000 t Cu, 16.654 Moz Ag, and 131,000 oz Au.
- LOM metal prices derived from Nexa's Internal Projection forecasts converging on long-term prices of US\$1.11/lb Zn, US\$0.87/lb Pb, US\$3.01/lb Cu, US\$16.87/oz Ag, and US\$1,500/oz Au from 2026 onwards.
- Net revenue includes deductions for transportation, off-site treatment and refining, and royalties.
- Revenue is recognized at the time of production.

1.2.1.2 Costs

- Costs include initial capital costs, sustaining costs, closure costs, working capital, and operating costs.
- Average operating cost over the mine life is US\$34.35/t processed.
 - o Mining: US\$15.34/t
 - o Processing: US\$13.31/t
 - o General and Administrative: US\$5.69/t

1.2.1.3 Taxation and Royalties

SLR has relied on a Nexa taxation model for calculation of income taxes applicable to the cash flow.

1.2.2 Cash Flow Analysis

An after-tax Cash Flow Projection has been generated and a summary of the cash flow is presented in Table 1-1.

The Net Present Value (NPV) at a 9% discount rate is \$356 million, and the Internal Rate of Return (IRR) is 31.9%, not considering capital expenditures prior to 2021.





Table 1-1: Cash Flow Summary
Nexa Resources S.A. - Aripuanã Zinc Project

Parameter	Units	Undiscounted	Discounted at 9%
Mill Feed, Total	Mt	23.5	
LOM	years	11	
Gross Revenue	US\$M	2,654	1,594
Royalties	US\$M	113	67
Net Revenue	US\$M	2,541	1,527
Operating Costs			
Mining	US\$M	361	220
Processing and Tailings	US\$M	313	184
G&A	US\$M	134	82
Total Operating Cost	US\$M	808	485
Sales Costs	US\$M	331	196
Other Operating Costs		15	14
Operating Margin (EBITDA)	US\$M	1,387	830
Initial Capital Costs Remaining (net of taxes)	US\$M	215	206
Sustaining Capital (net of taxes)	US\$M	158	108
Closure and Other	US\$M	20	7
Operational Working Capital	US\$M	0	6
Pre-tax Cash Flow	US\$M	995	503
After-tax Cash Flow	US\$M	761	356
Pre-tax NPV			
Payback	years		3.0
NPV 8%	US\$M		542
NPV 9%	US\$M		503
NPV 10%	US\$M		468
IRR	%		45.0
After-tax NPV			
Payback	years		3.3
NPV 8%	US\$M		388
NPV 9%	US\$M		356
NPV 10%	US\$M		326
IRR	%		31.9

Note: Numbers may not add due to rounding.

1.2.3 Sensitivity Analysis

SLR conducted sensitivity analyses using metal price, head grade, metallurgical recovery, capital costs and operating costs. The Project is most sensitive to changes in metal prices, and least sensitive to capital and operating costs.





1.3 Technical Summary

1.3.1 Property Description

The Project is located in the state of Mato Grosso, western Brazil, 1,200 km northwest of Brasília, the capital city. The property is located at approximately 226,000 mE and 8,888,000 mN UTM 21L zone (South American 1969 datum). The Project consists of a contiguous block comprising one mining concession, two mining applications, one right to apply for mining concession, thirteen exploration authorizations, and three exploration applications covering a total area of 66,336.04 ha. The permits are wholly-owned by Dardanelos.

1.3.2 Accessibility, Climate, Local Resources, Infrastructure, and Physiography

The Project is located in the northwest corner of the state of Mato Grosso, western Brazil, and is accessible from the town of Aripuanã via a 25 km unpaved road, which is well maintained in the dry season. Aripuanã can be accessed from the state capital, Cuiabá, via a 16 hour drive (935 km) on paved and unpaved roads. The final 250 km between Cuiabá and Aripuanã are on unpaved roads, which are in poor condition and require substantial upgrades to ensure road access to site. The town of Aripuanã is also serviced by a paved airstrip suitable for light aircraft.

The climate in the Project area is characterized by hot and humid weather, with distinct dry (April to September) and wet (October to March) seasons, as such it is classified as a “Tropical Savanna Climate” in the Köppen Climate Classification.

The economic base in the town of Aripuanã is rooted in the extractive industries, predominantly timber, agriculture, and tourism. Although located in the Amazon district, deforestation has occurred and the area is defined mostly by plantations of rubber and soybeans, as well as artisanal mining operations. No skilled mining workforce exists in the district. The town of Aripuanã hosts a hospital and related medical facilities as well as primary and secondary schools.

Infrastructure is limited at, and adjacent to, the Project. Infrastructure includes a core handling facility located in the town of Aripuanã. Multi-purpose storage sheds are located at the facility and a nursery for drill site and road reclamation is located on site. There are 270 km of unpaved roads on site, which are difficult to traverse during the wet season (October to March). Fuel prices are elevated in the region and there is a high cost associated with road maintenance.

Services to the Project are provided by the town of Aripuanã, which includes accommodation, restaurants, and stores.

The Dardanelos Hydropower dam (261 MW) was completed at the town of Aripuanã in 2011, approximately 20 km from the Project. A thermal power plant next to the town of Aripuanã airport (Guaçu Power Plant), which uses woodchips and waste as fuel, has a generation capacity of 30 MW.

The Project lies between 250 metres above sea level (MASL) and 350 MASL, and comprises seven occurrences of mineralization: Arex, Link, Ambrex, Babaçú, Massaranduba, Boroca, Arpa, and Mocoto, over a 25 km strike length. The Arex, Ambrex, and Babaçú deposits are visible as three tree-covered mounds on a steep ridge surrounded by flat ground. Vegetation is dense on the ridge but has been largely cleared in surrounding areas that are used primarily for agricultural purposes.

1.3.3 History

Gold mineralization was discovered in the area during the 1700s by prospectors. Although no formal records exist, the area was likely prospected sporadically over the years.

Anglo American Brasil Ltda (Anglo American) began exploration over the property in 1995. At the time, a small area including Expedito’s Pit, now part of the Project, was held by Madison do Brasil (now Thistle Mining Inc.) and optioned to Ambrex Mining Corporation (now Karmin).

Dardanelos was created in 2000 to represent a joint venture, or “contract of association,” between Karmin and Anglo American, with the intent of exploring for base and precious metals in areas adjacent to the town of Aripuanã. Anglo





American and Karmin held 70% and 28.5% of Dardanelos, respectively, with remaining interest (1.5%) owned by SGV Merchant Bank.

In 2004, the initial agreement between Karmin and Anglo American was amended to allow the participation of Nexa Recursos Minerais S.A. (Nexa Brazil), a subsidiary of the Company. Nexa Brazil subsequently acquired 100% of Anglo American’s interest in the Project. In 2007, Karmin purchased SGV Merchant Bank’s interests, raising its participation to 30%.

In 2015, Compañía Minera Milpo S.A.A. (now Nexa Resources Peru S.A.A. - Nexa Peru), a subsidiary of the Company, acquired 7.7% of Nexa Brazil interests in Dardanelos.

In 2017, VM Holdings S.A. (VMH) rebranded to become Nexa Resources S.A. (Nexa or the “Company”), and listed on the New York and Toronto stock exchanges.

In 2019, Nexa Brazil purchased Karmin’s interests in Dardenelos and acquired Nexa Peru’s interest in Dardanelos in 2020. Nexa Brazil is now the sole owner of the Project.

1.3.4 Geological Setting, Mineralization, and Deposit

The Aripuanã deposits are located within the central-southern portion of the Amazonian Craton, in which Paleoproterozoic and Mesoproterozoic lithostratigraphic units of the Rio Negro-Juruena province (1.80 Ga to 1.55 Ga) predominate. The lithological assemblage strikes northwest - southeast and dips between 35° and near vertical to the northeast.

The Aripuanã polymetallic deposits are typical VMS deposits associated with felsic bimodal volcanism. Four main elongate mineralized zones, Arex, Link, Ambrex, and Babaçú have been defined in the central portion of the Project. Limited exploration has identified additional mineralized bodies including Massaranduba to the south and Arpa to the north.

The individual mineralized bodies have complex shapes due to intense tectonic activity. Stratabound mineralized bodies tend to follow the local folds, however, local-scale, tight isoclinal folds are frequently observed, usually with axes parallel to major reverse faults, causing rapid variations in the dips.

Massive, stratabound sulphide mineralization as well as vein and stockwork-type discordant mineralization have been described on the property. The stratabound bodies, consisting of disseminated to massive pyrite and pyrrhotite, with well-developed sphalerite and galena mineralization, are commonly associated with the contact between the middle volcanic and the upper sedimentary units. Discordant stringer bodies of pyrrhotite-pyrite-chalcopyrite mineralization are generally located in the underlying volcanic units or intersect the massive sulphide lenses and have been interpreted as representing feeder zones.

1.3.5 Exploration

Between 2004 and 2007, VMH, Nexa’s former corporate name, carried out geological, geochemical, and geophysical surveys over the Project area to allow a more complete interpretation of the regional and local geology and identification of local exploration targets.

Drilling on the property was carried out from 2004 to 2008, in 2012, and from 2014 to present. The purpose of the drill program in 2004 to 2008 was to explore and delineate mineralization on the property, and in 2012, to improve confidence and classification of the Mineral Resources of the Arex and Ambrex deposits. The Link deposit, an area of mineralization connecting the Arex and Ambrex deposits, and included in the Mineral Resource summary for Ambrex, was discovered in 2014 and delineated in 2015.

Since 2018, the focus of exploration activities on the property has been the Babaçú deposit, where drilling has been successful in upgrading this exploration target to an Inferred Mineral Resource.

Drilling on the Project has been conducted in phases by several companies since 1993. Total drilling at Arex, Link, Ambrex, and Babaçú consists of 718 diamond drill holes totalling 229,654 m. Of these, Nexa has completed 614





diamond drill holes totalling 203,553 m including 30 metallurgical drill holes totalling 5,899 m. Drilling at the other prospects on the property consists of 35 diamond drill holes totalling 13,886 m.

1.3.6 Mineral Resource Estimates

The block models were completed by Nexa personnel using Datamine Studio RM (Datamine Studio) and Seequent's Leapfrog Geo (Leapfrog). Wireframes for geology and mineralization were constructed in Leapfrog based on geology sections, assay results, lithological information, and structural data. Assays were capped to various levels based on exploratory data analysis and then composited to one metre lengths. Wireframes were filled with blocks measuring 5 m by 5 m by 5 m for Arex, Link, and Ambrex, and 10 m by 5 m by 5 m for Babaçu with sub-celling at wireframe boundaries. Blocks were interpolated with grade using ordinary kriging (OK) and inverse distance cubed (ID³). Blocks estimates were validated using industry standard validation techniques. Classification of blocks was based on distance based criteria.

Mineral Resources as of September 30, 2020 are summarized in Table 1-2. Mineral Resources have been classified in accordance with the definitions for Mineral Resources in S-K 1300, which are consistent with Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves dated May 10, 2014 (CIM (2014) definitions) .

Table 1-2: Summary of Mineral Resources - September 30, 2020
Nexa Resources S.A. - Aripuanã Zinc Project

Classification	Tonnes (Mt)	Grade					Contained Metal				
		(% Zn)	(% Pb)	(% Cu)	(g/t Au)	(g/t Ag)	(000 t Zn)	(000 t Pb)	(000 t Cu)	(000 oz Au)	(Moz Ag)
Stratabound											
Measured	2.2	3.19	1.19	0.16	0.14	35.32	71	26	3	10	2.5
Indicated	3.5	2.71	0.90	0.08	0.14	23.05	95	32	3	16	2.6
M+I	5.7	2.90	1.01	0.11	0.14	27.80	166	58	6	25	5.1
Inferred	29.1	4.48	1.65	0.19	0.24	42.75	1,302	479	56	226	40.0
Stringer											
Measured	0.7	0.31	0.13	1.09	0.78	12.30	2	1	8	18	0.3
Indicated	1.7	0.06	0.04	0.67	1.04	7.83	1	1	11	55	0.4
M+I	2.4	0.13	0.07	0.80	0.96	9.16	3	2	19	73	0.7
Inferred	10.4	0.04	0.03	0.72	1.53	8.78	4	3	75	510	2.9
Total											
Measured	2.9	2.50	0.93	0.38	0.29	29.78	73	27	11	27	2.8
Indicated	5.2	1.86	0.63	0.27	0.43	18.17	96	32	14	71	3.0
M+I	8.1	2.09	0.74	0.31	0.38	22.36	169	60	25	98	5.8
Inferred	39.5	3.31	1.22	0.33	0.58	33.83	1,307	482	131	737	42.9

Notes:

1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources which are consistent with CIM (2014) definitions.
2. Mineral Resources are reported on a 100% Nexa attributable ownership basis.
3. Mineral Resources are reported using a US\$45/t cut-off value for transverse longhole mining and longitudinal longhole retreat areas and US\$55/t cut-off value for cut and fill areas.





4. The NSR is calculated based on metal prices: Zn: US\$2,869/t (US\$1.30/lb), Pb: US\$ 2,249/t (US\$1.02/lb); Cu: US\$7,427/t (US\$3.37/lb); Au: US\$1,768/oz, and Ag: US\$19.38/oz.
5. Metallurgical recoveries are accounted for in the NSR calculations based on metallurgical test work and are variable as a function of head grade. Recoveries at the LOM average head grades for stratabound material are 89.4% for Zn, 83.4% for Pb, 67.5% for Cu, 70.0% for Ag, and 70.0% for Au. Recoveries at the LOM average head grades for stringer material are 88.8% for Cu, 50.0% for Ag, and 50.0% for Au.
6. Mineral Resources are reported exclusive of Mineral Reserves within potentially mineable shapes.
7. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
8. Numbers may not add due to rounding.

The SLR QP is of the opinion that, with consideration of the recommendations summarized in this section, any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.

1.3.7 Mineral Reserve Estimates

The Aripuanã Mineral Reserves are based in three main orebodies, Arex, Link, and Ambrex. The main commodities produced are zinc, lead, copper, silver, and gold. The Mineral Reserve estimate for the Project as of September 30, 2020 is presented in Table 1-3.





Table 1-3: Summary of Mineral Reserves - September 30, 2020
Nexa Resources S.A. - Aripuanã Zinc Project

Deposit/Category	Tonnes (Mt)	Grade				
		(% Zn)	(% Pb)	(% Cu)	(g/t Au)	(g/t Ag)
Arex						
Proven	4.21	2.97	1.07	0.65	0.45	33.83
Probable	1.10	1.99	0.69	0.75	0.75	23.97
Proven & Probable	5.31	2.77	0.99	0.67	0.52	31.78
Link						
Proven	1.37	4.63	1.73	0.13	0.27	37.78
Probable	5.34	3.95	1.32	0.22	0.32	32.31
Proven & Probable	6.71	4.09	1.40	0.20	0.31	33.42
Ambrex						
Proven	4.49	4.18	1.59	0.05	0.15	37.55
Probable	6.98	3.59	1.44	0.12	0.27	34.81
Proven & Probable	11.47	3.82	1.50	0.09	0.22	35.88
Total						
Proven	10.08	3.74	1.39	0.31	0.29	36.02
Probable	13.42	3.60	1.33	0.21	0.33	32.93
Proven & Probable	23.50	3.66	1.36	0.25	0.31	34.25

Notes:

1. The definitions for Mineral Reserves in S-K 1300 were followed for Mineral Reserves which are consistent with CIM (2014) definitions.
2. The Mineral Reserve estimate is reported on a 100% ownership basis.
3. Mineral Reserves are estimated at a break-even cut-off value of NSR = US\$45.00/t processed. Some incremental material with values between US\$40/t and US\$45/t was included.
4. Mineral Reserves are estimated using an average long-term zinc price of US\$1.13/lb Zn, a long-term lead price of US\$0.89/lb Pb, a long-term copper price of US\$2.93/lb Cu, a long-term silver price of \$16.85/oz Ag, and a long-term gold price of US\$1,538/oz Au.
5. Metallurgical recoveries are accounted for in the NSR calculations based on metallurgical test work and are variable as a function of head grade. Recoveries at the LOM average head grades for stratabound material are 89.4% for Zn, 83.4% for Pb, 67.5% for Cu, 70.0% for Ag, and 70.0% for Au. Recoveries at the LOM average head grades for stringer material are 88.8% for Cu, 50.0% for Ag, and 50.0% for Au.
6. A minimum mining width of 4 m was used.
7. Numbers may not add due to rounding.

Contained metal in the Mineral Reserves consists of 859,800 t Zn, 319,000 t Pb, 59,700 t Cu, 25.9 Moz Ag and 236,100 oz Au.





The SLR QP is not aware of any risk factors associated with, or changes to, any aspects of the modifying factors such as mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate.

1.3.8 Mining Methods

Currently, the Project is targeted on mining three main elongate mineralized zones, Arex, Link, and Ambrex, that have been defined in the central portion of the Project.

The Arex and Ambrex deposits are separate VMS deposits with differing mineral compositions in stratabound and stringer forms and complex geometric shapes.

The deposit geometry is amenable to a number of underground mechanized mining techniques including cut and fill and bulk stoping methods. A nominal production target of 6,065 tpd has been used as the basis for the mine production schedule.

Mining will be undertaken using conventional mechanized underground mobile mining equipment via a network of declines, access drifts, and ore drives. Access to the Arex, Link, and Ambrex deposits will be from separate portals, which will access the deposits from the most favourable topographic locations.

1.3.9 Processing and Recovery Methods

Based on the metallurgical test work program completed to date, the Aripuanã process flowsheet has been developed using conventional technologies for ore treatment and the recovery of copper, lead, and zinc as separate concentrates. Plant throughput is forecast to average 2.214 Mtpa of ROM ore over the LOM supplied from the Arex, Link, and Ambrex underground mines. The plant will treat blended mineralization at up to 6,300 tpd (dry basis), with the maximum achievable throughput being for ore consisting mainly of stratabound material. Key elements of the process flowsheet include primary crushing, SAG and ball milling with pebble crushing (SABC), talc pre-flotation, followed by sequential flotation of copper, lead, and zinc.

1.3.10 Infrastructure

The current infrastructure includes:

- Mine support: access roads to the mines, infrastructure, and paste fill plant (construction is ongoing)
- Processing plant: access roads, drainage systems, concrete structures, crushing circuit electrical and mechanical assembly, semi-autogenous grinding (SAG) and ball mill, thickener and tailings filter, pipe rack assembly and piping is currently under construction.
- Water supply and waste and tailings deposition: the raw water supply dam and overburden stockpile are expected to be completed in late 2020.
- Power supply: permanent 69 kV power line. Construction of the main substation and secondary substations is underway.
- Administrative areas: civil works for administration buildings has commenced.

The planned infrastructure for the Project includes:

- Three underground mines, accessed by three portals and three ramps
- Dry Stack TMF
- Engineered wetlands for water collection and treatment
- Power supply by transmission line connected to the national grid
- Water storage dam
- Access and site roads
- Maintenance shops
- Fuel storage





1.3.11 Market Studies

The principal commodities that will be produced at the Project are freely traded, at prices and terms that are widely known, so that prospects for sale of any production are virtually assured. Zinc and copper represent 69% of Aripuanã’s gross revenue, while lead, silver, and gold contribute 31% of the revenue. Aripuanã zinc concentrate will be processed at Nexa’s Três Marias and Juiz de Fora zinc refineries in Brazil (54%) and that not processed at Nexa’s refineries will be sold on the open market (46%). Lead and copper concentrates will be sold on the open market. Sales contracts for the lead and copper concentrates from the Project have not been negotiated yet.

Market information is based on the industry scenario analysis prepared by Nexa’s Market Intelligence team in July 2020 using information sourced from different banks and independent financial institutions.

1.3.12 Environmental Studies, Permitting and Plans, Negotiations, or Agreements with Local Individuals or Groups

The Project is located in the Amazon Biome, within the South-Amazonian Ecotone Corridor. The Project made efforts to reduce potential environmental and social impacts. The mining method and the overall footprint were optimized, and efforts were made to place infrastructure in areas already affected by anthropogenic activities.

The Project EIA was finalized in 2017 and the Project holds installation and operating approvals. The 2017 EIA concludes that the most significant Project impacts are those that will directly and indirectly affect, synergistically and cumulatively, vegetation cover and soils in the Permanent Preservation Areas and water resources, as well as changes in fauna communities, both terrestrial and aquatic, highlighting the relevance of local biodiversity, with species of flora and fauna of the Amazon biome, including endangered species. The EIA developed management and monitoring plans to address and monitor key indicators for the identified impacts. A key mitigation measure with regard to encroachment on the Permanent Preservation Areas will be the implementation of a compensation plan and programs aimed at connectivity of habitat.

The 2017 EIA described two Indigenous villages located approximately 10 km to 12 km from the Project: Arara do Rio Branco with an area of approximately 114,842 ha and Aripuanã with an area of approximately 750,649 ha. Consultation with Indigenous Peoples regarding Project impacts and mitigation were undertaken under the tutelage and consent of National Historical and Artistic Heritage Institute (IPHAN) with National Indian Foundation (FUNAI) during the preparation of the 2017 EIA. In 2018, Nexa commissioned a study on the Indigenous Component of the Indigenous Lands Aripuanã and Arara do Rio Branco. The study methods were developed based on a Terms of Reference issued by FUNAI and through consultation with the Indigenous Communities. The report identified and assessed potential impacts on the Indigenous Communities and their lands, considered the perspectives of the Indigenous Communities on the potential impacts, and developed management plans to mitigate these impacts.

The Project will produce two types of mineralized waste, tailings, and waste rock, which will require disposal in dedicated facilities, a TMF and a waste rock facility (WRF). A double lined storage facility with a leak detection system is required for both the TMF and WRF due to the potential for poor quality leachate to be generated at these facilities. At closure, the TMF and WRF will be capped with a clay layer and vegetated.

A Conceptual Mine Closure Plan has been developed for the Project. The main objective of the plan is to present proposals and solutions to be implemented before, during, and after mine closure in order to avoid, eliminate, or minimize long-term environmental liabilities and possible future obligations. The plan currently considers four alternatives for final land use. The first option is for the whole area to become a Conservation Unit. The other options would allow some of the area to become a Conservation Unit while the remaining areas will be used for (a) a technical school for biodiversity conservation and the development of local communities (b) industrial use and a technical school, and (c) agro-industrial use and an agricultural technical school.

These alternatives are being evaluated by Nexa, however, for the time being, all of the alternatives are being considered and have been costed in the financial closure plan.

Nexa adheres to international standards to provide best practices for public reporting on economic, environmental, and social impacts in order to help Nexa’s shareholders and stakeholders understand Nexa’s corporate contribution to





sustainable development. Corporately, Nexa has made several commitments to improve community health and safety as well as the overall well-being of community members.

1.3.13 Capital and Operating Cost Estimates

Pre-production capital costs were estimated by Nexa using a combination of contracts already awarded (the greatest part of the commitments), quotations, and factored estimates. A new baseline capital cost estimate was completed in August 2020, with an estimated accuracy of ±5% and a base date of July 2020. The new estimate did not consider costs related to the COVID-19 pandemic, and Nexa will assess these costs separately at a later date.

Pre-production capital costs remaining at the start of 2021 are estimated to total US\$234 million. Prior to the end of 2020, Nexa had forecast pre-production capital costs of US\$228 million using actual costs incurred in the first half of 2020 and anticipated costs to be incurred during the remainder of 2020; these are summarized in Table 1-4. The main reasons for the difference between the 2020 forecast and the estimate at the start of 2021 are the postponement from 2020 to 2021 of certain infrastructure activities to allow for enhanced detailing without impacting the total Project capital cost, less horizontal development than planned in 2020, and better-than-planned mobilization of the operations team.

Table 1-4: Pre-Production Capital Costs Forecast Prior to the End of 2020
Nexa Resources S.A. - Aripuanã Zinc Project

Area	Category	Units	Initial Costs
Mine	Development	US\$ million	25.2
	Mobile Equipment	US\$ million	4.5
Plant & Infrastructure	Site Prep & Earthworks	US\$ million	53.9
	Civil & Roadwork	US\$ million	14.7
	Steelwork	US\$ million	2.4
	Electrical	US\$ million	12.6
	Instrumentation	US\$ million	8.4
	Mechanical Equipment	US\$ million	14.9
	Piping	US\$ million	8.3
Subtotal Direct Costs		US\$ million	144.9
Indirect Costs	EPCM	US\$ million	7.2
	Temporary Services	US\$ million	7.3
	Owner's Team	US\$ million	10.2
	Other	US\$ million	42.6
Subtotal Indirects		US\$ million	67.3
Contingency		US\$ million	16.0
Total Capital Cost		US\$ million	228.2

Contingency comprises 7.6% of direct and indirect capital costs, which SLR considers to be reasonable for the current stage of the Project. A total cost of \$312 million has been incurred up to the end of 2020.

Sustaining capital was estimated by Nexa, with the majority of the costs consisting of mine development and mobile equipment. Sustaining capital over the life of mine totals US\$181.5 million.





Operating costs, averaging US\$73 million per year at full production, were estimated for mining, processing, and general and administration (G&A). Operating cost inputs such as labour rates, consumables, and supplies were based on Nexa operating data. A summary of operating costs is shown in Table 1-5.

Table 1-5: Operating Cost Estimate
Nexa Resources S.A. - Aripuanã Zinc Project

Parameter	Total LOM (US\$ millions)	Average Year (US\$ millions/yr)	LOM Unit Cost (US\$/t)
Mining	361	32.8	15.34
Processing	313	28.5	13.31
G&A	134	12.2	5.69
Total	886	73.5	34.35





2.0 INTRODUCTION

SLR Consulting Ltd (SLR) was retained by Nexa Resources S.A. (Nexa or the Company) to prepare an independent Technical Report Summary on the Aripuanã Zinc Project (Aripuanã or the Project), located in the state of Mato Grosso, Brazil. The purpose of this Technical Report Summary is to support the disclosure of updated Mineral Resource and Mineral Reserve estimates. This Technical Report Summary conforms to United States Securities and Exchange Commission (SEC) Modernized Property Disclosure Requirements for Mining Registrants as described in Subpart 229.1300 of Regulation S-K, Disclosure by Registrants Engaged in Mining Operations (S-K 1300) and Item 601 (b)(96) Technical Report Summary. SLR has prepared this amended Technical Report Summary to provide additional information about metallurgical recoveries and lead, silver, and gold markets, and to disclose the accuracy of the cost estimates. SLR notes that the effective date of the technical information contained herein remains September 30, 2021.

Nexa is a publicly traded company on the Toronto Stock Exchange (TSX) and the New York Stock Exchange (NYSE). It is a reporting issuer in all provinces and territories of Canada and is under the jurisdiction of the Ontario Securities Commission.

Nexa is a large-scale, low-cost, integrated zinc producer with over 60 years of experience developing and operating mining and smelting assets in Latin America. Nexa has a diversified portfolio of polymetallic mines (zinc, lead, copper, silver, and gold) and also greenfield projects at various stages of development in Brazil and Peru. In Brazil, Nexa owns and operates two underground mines, Vazante and Morro Agudo (Zn and Pb). It also operates two zinc smelters in Brazil (Três Marias and Juiz de Fora). In Peru, Nexa operates the El Porvenir (Zn, Pb, Cu, and Ag), Cerro Lindo (Zn, Cu, Pb, and Ag), and Atacocha (Zn, Cu, Pb, Au, and Ag) mines, as well as the Cajamarquilla zinc smelter near Lima. Nexa's development projects in Peru include Magistral, Shalipayco, Florida Canyon (JV with Solitario), Hilarión, and Pukaqaqa. In Brazil, Nexa is developing the Aripuanã Zinc Project (Zn, Pb, Cu, Au, and Ag), which is currently under construction.

The Project is 100% owned by Mineração Dardanelos Ltda. (Dardanelos), a wholly-owned subsidiary of Nexa.

To date, the focus of exploration activities on the Project has been the Arex, Link, Ambrex, and Babaçu deposits, which contain the current Mineral Resources and Mineral Reserves. A feasibility study (FS) was completed in 2018, and construction began in July 2019. Earthworks are complete, surface facilities are under construction, and underground development is underway, with mechanical completion expected in Q4 2021 and production scheduled to begin in 2022.

2.1 Site Visits

SLR visited the property between June 2 and 5, 2017 to review drill core, discuss project development plans, and review work on the Project to date.

SLR visited the Project site on January 30 to February 3, 2017. During the site visit, SLR reviewed logging and sampling methods, inspected core from drill holes, and held discussions with Nexa personnel.

2.2 Sources of Information

Technical documents and reports on the deposit were reviewed and obtained from Project personnel during subsequent meetings and discussions between SLR personnel and the Nexa Project Team. Discussions were held with the following people from the Nexa Project Team:

- Mr. Pierre Légaré, Aripuanã Project Manager
- Mr. Fernando Madeira Perisse, Technical Services Manager
- Mr. Thiago Nantes Teixeira, Mineral Resources and Mineral Reserves Committee
- Ms. Priscila Artioli, Mineral Resources and Mineral Reserves Committee
- Mr. Julio Souza Santos, Senior Geologist and Aripuanã Zinc Field Manager
- Mr. Jose Antonio Lopes, Resource Manager



- Dr. Rafael Moniz Caixeta, Geologist - Mineral Resources
- Ms. Vivian Tavares Kayser, Geologist - Resource Evaluation
- Mr. Patrick Carmo De Oliveira, Senior Mining Engineer
- Ms. Danielle Alves Ribeiro, Cost and Contract Management
- Ms. Lucia Maria Cabral De Goes, Process Engineering Manager
- Mr. Gustavo Farinelli Silva, Financial Planning Coordinator
- Mr. Tiago Alvarenga, Metallurgical Process Manager
- Mr. Pablo Pina, Technology Manager
- Ms. Gilmara Patrícia Barros Carneiro, Environmental Coordinator
- Ms. Aline Vilas Boas De Souza, Social Management Consultant
- Ms. Cristiane Holanda Moraes Paschoin, Social Management Consultant

This Technical Report Summary was prepared by SLR Qualified Persons (QP). The documentation reviewed, and other sources of information, are listed at the end of this report in Section 24 References.



2.3 List of Abbreviations

Units of measurement used in this report conform to the metric system. All currency in this report is US dollars (US\$) unless otherwise noted.

m	micron	kVA	kilovolt-amperes
mg	microgram	kW	kilowatt
a	annum	kWh	kilowatt-hour
A	ampere	L	litre
bbl	barrels	lb	pound
Btu	British thermal units	L/s	litres per second
°C	degree Celsius	m	metre
C\$	Canadian dollars	M	mega (million); molar
cal	calorie	m ²	square metre
cfm	cubic feet per minute	m ³	cubic metre
cm	centimetre	MASL	metres above sea level
cm ²	square centimetre	m ³ /h	cubic metres per hour
d	day	mi	mile
dia	diameter	min	minute
dmt	dry metric tonne	mm	micrometre
dwt	dead-weight ton	mm	millimetre
°F	degree Fahrenheit	mph	miles per hour
ft	foot	MVA	megavolt-amperes
ft ²	square foot	MW	megawatt
ft ³	cubic foot	MWh	megawatt-hour
ft/s	foot per second	oz	Troy ounce (31.1035 g)
g	gram	oz/st, opt	ounce per short ton
G	giga (billion)	ppb	part per billion
Gal	Imperial gallon	ppm	part per million
g/L	gram per litre	psia	pound per square inch absolute
Gpm	Imperial gallons per minute	psig	pound per square inch gauge
g/t	gram per tonne	RL	relative elevation
gr/ft ³	grain per cubic foot	s	second
gr/m ³	grain per cubic metre	st	short ton
ha	hectare	stpa	short ton per year
hp	horsepower	stpd	short ton per day
hr	hour	t	metric tonne
Hz	hertz	tpa	metric tonne per year
in.	inch	tpd	metric tonne per day
in ²	square inch	US\$	United States dollar
J	joule	USg	United States gallon
k	kilo (thousand)	USgpm	US gallon per minute
kcal	kilocalorie	V	volt
kg	kilogram	W	watt
km	kilometre	wmt	wet metric tonne
km ²	square kilometre	wt%	weight percent
km/h	kilometre per hour	yd ³	cubic yard
kPa	kilopascal	yr	year





3.0 PROPERTY DESCRIPTION

3.1 Location

The Project is located in west-central Brazil, in the state of Mato Grosso, approximately 700 km northwest of the state capital Cuiabá and approximately 1,400 km northwest of the national capital Brasília. The Project is approximately 2,529 km by rail and road to the Três Marias smelter and 2,831 km to the Juiz de Fora smelter, and 2,660 km to the port of Santos. The centre of the property is located at approximately 10°05'00"S Latitude and 59°25'00"W Longitude (Figure 3-1). The approximate Universal Transverse Mercator (UTM) co-ordinates of the centre of the currently defined mineralization are 226,000 mE and 8,888,000 mN, UTM zone 21L (South American 1969 datum), within the Aripuanã 1:250,000 topographic sheet (SC.21-Y-A).

3.2 Land Tenure

The Project consists of a contiguous block comprising one mining concession, two mining applications, one right to apply for mining concession, thirteen exploration authorizations (EAs), and three exploration applications covering a total area of 66,336.04 ha (Figure 3-2). All permits are wholly-owned by Dardanelos.

Table 3-1 lists all the subject concessions and relevant tenure information including concession names, tenement numbers, areas, titleholders, and phases.

In 2000, a joint venture between Anglo American Brasil Ltda. (Anglo American) and Karmin Exploration Inc. (Karmin) was formed to explore for base and precious metals in the area adjacent to the town of Aripuanã. Initially, Anglo American and Karmin held interests of 70% and 28.5% in the joint venture, respectively, with the remaining 1.5% held by SGV Merchant Bank (SGV). In 2004, the joint venture agreement was amended to allow Nexa's participation, with Nexa subsequently acquiring 100% of Anglo American's interest in the Project. In 2007, Karmin purchased SGV's interests, raising its participation to 30%, and in 2019, Nexa acquired Karmin and became the sole owner of the Project.

The Aripuanã concessions are in good standing with regards to Nexa's obligations under the Brazilian Mining code.

Table 3-1: Exploration Authorization Permits
Nexa Resources S.A. - Aripuanã Zinc Project

Tenement	Area (ha)	Phase	Holder
866051/2015	978.88	Exploration Authorization ¹	Mineração Dardanelos Ltda
866067/2017	226.73	Exploration Authorization	Mineração Dardanelos Ltda
866148/2017	9124.57	Exploration Authorization	Mineração Dardanelos Ltda
866229/2017	126.08	Exploration Authorization	Mineração Dardanelos Ltda
866292/2015	839.18	Exploration Authorization	Mineração Dardanelos Ltda
866293/2015	930.38	Exploration Authorization	Mineração Dardanelos Ltda
866727/2015	4388.50	Exploration Authorization	Mineração Dardanelos Ltda
866728/2015	6681.25	Exploration Authorization	Mineração Dardanelos Ltda
866729/2015	9186.52	Exploration Authorization	Mineração Dardanelos Ltda
866730/2015	9445.85	Exploration Authorization	Mineração Dardanelos Ltda
866812/2008	5453.30	Exploration Authorization	Mineração Dardanelos Ltda
866817/2016	4270.37	Exploration Authorization	Mineração Dardanelos Ltda





Tenement	Area (ha)	Phase	Holder
866941//2015	461.12	Exploration Authorization	Mineração Dardanelos Ltda
866173/1992	3639.88	Mining Concession ²	Mineração Dardanelos Ltda
867381/1991	1000.00	Right to apply for mining concession	Mineração Dardanelos Ltda
866386/2003	412.20	Mining Application	Mineração Dardanelos Ltda
866565/1992	975.00	Mining Application	Mineração Dardanelos Ltda
866050/2015	331.51	Exploration Application	Mineração Dardanelos Ltda
866208/2013	415.61	Exploration Application	Mineração Dardanelos Ltda
866230/2017	7449.11	Exploration Application	Mineração Dardanelos Ltda

Notes:

1. Exploration Authorizations are valid for a maximum of three years, with a maximum extension equal to the initial period, issued at the discretion of the National Mining Agency (ANM).
2. Mining concessions are granted by the Brazilian Ministry of Mines and Energy, are renewable annually, and have no set expiry date.





Figure 3-1: Location Map





Figure 3-2: Property Map





3.2.1 Mineral Rights

Exploration and exploitation of mineral deposits in Brazil are defined and regulated by the 1967 Mining Code and overseen by the ANM. There are two main legal regimes under the Mining Code regulating Exploration and Mining in Brazil: Exploration Authorization (“Autorização de Pesquisa”) and Mining Concession (“Concessão de Lavra”).

Applications for an EA are made to the ANM and are available to any company incorporated under Brazilian law and maintaining a main office and administration in Brazil. EAs are granted following submission of required documentation by a legally qualified Geologist or Mining Engineer, including an exploration plan and evidence of funds or financing for the investment forecast in the exploration plan. An annual fee per hectare ranging from US\$0.50/ha to US\$ 1.00/ha, is paid by the holder of the EA to the ANM, and reports of exploration work performed must be submitted. During the period when a formal EA application has been submitted by a company for an area, but not yet granted, no exploration works are permitted. In this document, these areas are referred to as Exploration Applications.

EAs are valid for a maximum of three years, with a maximum extension equal to the initial period, issued at the discretion of the ANM. Annual fees per hectare increase by 50% during the extension period. After submission of a Final Exploration Report, the EA holder may request a mining concession. Mining concessions are granted by the Brazilian Ministry of Mines and Energy, have no set expiry date, and are valid until total depletion of mineral deposit. Concessions remain in good standing subject to submission of annual production reports and payments of royalties to the federal government.

Areas where the maximum extension of an EA has been reached, and a positive Final Exploration Report and mining concession request have not been submitted by the company, are designated with a status of “Public Offer”. Prior to Decree nº9.406/2018, the public offer winner’s decision was made considering the best technical proposal in terms of exploration activities and previous knowledge of the specific mineral right. At present, the winner is the company which has offered the highest amount of cash in an auction procedure.

3.2.2 Surface Rights

Surface rights can be applied for if the land is not owned by a third party. The owner of an EA is guaranteed, by law, access to perform exploration field work, provided adequate compensation is paid to third party landowners and the owner accepts all environmental liabilities resulting from the exploration work.

Nexa has purchased additional surface rights directly overlying the Arex, Link, Ambrex, and Babaçú deposits since 2012. Surface rights adjacent to the properties and necessary for mine development are currently being negotiated by Nexa. Table 3-2 describes the surfaces rights held while Figure 3-3 illustrates the surface rights currently held in relation to the mineral deposits.





Table 3-2: Surface Rights
Nexa Resources S.A. - Aripuanã Zinc Project

Real Estate Name	Property Certificate	Area (ha)	Mining Right DNPM
Sítio Esperança	3783	94.7197	866173/1992
Sítio Esperança	3784	89.1953	866173/1992
Sítio Serra Domada	85251	80.7838	866173/1992
Fazenda Boa Ventura	453	166.12	866173/1992
Sítio Maçaranduba	454	33.8	866173/1992
Sítio Água do Sapo	1944	22.8847	866173/1992
Sítio Bela Vista	1944	89.7449	866173/1992
Sítio Santo Antonio	1944	49.3244	866173/1992 866941/2015
Sítio Córrego Seco	2313	49.0975	866173/1992
Sítio São Roque	948	200	866173/1992
Sítio Mata Linda	1944	74.1747	866173/1992 866941/2015 866727/2015 866292/2015





Figure 3-3: Surface Rights





3.3 Encumbrances

SLR is not aware of any encumbrances to the property, including current and future permitting requirements and associated timelines, permit conditions, and violations and fines.

3.4 Royalties

Royalties applicable to the Project are detailed in Table 3-3.

Table 3-3: Royalty Data
Nexa Resources S.A. - Aripuanã Zinc Project

Receiver of Royalty		Arex	Ambrex	Other Deposits
Garimpeiros	Expedito 42.5%			
	Divino 21.25%			
	Joaquim 21.25%			
	Neder 5%	-	2% Net Smelter Return (NSR) from the start of the first sale of concentrate	-
	Zadir 5%			
	Max 5%			
Luiz de Almeida		1.5% of net sales from the first sale of the mineral product	-	-
Anglo American ¹		2% NSR of 70% mining product of Zn, Pb, Cu, Au and Ag from the first of the beginning of the marketing of concentrates or June 13, 2013.		1.5% NSR of 70% of the mining product of Zn, Pb, Cu, Au and Ag

Notes:

1. Anglo American royalty is owed by Nexa only.

SLR is not aware of any environmental liabilities on the property. Nexa has all required permits to conduct the proposed work on the property. SLR is not aware of any other significant factors and risks that may affect access, title, or the right or ability to perform the proposed work on the property.





4.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

4.1 Accessibility

The Project is located in the northwest corner of the state of Mato Grosso, western Brazil, and is accessible from the town of Aripuanã via a 25 km unpaved road, which is well maintained in the dry season. Aripuanã can be accessed from the state capital, Cuiabá, via a 16 hour drive (935 km) on paved and unpaved roads BR-163/BR364, MT-160, MT-220, MT-170, MT-208, MT-418, and MT-206. The final 250 km between Cuiabá and Aripuanã are on unpaved roads, which are in poor condition and require substantial upgrades to ensure road access to site. The town of Aripuanã is also serviced by a paved airstrip suitable for light aircraft. There are no commercial flights travelling between Cuiabá and the town of Aripuanã and access to site is accomplished via a three-hour chartered flight.

Temporary roads link drill hole site locations within the Project area, with the main access gravel road from the town of Aripuanã.

4.2 Climate

The climate in the Project area is characterized by hot and humid weather, with distinct dry (April to September) and wet (October to March) seasons, as such it is classified as a “Tropical Savanna Climate” in the Köppen Climate Classification. The mean annual temperature is 24°C, with monthly average temperatures ranging between 20°C and 30°C. Average annual rainfall is 2,750 mm and annual average evaporation is 1,216 mm. Work can be carried out on the Project on a year-round basis.

4.3 Local Resources

The economic base in the town of Aripuanã is rooted in the extractive industries, predominantly timber, agriculture, and tourism. Although located in the Amazon district, deforestation has occurred and the area is defined mostly by plantations of rubber and soybeans, as well as artisanal mining operations. No skilled mining workforce exists in the district. The town of Aripuanã hosts a hospital and related medical facilities as well as primary and secondary schools.

4.4 Infrastructure

Infrastructure is limited at, and adjacent to, the Project. Infrastructure includes a core handling facility located in the town of Aripuanã. Multi-purpose storage sheds are located at the facility and a nursery for drill site and road reclamation is located on site. There are 270 km of unpaved roads on site, which are difficult to traverse during the wet season (October to March). Gas prices are very elevated in the region and there is a very high cost associated with road maintenance.

Services to the Project are provided by the town of Aripuanã, which includes accommodation, restaurants, and stores.

The Dardanelos Hydropower dam (261 MW) was completed at the town of Aripuanã in 2011, approximately 20 km from the Project. A thermal power plant next to the town of Aripuanã airport (Guaçu Power Plant), which uses woodchips and waste as fuel, has a generation capacity of 30 MW.

Numerous rivers occur close to the Project and water supply is not expected to be an issue.

4.5 Physiography

The Project lies between 250 MASL and 350 MASL, and comprises seven occurrences of mineralization: Arex, Link, Ambrex, Babaçú, Massaranduba, Boroca, Arpa, and Mocoto, over a 25 km strike length. The Arex, Ambrex, and Babaçú deposits are visible as three tree covered mounds on a steep ridge surrounded by flat ground. Vegetation is dense on the ridge but has been largely cleared in surrounding areas which are used primarily for agricultural purposes.





5.0 HISTORY

5.1 Prior Ownership

The following information is summarized from AMEC International (Chile) S.A. (AMEC, 2007).

Gold mineralization was discovered in the area during the 1700s by prospectors and a small fort was constructed to protect the portage at Aripuanã’s Cachoeira de Andorinhas (Swallow Falls). No details of the extent of extraction of gold on the property during this time are available. Between 1979 and 1990, artisanal gold miners extracted gold from the district of Aripuanã, mostly through gold panning and small excavations. It is thought that at one time up to 2,000 artisanal gold miners were active in the district. One large pit, named Expedito’s pit, was excavated during this time and is approximately 200 m deep.

Western Mining Corporation (WMC) held an exploration licence on the property between 1992 and 1994. No details of exploration work completed during this time are available.

Anglo American began exploration on the property in 1995. At the time, a small area including Expedito’s Pit, now part of the Project, was held by Madison do Brasil (now Thistle Mining Inc.) and optioned to Ambrex Mining Corporation (now Karmin).

Dardanelos was created in 2000 to represent a joint venture, or “contract of association,” between Karmin and Anglo American, with the intent of exploring for base and precious metals in areas adjacent to the town of Aripuanã. Anglo American and Karmin held 70% and 28.5% of Dardanelos, respectively, with the remaining interest (1.5%) owned by SGV.

In 2004, the initial agreement between Karmin and Anglo American was amended to allow the participation of Nexa Recursos Minerais S.A. (Nexa Brazil), a subsidiary of the Nexa. Nexa Brazil subsequently acquired 100% of Anglo American’s interest in the Project. In 2007, Karmin purchased SGV Merchant Bank’s interests, raising its participation to 30%.

In 2015, Compañía Minera Milpo S.A.A. (now Nexa Resources Peru S.A.A. - Nexa Peru), a subsidiary of the Company, acquired 7.7% of Nexa Brazil interests in Dardanelos.

In 2017, VM Holdings S.A. (VMH) rebranded to become Nexa Resources S.A. (Nexa or the “Company”) and listed on the New York and Toronto stock exchanges.

In 2019, Nexa Brazil purchased Karmin’s interests in Dardanelos and acquired Nexa Peru’s interest in Dardanelos in 2020. Nexa Brazil is now the sole owner of the Project.

5.2 Exploration and Development History

Excluding drilling, the following exploration activities have been undertaken on the Project:

A SPECTREM airborne geophysical survey

- Geological mapping
- Ground geophysics
- LiDAR airborne survey
- Soil geochemistry

This work was carried out by Anglo American and Karmin between 1999 and 2002. Since 2004, exploration has been conducted by Nexa, and is described in more detail in Section 9, Exploration.

5.3 Historical Resource Estimates

Previous Mineral Resource estimates have been completed on the property by AMEC in 2007, and by Roscoe Postle Associates Inc. (RPA) in 2012 and 2017 for Karmin, the latter being subsequently updated for Nexa later in 2017.





These estimates are superseded by the Mineral Resource estimate presented in Section 11, Mineral Resource Estimates, of this Technical Report Summary. These estimates are considered to be historical in nature and should not be relied upon, however, they do give an indication of mineralization on the property.

5.4 Past Production

Approximately 350,000 oz of gold are thought to have been extracted by artisanal miners during the 1979 and 1990 gold rushes. There has not been any formal production to date on the property.





6.0 GEOLOGICAL SETTING, MINERALIZATION, AND DEPOSIT

6.1 Regional Geology

The South American Platform is mainly composed of metamorphic and igneous complexes of Archean/Proterozoic age and makes up the continental interior of South America. The Platform consolidated during the Late Proterozoic to Early Paleozoic times in the course of the Brasiliano/Pan-African orogenic cycle during which the amalgamation of different continents and micro continents with the closure of several ocean basins led to the formation of the Supercontinent Gondwana. Archean and Proterozoic rocks are exposed in three major shield areas within the framework of Neoproterozoic fold belts (Guiana, Central Brazil, and Atlantic shields). The western continental margin of the South American Plate developed from at least Neoproterozoic to Early Paleozoic times and constitutes a convergent margin, along which eastward subduction of Pacific oceanic plates beneath the South American Plate takes place. Through this process, the Andean Chain, the highest non-collisional mountain range in the world, developed. The eastern margin of the South American Plate forms a more than 10,000 km long divergent margin, which has developed as a result of the separation of the South American Plate and the African Plate since the Mesozoic era through the opening of the South Atlantic and the break-up of Gondwana. The northern and southern margins of the South American Plate developed along transform faults in transcurrent tectonic regimes due to the collision of the South American Plate with the Caribbean and Scotia plates. The South American Plate reveals a long and complex geologic history (Engler, 2009). Figure 6-1 is a simplified geological map of Brazil.

The Project is underlain by Paleoproterozoic and Mesoproterozoic-aged (1.80 Ga to 1.55 Ga) lithologies belonging to the Rio Negro-Juruena Province, one of six major geochronological provinces comprising the Amazonian Craton. The Rio Negro-Juruena Province occupies a large portion of the western part of the Amazonian Craton (Figure 6-2) and includes volcano-sedimentary sequences, felsic plutonic-gneiss, and granitoids. Rift basins within the province are filled with continental platform molasse and marine sediments of Mesoproterozoic, Paleozoic, and Mesozoic age (Engler, 2009). It is a zone of complex granitization and migmatization. Regional metamorphism, in general, occurred in the upper amphibolite facies (Tassinari et al., 2010)





Figure 6-1: Regional Geology





Figure 6-2: Geological Map of the Amazonian Shield





6.2 Local Geology

The following is taken from Simon, Marinho and Lacroix (2007).

The Project area is underlain by a meta-volcano-sedimentary sequence known as the Aripuanã Sequence or the Roosevelt Group (RG), which is interpreted as a back-arc setting of the Tapajós arc. The Aripuanã Sequence exhibits greenschist facies grade regional metamorphism and has been intruded by late-stage A-Type Granites. The Aripuanã Sequence is associated with a major intracontinental suture, which defines the margin of the Caiabís graben in the south. The Aripuanã Sequence is bounded by granites and gneisses of the Xingu Complex in the north through interrupted tectonic contacts.

The Aripuanã Sequence comprises three major meta-volcano-sedimentary units:

- A basal unit, represented by felsic and intermediate flows with tuffaceous layers.
- An intermediate, transitional felsic volcanic unit.
- An upper sequence, represented by inter-layered meta-argillites, meta-tuffs, and meta-cherts.

These units form a broad semicircular shape surrounding the Rio Branco granite. The mineralized zones are located in the northeastern portion of the arc (Figure 6-3). Post-mineralization aged overthrust faults, dipping to the north and northeast, form complex imbricated sheets, which represent the most characteristic structural feature of the area. Typically, these sheets include portions of the volcanic units, and upper meta-sedimentary unit, although often the contact relationships are obscured by extreme deformation.

The lithological assemblage generally strikes northwest-southeast and dips between 35° and 70° to the northeast. Stratigraphic features have been offset by younger sinistral, east-west wrench faults that are traced by mapping and magnetic interpretation.

6.3 Property Geology

The following has been summarized from VMH (2016).

Stratigraphy over the property consists of meta-sediments, meta-volcanic and meta-pyroclastic rocks, and hydrothermally altered rocks at the interface between the meta-sediments and meta-volcanics. The meta-sediments comprise meta-mudstones, meta-siltstones, and carbonaceous meta-siltstone, while the meta-volcanics and meta-pyroclastics grade from rhyolite to dacite in composition. The hydrothermal zone occurs as stratabound when related to exhalative rocks or pipe like when related to the feeder zone. The stratabound portion of the hydrothermal zone has three main types of alteration, carbonate, tremolite, and sericitic. The feeder or stringer zone has three types of alteration, sericitic, phyllic (sericite + chlorite), and chloritic (+silicification). On surface, the hydrothermal alteration zone is strongly masked by tropical weathering, usually associated with gossans. Portions of the property have Phanerozoic alluvial cover.

Figure 6-4 illustrates a stratigraphic column of the area while Figure 6-5 illustrates a cross-section of the property geology.





Figure 6-3: Property Geology





Figure 6-4: Stratigraphic Column





Figure 6-5: Cross Section of Local Geology





6.4 Mineralization

Three main elongate mineralized zones, Arex, Link, Ambrex, and Babaçú, have been defined in the central portion of the Project. Limited exploration has identified additional, possible mineralized bodies including Massaranduba, Boroca, and Mocoto to the south and Arpa to the north.

Where outcropping, sulphide mineralization has been oxidized forming gossanous bodies which frequently mark the position of overthrust faults. These gossans are generally small and contain low levels of gold. They do not appear to be of economic interest at this time.

The individual mineralized bodies have complex shapes due to intense tectonic activity. Stratabound mineralized bodies tend to follow local folds, however, local-scale, tight isoclinal folds are frequently observed, usually with fold axes that are parallel to major reverse faults, causing rapid variations in dips. The Arex, Link, Ambrex, and Babaçú deposits are the best understood and are described below.

Hydrothermal alteration is commonly directly adjacent to the Arex, Link, Ambrex, and Babaçú deposits, and according to Leite et al. (2005, as cited in AMEC, 2007) presents a zonal and symmetrical standard:

- External zone: Sericite and muscovite in a fine-grained matrix with minor chlorite content. Where present, the low sulphide content is dominated by pyrrhotite.
- Intermediate zone: Transition of sericite to chlorite halo on stringer zones. Tremolite and chlorite alteration with minor carbonatization and silicification.
- Internal zone: Stringer zones are characterized by pervasive chlorite alteration accompanied by quartz veins. Sulphide content is dominated by chalcopyrite and pyrrhotite. Porphyroblastic magnetite and biotite locally substitutes within the sulphide matrix. The stratabound zones are dominated by tremolite, talc and carbonate alteration, accompanied by sphalerite, galena, and pyrite, with minor magnetite and fluorite. The stratabound zone may be brecciated.

6.4.1 Arex

Mineralization at the Arex deposit strikes at approximately 110° azimuth, extending over a 1,400 m strike length. Upper portions of the deposit tend to be near-vertical, while lower portions dip at 60° to the northeast. The Arex deposit is characterized by well-defined stringer and stratabound zones. Discrete lenses of stratabound and stringer mineralization, ranging from less than one metre to 15 m thick, interplay within a 100 m to 150 m wide zone, separated by barren, hydrothermally altered rocks. Mineralization comes close to outcropping at surface and extends to almost 500 m below surface. Discrete lenses may be continuous for up to 300 m down dip. The Arex deformation pattern is made of tight, foliation-parallel folds, and reverse faults which overthrust in the same direction. The Arex deposit presents strong dip variations that are often parallel to foliation and faults. In some areas, this may cause the stratabound and stringer mineralization to be parallel, despite its original perpendicular position.

6.4.2 Link

The Link deposit, first discovered in 2014, is interpreted to be the westward extension of the Ambrex deposit towards the Arex deposit. It is located approximately 300 m southeast of the Arex deposit and exhibits shape, mineralization, and alteration features similar to Ambrex, the largest deposit. Link mineralization strikes at approximately azimuth 125° and has a strike extent of approximately 450 m, based on current drilling. Mineralization thicknesses typically range between 10 m and 50 m, with a maximum of 150 m. Mineralization comes close to outcropping at surface and extends to almost 700 m below surface. The degree of folding at Link is gentler than at Arex and hosts well marked overthrust faults, which are parallel to metamorphic foliation. The orientation of the stratabound mineralization is generally parallel to the original bedding, while the stringer zone is often approximately perpendicular to the stratabound zone.

6.4.3 Ambrex

The Ambrex deposit represents the largest of the known mineralized zones on the Project that is included in the LOM plan. The Ambrex deposit is located approximately 1,300 m southeast of the Arex deposit. Ambrex mineralization





strikes at approximately azimuth 125° and has a strike extent of approximately 1,050 m, based on current drilling. The dip varies from near vertical to 70° to the northeast. Mineralization thicknesses typically ranges between 10 m and 50 m, with a maximum of 150 m. The Ambrex deposit has an upper depth of 60 m below surface, with a lower depth of approximately 700 m. The degree of folding at Ambrex is gentler than at Arex and hosts well marked overthrust faults, which are parallel to metamorphic foliation. The orientation of the stratabound mineralization is generally parallel to the original bedding, while the stringer zone is often approximately perpendicular to the stratabound zone.

6.4.4 Babaçú

Located southeast of the Ambrex deposit, the Babaçú deposit is 1,300 m long and also dips to the northeast. The Babaçú deposit is interpreted to be similar in shape and style of mineralization to the Ambrex deposit.

6.5 Deposit Types

The following is summarized from VMH (2012c).

The Aripuanã polymetallic deposits are typical volcanogenic massive sulphide (VMS) deposits associated with felsic bimodal volcanism. Support for this model is based on the geometry of mineralization, host rocks, hydrothermal alteration, and sulphide paragenesis. The Aripuanã VMS deposits have been subsequently deformed and metamorphosed under greenschist facies conditions (Leyte, 2005 and Petrus, 2006, as cited in VMH, 2012c). Details observed at Aripuanã and consistent with VMS deposits are described below.

- Host rocks: All mineralized bodies are located on the upper levels of a felsic volcanic unit, in association with finely laminated exhalites, at or close to the contact with an overlying sedimentary unit.
- Mineralization zonality and predominant textures: Three types of mineralization are found at the Project, and are typical of VMS deposits elsewhere:
 - o Stringer facies: Cu-Au bearing stringers in the footwall of the stratabound mineralization, containing chalcopyrite and pyrrhotite, with stockwork and breccia textures corresponding to hydrothermal feeder zones.
 - o Proximal sulphide facies: mixed bodies of stratabound massive and disseminated Zn-Pb mineralization, overlying stringer mineralization.
 - o Geochemical zonality. The Cu/Cu+Zn ratio is higher in the proximity of the copper rich feeder zones and decreases upward from the footwall and towards the distal zinc rich stratabound mineralization.

Facies associated with the feeder zones are located in the middle of the volcanic unit and are characterized by pyrrhotite and/or chalcopyrite stockworks in a zone of intense chloritic hydrothermal alteration. The sulphide association represents a feeder zone at higher temperature. There is Cu-Au association in these zones. Figure 6-6 presents a target model of the sequence.





Figure 6-6: Target Model





7.0 EXPLORATION

7.1 Exploration

7.1.1 1999 to 2002 Exploration

This section is summarized from VMH (2012a).

Geochemical and geophysical surveys, including a SPECTREM airborne geophysical survey, were conducted by Anglo American and Karmin between 1999 and 2002. The exploration program targeted 13 different areas on the property. Limited details are available on the exact date and operator of the various surveys conducted, however, the following information was recovered in the Anglo American database (Table 7-1).

Table 7-1: Anglo American and Karmin Exploration - 1999 to 2002
Nexa Resources S.A. - Aripuanã Zinc Project

Target	Geological Mapping	Geochemistry		Ground Geophysics				
		Stream Sediment	Soil	Gravimetry	Magnetic	IP	VLF	TDEM
Acampamento Velho	x	x	x	-	x	-	-	-
Arex	x	x	x	x	x	x	x	-
Ambrex	x	x	x	-	x	-	x	x
Babaçu	x	x	-	-	x	-	-	x
Bigode	x	x	x	-	x	-	x	-
Cafundo	x	x	x	-	x	-	x	x
Cone	x	x	x	-	x	-	-	-
Joao Paulo	x	x	x	-	x	-	-	-
Massaranduba	x	x	-	-	x	-	-	x
Mocotó-Boróca	x	x	x	-	x	-	x	x
Vaca II	x	x	x	-	x	-	-	-
Valdir	x	x	x	-	x	-	-	-
Vale dos Sonhos	x	x	x	-	-	-	-	x

- Notes:
1. IP - Induced Polarization
 2. VLF - Very Low Frequency
 3. TDEM - time-domain electromagnetics

7.1.1.1 Geophysics

The airborne SPECTREM geophysical survey is an electromagnetic (EM) method developed by Anglo American in which EM, total field magnetic, and radiometric measurements are simultaneously taken from sensors inside, or towed behind, an aircraft. The survey was conducted in 2001 over 1,800 km².

No specific details are available with respect to ground geophysical methods.





7.1.1.2 Geochemistry

No details of sample procedures, quality assurance/quality control (QA/QC), or dates were available. Historically, 760 stream sediment samples and up to 32,000 soil samples with a wide distribution over 2,000 km² have been collected. Geochemical analyses were conducted by Nomos and Mineração Morro Velho (MMV) laboratories.

7.1.1.3 Geological Mapping

Geological mapping of the Project area was completed to varying levels of detail over the thirteen targets listed in Table 7-1 between 1999 and 2002.

7.1.2 Nexa Exploration

The following is taken from AMEC (2007) and VMH (2012b).

In 2004, Nexa became Project operator and commenced a detailed geological, geochemical, and geophysical exploration program, which included additional drilling described in later in this section.

Under contract from Nexa in 2005, Geoambiente Sensoriamento Remoto prepared a topographic map based on photogrammetric restitution of two pairs of Ikonos panchromatic images with one metre spatial resolution (173214-0/173214-3 and 173214-1/173214-2), and with ground control on geodesic IBGE stations. Internal control points were surveyed using a differential global positioning system (DGPS). The topographic map has an area of 195 km² and 1:10,000 altimetric and 1:5,000 planimetric scales as well as five metre contour lines (plus additional one metre interpolations).

In 2004, Integração Geofísica compiled and integrated all previous geological, geophysical, and geochemical data to allow a more complete interpretation of the regional and local geology, and the identification of local exploration targets. A digital terrain model was prepared and integrated with airborne gamma-spectrometric (K-Th-U channels), magnetometric, and electromagnetic (time domain EM) survey data, soil geochemical surveys, regional and local geological information, including most of the data previously obtained by Anglo American and Karmin. As a result of this study, five groups of targets were identified in addition to Arex and Ambrex, and additional exploration was recommended.

In 2004, Nexa contracted Petrus Consultoria Geológica Limitada to conduct and/or supervise geological, geochemical, and geophysical exploration at the property. Between 2004 and 2007, additional exploration at the property included relogging of Anglo American/Karmin core, geological mapping, and geochemical surveys.

In 2007, a time domain, airborne EM survey was conducted by Fugro Airborne Surveys. The survey covered approximately 1.8 km², divided in four loops of 700 m x 500 m each, with readings on a 100 m x 20 m grid. The survey was flown over 14,290 m using a base frequency of 30 Hz. In addition, 3,860 m were surveyed at 3 Hz in order to detail the anomalies identified with the 30 Hz survey.

In 2008, exploration efforts consisted of evaluating regional targets. Work included detailed geological mapping and systematic rock, soil, and stream sediment geochemistry. Mobile metal ion (MMI) soil geochemical tests were completed on the Ambrex and Babaçu targets. Core from Arex and Ambrex was re-logged. Exploration drilling at Babaçu and in-fill drilling at Arex and Ambrex took place.

Extensive drilling took place on Arex and Ambrex in 2012, as well as additional metallurgical test work.

In 2013, ground magnetic surveying totalling approximately 138 line-km over the Poraquê, Arpa, Ambrex, Babaçu, Massaranduba, Boroca, and Mocotó targets was completed. Subsequently, a 12 line-km ground magnetic survey was completed over the Casagrande target. An extensive program of core re-sampling was completed comprising a total of 11,067 core and pulp analyses from 159 drill holes from Arex, Ambrex, Arpa, and Babaçu. A new structural model was developed based on LiDAR topography in the Arex-Ambrex area and the 1:25,000 scale geological map was updated.

In 2014, ground magnetic surveying totalling approximately 222.8 line-km over the Flanco W, Poraquê, Sombra, Mocotó Sul, Jibóia, and Casagrande targets was completed. A total of 991 soil samples were taken over the Somra





and Casagrande targets and 25 gold panning samples were taken at the Flanco W, Mocotó Sul, Jibóia, Sombra, and Vaca-Bigode targets.

In 2015, a 1,584.2 line-km helicopter-borne, combined magnetic and electromagnetic (VTEM) survey was flown over four areas, namely Arex-Ambrex, Flanco W, Mocotó, and Casagrande Jibóia. Soil sampling at Flanco W and geological mapping and rock sampling at the Boróca and Mocotó target areas was undertaken. In-fill drilling at Arex and Ambrex was also completed.

In 2016 and 2017, initial exploration activities were not conducted at the Project, as Nexa target generation program is no longer based in joint venture (Nexa/Karmin) related properties. Although intense exploration was conducted at the Project in both, 2016 and 2017, it was totally based on drilling for upside resources at open extensions (2016) and infill drilling (2017), as detailed in the following sections.

The focus of exploration activities on the property has been the Babaçú deposit since 2018, where on-going drilling has been successful in upgrading this exploration target to an Inferred Mineral Resource.

The SLR QP notes that Nexa has been successful at delineating explorations targets and as demonstrated at Babaçú has been successful in converting them to Mineral Resources.

7.1.3 Exploration Target

7.1.3.1 Babaçú

Part of the Babaçú deposit has been converted to an Inferred Mineral Resource during 2020. The Babaçú deposit is not fully tested by drilling and is still open at depth and laterally from the current Mineral Resource outline where in SLR's view there is good potential to increase the Mineral Resource with more drilling.

Nexa has identified an area to the north west of the current Babaçú Mineral Resources and south east and down dip of the Ambrex deposit. Nexa has designated the name "Babaçú NW Exploration Target" to this area. Figure 7-1 shows the location of the Babaçú NW Exploration Target while Figure 7-2 shows a conceptual vertical cross section through the target. The cross-section is through line AB shown in Figure 7-1.

The Babaçú mineralized VMS horizon has been confirmed by drilling extending further northwest below the Ambrex deposit which is open at depth. Nexa envisages a new exploration target potential as given in Table 7-2. Grade ranges were defined based on Ambrex and Babaçú known resource grades. The tonnage range assumptions were based on geological continuity of the mineralized horizon, as follows: strike length ranging from 500 m to 700 m, depth continuity ranging between 350 m to 550 m, and average mineralization width of 20 m.

The ranges of potential quantities and grades of the exploration target are conceptual in nature, there has been insufficient exploration to define a Mineral Resource on Babaçú NW , and it is uncertain if further exploration will result in the estimation of a Mineral Resource. The exploration target therefore does not represent, and should not be construed to be, an estimate of a Mineral Resource.

Table 7-2: Babaçú NW Exploration Target Potential - September 30, 2020
Nexa Resources S.A. - Aripuanã Zinc Project

	Grade					
	Tonnes (Mt)	Zn (%)	Pb (%)	Cu (%)	Au (g/t)	Ag (g/t)
Minimum	10	2	1	0.3	0.3	20
Maximum	20	4	2	0.7	1	50

SLR is of the opinion that the Babaçú NW Exploration Target exhibits good potential and recommends following up with additional step out drilling to convert the exploration target to Mineral Resources. The ranges of tonnage and grade of the exploration target could change as the proposed exploration activities are completed. Nexa plans on performing a 6,500 m infill drilling program at Babaçú during 2021 which will include drilling at the Babaçú NW Exploration Target.





Figure 7-1: Location of Babaçú NW Exploration Target





Figure 7-2: Conceptual Vertical Section Showing the Babaçu NW Exploration Target





7.2 Drilling

Drilling on the Project has been conducted in phases by several companies since 1993. Total drilling at the deposits with Mineral Resources, Arex, Link, Ambrex, and Babaçú, consists of 718 diamond drill holes totalling 229,654 m. Drilling at the other prospects on the property consists of 35 diamond drill holes totalling 13,886 m.

A drilling summary by deposit up to and including all drilling information available at May 19, 2020, is presented in Table 7-3.

Table 7-3: Drill Hole Database
Nexa Resources S.A. - Aripuanã Zinc Project

Deposit	Historical				Nexa (2004 to 2020)				Total	
	No. DDH	Metres (m)	No. Perc.	Metres (m)	No. DDH	Metres (m)	No. Met.	Metres (m)	No. Holes	Metres (m)
Arpa	0	-	-	-	9	5,359	-	-	9	5,359
Arex	50	14,682	19	1,329	220	38,085	20	2,536	309	56,631
Link	11	3,822	-	-	160	62,080	1	141	172	66,043
Ambrex	44	15,747	-	-	109	48,874	9	3,222	162	67,843
Babaçú	7	2,224	-	-	68	36,913	-	-	75	39,137
Massaranduba	8	2,184	-	-	18	6,343	-	-	26	8,527
Total	120	38,659	19	1,329	584	197,654	30	5,899	753	243,541

Notes:

- 1. DDH: Diamond drill hole
- 2. Perc: Percussion drill hole
- 3. Met: Metallurgical drill hole

7.2.1 Previous Drilling

This section is summarized from AMEC (2007).

Limited detail on the Anglo American and Karmin drilling campaigns is available. Both reverse circulation (RC) and diamond drilling was performed on site. Results of RC drilling have not been maintained in the current Nexa database. Diamond drill core diameter was HQ (63.5 mm) size at the collar and was reduced to NQ (47.6 mm) size downhole. The DDI Reflex Fotobor method was used for downhole survey measurements. Most holes were drilled with azimuths ranging from 180° to 220° and inclinations ranging from -50° to -70°. Drill core boxes are stored on site and are adequately labelled and ordered for efficiently locating and extracting the samples. Original drill reports are not available on site.

7.2.2 Recent Drilling

Drilling at the Project was conducted by Nexa from 2004 to 2008 and from 2012 to present. The main purpose of the 2004 to 2008 drill programs was to explore and delineate mineralization at the Project. Based on the success of these programs, from 2012 to present, the objective has been to improve confidence and support and upgrade the classification of the Mineral Resources at the Arex and Ambrex deposits.

Nexa drilled a total of 614 diamond drill holes totalling 203,553 m at Aripuanã from 2004 to March 2020, including 30 metallurgical drill holes totalling 5,599 m. Many drill holes were pre-collared using RC drill rigs, with diamond drill rigs used for drilling in mineralized zones.





May 19, 2020 is the cut-off date of the Mineral Resource database, as such all assay results received before this date have been considered in the Mineral Resource estimate.

Drill hole locations are spotted in the field using a hand-held GPS as well as measuring the distance to previous holes already surveyed using a total station. Small adjustments to the drill hole locations are made where necessary based on topographic relief and non-removable trees. The desired collar position, foresights, and backsights are marked by technicians using a Brunton compass for sighting the azimuth and a digital inclinometer for verifying the dip. Collar surveying is performed with a differential GPS upon completion of the drill hole and the departing collar azimuth is recorded using a total station (Figure 7-3). Casings are left in place. Downhole surveying is completed with Deviflex and Maxibor tools by the drilling company at three metre intervals downhole. Duplicate downhole surveys are performed on each hole. From 2014 onwards, Nexa has implemented core orientation for approximately 25% of the drilling using the Reflex ACT core orientation tool, and more recently Corefinder GTF.

Drill core is currently placed in plastic boxes and labelled at the rig site prior to transport. Previously, wooden core boxes were used. Drill core is transported by pick-up truck to the Nexa logging facility by the drill company employees, Servitec Sondagem Geologica. Geotechnicians measure drill core runs and note core interval length, core loss, and check core block runs. This information is then cross referenced to the driller's notes for discrepancies and amended where necessary. Rock Quality Designation (RQD) is measured and a resistance value (R0 to R4) is assigned based on rock hammer tests. No other geotechnical logging is performed on site. The core is photographed both wet and dry prior to mark-up by geologists.

All geological information is manually logged on paper logging sheets, and then hand entered into formatted Microsoft Excel sheets by the logging geologist. Lithology, rock unit, texture, alteration associated with the VMS, and regional alteration are recorded in logging sheets as text fields. The percentage of total sulphides, pyrite, pyrrhotite, chalcopyrite, sphalerite, and galena are recorded. Observations are noted where relevant. Digital logging sheets are imported into the Fusion database management program by the database manager. For oriented core, Nexa uses the vector collection method ((Tu) Top and (Bu) Base angle + distance between points (UD)).

SLR is of the opinion that the drilling and logging procedures meet industry standards. There are no drilling, sampling, or recovery factors that could materially impact the accuracy and reliability of the results.

The SLR QP notes that the drilling programs have been successful at converting exploration targets to Mineral Resources, at upgrading Mineral Resource categories, and confirming the geological interpretation and continuity of grade.

7.2.3 Hydrogeology - Hydrogeologic information

Nexa currently has a monitoring grid for surface and groundwater and a mathematical model for underground flow. No critical issue has been identified to date. Nexa plans on recalibrating the mathematical model for the underground flow and proposes expanding the monitoring grid by the second quarter of 2021.

7.2.4 Geotechnical Data

The available geotechnical data is summarized in Section 13.6.





Figure 7-3: Drill Hole Collar Map - Arex, Link, and Ambrex





8.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

8.1 Sample Preparation and Analysis

8.1.1 Sample Method and Approach

The following sampling methods and approaches are in place for the Project. Core is sampled 10 m above and below visible mineralization. Samples respect geological contacts and vary from 0.5 m to 1.5 m in length depending on core recovery, length of the lithological unit, and mineralization. Geologists mark the samples using a felt pen on the core boxes and staple a sample tag wrapped in plastic to the box at the start of the sample.

Core is marked with red and blue lines to indicate where it is to be sampled and which half is to be assayed. Lines are drawn respecting the geological features such as layering to help minimize sampling bias. Prior to sampling, sample numbers are recorded in the Fusion data management system and cross-referenced with the interval depth downhole and the depth recorded in the database.

Sample core is cut into two halves by technicians with a diamond saw, returning half of the split core to the core box and submitting the other half for sample preparation and analysis. The geologist responsible for logging the drill hole defines the insertion of QA/QC samples including blanks, standards, and duplicates.

Each sample booklet contains four tags for each sample. One sample tag is stapled to the clear plastic sample bag and an additional sample is placed within the bag. One tag is attached to the core box while the remaining tag is left in the booklet for record keeping.

Samples are separated into batches of up to 250 samples from the same drill hole.

8.1.2 Density Analysis

Bulk density is determined by the water displacement method for each sample of drill core. Samples are dried and then weighed using a tared Adventurer Pro scale accurate to 0.1 g. The sample is then added to a polyvinyl chloride (PVC) tube containing a fixed amount of water. The displaced water is removed from the PVC tube into a pre-weighed 1,000 mL beaker. The weight and volume of displaced water is recorded by hand and then entered into a spreadsheet. Density values are calculated using both volume and weight of water. The technician compares the values to ensure that they are similar. Any discrepancy results in a repeat of the test. The weighted measurement is used in the final database.

Every tenth sample is also subject to an Archimedes density measurement. The Archimedes density results are kept on site and used as a QA/QC measure. The results of the Archimedes method are typically within 10% of the water displacement method.

8.1.3 Sample Preparation

Sample preparation was performed by the ACME Laboratories (ACME) preparation facility in Goiania, Brazil, from 2004 to 2007, and from 2007 on, by ALS Global. Both laboratories followed the same preparation procedure, described below.

The sample was logged in the tracking system, weighed, dried, and crushed to better than 70% passing a 2 mm screen. A split of up to 250 g was taken and pulverized to better than 85% passing a 75 µm screen. This sample preparation package was coded PUL-31 by ALS Global. Following preparation, samples were shipped to the sample analysis facility in Lima, Peru. ALS Global's preparation facility in Goiania is accredited to the International Organization for Standardization/International Electrotechnical Commission (ISO/IEC) 9001:2008 standards and ALS Global is accredited to ISO 9001:2008 and ISO/IEC 17025:2005, for all relevant procedures.

Both laboratories are independent of Nexa and SLR.

In the SLR QP's opinion, the sample preparation methods are acceptable for the purposes of a Mineral Resource estimate.





8.1.4 Sample Analysis

Assays were processed by ACME from 2004 to 2007, and from 2007 on, by ALS Global, both independent laboratories. ALS Global’s facilities in Lima are accredited to ISO 9001:2008 and ISO/IEC 17025:2005.

The following sample analysis was undertaken at the ACME facilities:

- **Gold Analysis:** Fire assay (50 g) standard fusion method with an atomic absorption spectrometry (AAS) finish. The lower limit of detection is 0.01 g/t Au.
- **Multi Element Analysis:** Aqua regia digestion with an AAS finish. Lower limits of detection are 0.001% for Pb, Zn, and Cu, 1 ppm Ag, and 0.01% Fe.

The following sample analysis is undertaken at the ALS Global facilities in Lima, Peru.

- **Gold Analysis:** Au-AA24. A 50 g fire assay standard fusion method with an AAS finish. The lower limit of detection is 0.005 ppm Au and the upper limit of detection is 10 ppm Au.
- **Gold Analysis:** Au-AA26. Gold analyses returned from Au-AA24 with a gold value above 10 ppm Au are re-assayed using a 50 g fire assay standard fusion method with an AAS finish. Upper limit of detection is 100 ppm Au.
- **Multi Element Analysis:** ME-ICP61. 33 multi element suite using four acid digestion and inductively coupled plasma atomic emission spectroscopy (ICP-AES) finish. The upper detection limit for Pb, Zn, and Cu is 1% and 100 ppm Ag.
- **Multi Element Analysis:** ME-AA62. Samples that return values above the upper limits in ME-ICP61 are re-assayed using ME-AA62. In ME-AA62, four acid digestion with an AAS finish of a 0.4 g sample is used. Lower limits of detection are 0.001% for Pb, Zn, and Cu, and 1 ppm Ag.
- **High Grade Zinc Analysis:** Zn-VOL70. Zinc analyses returned from ME-AA62 with a zinc content over 30% are re-analyzed by dissolving in hydrochloric acid and titrated with EDTA solution with Xylenol orange as an indicator.
- **High Grade Iron Analysis:** Fe-VOL51. Iron analyses returned from ME-ICP61 with iron content over 50% are re-analyzed by dissolving in hydrochloric acid and titration.

In the SLR QP’s opinion, the sample analysis methods are acceptable for the purposes of a Mineral Resource estimate.

8.1.5 Database Management

Database management is performed by a dedicated onsite geologist under the supervision of the Project Geologist. Digital logging sheets prepared by the geologist are uploaded to the Fusion database management system. Original drill logs, structural logs, geotechnical logs, details of chain of custody, site reclamation, and drilling are stored on site in a folder, specific to a single drill hole. Folders are clearly labelled and stored in a cabinet in the office, which is locked during out of office hours.

Assay certificates of exploration and mine drill holes are mailed to the site by ALS Global and emailed to Nexa employees. Certificates are reviewed by Nexa personnel prior to uploading to Fusion.

8.2 Quality Assurance and Quality Control

Quality assurance (QA) consists of evidence to demonstrate that the assay data has precision and accuracy within generally accepted limits for the sampling and analytical method(s) used to provide confidence in a resource estimate or reporting assay results. Quality control (QC) consists of procedures used to ensure that an adequate level of quality is maintained in the process of collecting, preparing, and assaying the exploration drilling samples. In general, QA/QC programs are designed to prevent or detect contamination and allow assaying (analytical), precision (repeatability), and accuracy to be quantified. In addition, a QA/QC program can disclose the overall sampling-assaying variability of the sampling method itself.





8.2.1 QA/QC Protocols

Nexa has implemented an analytical QC and assurance program to ensure the reliability of exploration data. The program comprises of the insertion of certified reference material (CRMs or standards), blanks samples, and different types of duplicate samples into the sample stream. Table 8-1 lists the types of CRMs used by Nexa. From 2004 to 2008, three, commercially sourced CRMs, representing low, medium, and high grade zinc and lead were inserted at a rate of 5%. Copper, silver, and gold CRMs were not used. In 2012, two CRMs sourced from Nexa’s sedimentary exhalative deposit (sedex) mine, Morro Agudo, were used on site. In June 2012, two property specific CRMs were generated and came into use on site. Standards were inserted in the overall sample stream of drill core at a rate of five standards in 100 samples.

Between 2012 and 2020 Nexa utilized 18 different standards:

- AP series: five certified standards from Aripuanã for Zn, Pb, Cu, and Ag
- MA series: two CRMs sourced from Morro Agudo for Zn only and certified by SGS Geosol
- L1, M1, H1: Low, medium, and high grade CRMs for Zn and Pb
- G series: three Geostats CRMs for Au
- GB series: one Intertek Group plc CRM for Zn, Pb, Cu and Ag
- BRAP series: Sourced from Centro Tecnológico de Referencia Sul Americano (CTRS) for Ag, Cu, Pb, Zn and S
- CTRS 900 series: sourced from CTRS for Au, Cu, S, Fe, Zn, Pb and Ag

Standards were inserted in the overall sample stream of drill core at a rate of approximately one standard for every 30 drill core samples.

Prior to 2012, blank material was river sand and sandstone sourced from the Aripuanã property. Subsequent to 2012, only coarsely crushed sandstone was used.

Data collected from QC samples comprises approximately 10% of all assay data. For each batch of 100 samples, Nexa inserts the following QC samples: five standards, two blanks, one field duplicate, one pulp duplicate, and one reject duplicate. Blanks are inserted in the sample stream at the end of visible mineralization, standards are randomly inserted within mineralized intervals, and pulp and reject duplicates are randomly inserted in both mineralized and unmineralized intervals. Coarse rejects are requested by Nexa from material before it is shipped back from the laboratory to Nexa’s storage facility. Half core field duplicates are taken within mineralization.

Table 8-1: Certified Reference Materials Nexa Resources S.A. - Aripuanã Zinc Project											
CRM	Count	Zn (%)	SD	Pb (%)	SD	Cu (%)	SD	Ag (g/t)	SD	Au (g/t)	SD
AP0001	545	4.84	0.23	3.01	0.06	0.47	24	96	2	0.66	0
AP0002	550	9.15	0.31	6.15	0.09	1.44	0.06	207	6	1.12	0
APPD0003	832	2.89	0.08	1.09	0.04	1.22	0.02	43	1	-	-
APPD0004	833	7.71	0.18	4.04	0.07	0.35	0.01	127	3	-	-
APPD0005	529	1.509	0.043	0.56	0.01	6.83	0.12	58.1	2.3	-	-
G312-4	433	-	-	-	-	-	-	-	-	5.3	0.2
G909-1	452	-	-	-	-	-	-	-	-	1.02	0.1
GBM910-12	219	4.491	0.196	-	-	0.14	-	23.5	1.3	-	-
MA002	50	14.22	0.48	1.61	0.04	-	-	1.53	0.2	-	-



CRM	Count	Zn (%)	SD	Pb (%)	SD	Cu (%)	SD	Ag (g/t)	SD	Au (g/t)	SD
MA004	128	2.91	0.11	0.94	0.04	-	-	1.18	0.2	-	-
ZnPbH1*	120	7.69	0.18	4.82	0.15	-	-	-	-	-	-
ZnPbL1*	235	0.75	0.01	0.47	0.03	-	-	-	-	-	-
ZnPbM1*	217	2.83	0.07	0.99	0.05	-	-	-	-	-	-
CTRS0709	219	2.89	0.08	1.09	0.04	1.22	0.02	-	-	-	-
CTRS0710	218	7.71	0.18	4.04	0.07	0.346	0.007	-	-	-	-
G316-2	8	-	-	-	-	-	-	-	-	1.04	0.04
BRAPSTD001	16	9.34	0.26	4.04	0.1	0.312	0.009	104.01	2.26	-	-
BRAPSTD002	15	4.27	0.1	1.165	0.026	1.059	0.022	37.84	1.31	-	-

Notes:

1. SD = standard deviation

A QA/QC report is prepared monthly by the onsite database manager and reviewed by the Project Geologist, the report is also submitted to the head office for review. Sample batches that include samples identified as having failed performance gates are re-assayed by ALS Global at the request of Nexa. The failed control sample, as well as two shoulder samples from each side, are re-assayed and supersede the failed results in the database.

The SLR QP reviewed the sample preparation, analytical, and security protocols employed by Nexa and is of the opinion that they meet or exceed industry best practices. Based on this assessment, the SLR QP is of the opinion that assay data are sufficiently reliable for Mineral Resource estimation purposes.

8.2.2 Certified Reference Material

Results of the regular submission of CRMs (standards) are used to identify problems with specific sample batches and long-term biases associated with the primary assay laboratory. SLR reviewed the results from 18 different standards used from 2004 to 2020.

Nexa investigated the assays for APPD0005, as this CRM consistently reported values below the expected value and often below the three standard deviation threshold. Nexa removed this standard from circulation in 2019.

Figure 8-1 through Figure 8-3 chart 833 samples of CRM APPD0004 used for analyses on zinc, lead, and copper, respectively. Failure rates for the three elements are 16 (1.9%), 77 (9.2%) and 264 (31.6%) failures, respectively.

Failure rates for copper were unexpected and show a significant low bias compared to the expected value. SLR recalculated the mean and standard deviation of the copper samples and found that adjusting for the sample population mean only five (0.6%) of the samples failed.

SLR recommends that Nexa reevaluate other CRMs to adjust the means and standard deviations accordingly. SLR is of the opinion that the results of the CRMs support the use of the assays for a resource model.





Figure 8-1: Control Chart for CRM AP0004: Zinc



Figure 8-2: Control Chart for CRM AP0004: Lead





Figure 8-3: Control Chart for CRM AP0001: Copper

8.2.3 Blanks

SLR reviewed all analytical QC data from 2004 to 2020, these include the performance data of blanks, CRMs, as well as those of field, pulp, and coarse reject duplicates. The performance of blanks and CRMs was analyzed by charting the data on time series plots. Paired data (field duplicates, pulp duplicates, and coarse reject duplicates) were analyzed using bias charts, quantile-quantile, and relative precision plots.

Normal industry practice for the assessment of the performance of blank samples is to set a failure limit to ten times the detection limit. In the case of the zinc, lead, and copper grades of interest, ten times the detection limit is insignificant. While SLR used 20 times the detection limit in the past, Nexa considers five times the practical detection limit of 0.01%, which SLR accepted as equally reasonable in this study.

Prior to 2012, blank material was river sand and sandstone sourced from the property. After this date, only sandstone was used, however, Nexa does not distinguish these two materials in their database. The performance of blank samples is generally acceptable, and although zinc analyses yielded 1.4% of all assays above the limit of 0.05% Zn. The majority of these failures occurred prior to 2017. Lead and copper analyses failed in approximately 0.4% and 0.2% of samples, respectively. Figure 8-4 charts all the blank samples for zinc, lead, and copper. Based on this analysis, SLR is of the opinion that no systematic contamination of samples occurred during the sample preparation or analysis stages.





Figure 8-4: 2005 to 2020 Results of Blank Samples (Zinc, Lead, and Copper)

8.2.4 Duplicates

Duplicate samples help to monitor preparation and assay precision and grade variability as a function of sample homogeneity and laboratory error. The field duplicates include the natural variability of the original core sample, as well as all levels of error including core splitting, sample size reduction in the preparation laboratory, sub-sampling of the pulverized sample, and the analytical error. Coarse reject and pulp duplicates provide a measure of the sample homogeneity at different stages of the preparation process (crushing and pulverizing).

SLR re-analyzed the duplicate data compiled by Nexa using basic statistics, scatter, quantile-quantile, and percent relative difference plots. A total of 7,683 sample pairs were analyzed between field, coarse, and pulp duplicates with no material issues found. Figure 8-5 through Figure 8-7 are selected duplicate results.





Figure 8-5: Analysis of Field Duplicate Data (Lead)



Figure 8-6: Analysis of Coarse Reject Duplicate Data (Zinc)





Figure 8-7: Analysis of Pulp Reject Duplicate Data (Copper)

Based on the analyses of available analytical QC data, the SLR QP is of the opinion that the exploration data is sufficiently reliable for mineral resource estimation purposes. A recalculation of the means and standard deviations for CRMs with high failure rates is recommended.

8.2.5 External Laboratory Checks

External laboratory check assays consist of submitting samples that were assayed at the primary laboratory (ALS) to a secondary laboratory CTRS and re-analyzing them by using the same analytical procedures.

Figure 8-8 plots 1,042 sample pairs of zinc assays that were submitted for reanalysis. The results show a low variation in the assay values with a correlation of over 99%.





Figure 8-8: Analysis of External Laboratory Checks (Zinc)

8.3 Sample Security

Samples are shipped in rice bags by truck to the independent ALS Global preparation facility in Goiania, Brazil. ALS Global purchased the facility from ACME in 2007. Prior to 2007, all work was performed by ACME.

Drill core is stored at the onsite core storage facility, the grounds of which are locked at night and surrounded by a high fence. The storage facility is open at the sides and covered with a corrugated iron roof. Core storage inventory is maintained by onsite technicians. Pulp and coarse rejects are shipped back to the onsite facility by the laboratory where they are also stored with reference to individual sample locations.

8.4 Conclusions

The SLR QP is of the opinion that the data collected by Nexa has been validated thoroughly and that the implementation of QA/QC protocols are to industry standards. The data is suitable for the estimation of Mineral Resources and Mineral Reserves.





9.0 DATA VERIFICATION

9.1 Nexa

9.1.1 Validation of Anglo American Data

From 1993 to 1997, assays from 56 FEX series drill holes from the Anglo American drilling campaigns at Arex were completed by MMV and Nomos without the insertion of QA/QC samples into the sample stream. In 1997, for verification purposes, core was quartered over mineralized intervals and re-analyzed either at the same lab or at a secondary lab (MMV, Nomos, ACME, or ALS Chemex). It was noted that for Anglo American's Salobo Project in the Carajás mineral province, state of Pará, Brazil, Nomos was reporting significantly higher copper grades than MMV, however, MMV was comparable to ACME.

Based on this information, Nexa adopted the following strategy:

- Nomos assays were only used if MMV assays were not completed.
- If the re-assay was performed at the same laboratory, the lower grade set of results was used.

SLR notes that the FEX series drill holes represent approximately 5% of the composites within the mineralization wireframes and the issue mentioned only potentially impacts the stringer zone given that only the stringer zone contains copper values of interest. SLR is of the opinion that the impact of the overstated copper grades as presented above is not material to the Project.

9.1.2 Software Validation

Fusion and Seequent's Leapfrog Geo (Leapfrog) software is used to identify potential issues in the drill hole database. Checks for the following potential issues were carried out:

- Long sample lengths
- Strange maximum and minimum values
- Negative values
- Detection limit / zero values
- Rapid borehole deviations
- Sampling gaps
- Sampling overlaps
- Drill hole collars that do not match topography and underground openings

No significant errors were detected that would materially impact the Mineral Resource estimate.

9.2 SLR Audit of Drill Hole Database

9.2.1 Site Visit

SLR conducted site visits to the Project on several occasions. An SLR Senior Geologist, a QP, visited the Project between October 16 and 19, 2012. During this site visit, SLR verified the geology and assay results from holes FPAR339, FPAR273, and FPAR343 to information in Nexa's database. Drill hole contacts agreed with the logging results, and grades of zinc, lead, and copper were observed to correlate to sulphide content. Alteration was noted where present.

SLR visited the Project site between January 30 to February 3, 2017. During the site visit SLR reviewed logging and sampling methods, inspected core from drill holes, and held discussions with Nexa personnel. Subsequent to this visit, SLR visited the property between June 2 and 5, 2017. The purpose of the second visit was to review drill core, discuss project development plans, and review work on the Project to date.





9.2.2 Database Review

SLR has reviewed the drill hole database on various occasions. A summary of the data verification steps is given in Table 9-1.

Table 9-1: Summary of SLR Audits of the Resources Database
Nexa Resources S.A. - Aripuanã Zinc Project

Year	Task	Comments
2012	5% (20 holes) comparison between original logs and digital logs. Compared holes FPAR2339, FPAR273 and FPAR343 to assay and litho logs.	Two holes were identified as having errors and were corrected in the database. Contacts agreed with logging and sulphide content correlated with assays results. No major discrepancies found, accidental exclusion of 35% of silver values due to error in database script.
2015	5% check of assay certificates from ALS. 18% check of assay certificates between 2012 and 2015 from ALS.	No major discrepancies found, silver scripting issue fixed. Little variance within rock types and density values as expected. Some hydrothermal zone samples report high density values.
2016	Examined density population for outliers. Compared holes BRAPDD0055, BRAPDD0137 and BRAPDD0087 to assay and litho logs.	Contacts agreed with logging and sulphide content correlated with assays results.
2017	>6% check of assay certificates between 2015 and 2016 from ALS.	No major discrepancies found.
2018	Reviewed an error report provided by Nexa and generated by Datamine Studio RM (Datamine Studio) from the database text files Aggregated all assay certificates and compared finalized copper, lead, zinc, and silver values against the database using a routine in Microsoft Excel.	No major discrepancies found.
2020	A spot check on 3% of assay certificates between 2019 and 2020 from ALS.	No significant errors found. No significant errors found.

9.2.3 Density

SLR compared measured density values by rock units at Arex and Ambrex. Density values less than 2 t/m³ (excluding oxide material) and greater than 5 t/m³ were considered outliers based on cumulative distributions and removed from the database. Basic statistics of density data are displayed in the sequence. Samples designated as stratabound mineralization by logging geologists were found to have the highest density at both Arex and Ambrex, followed by stringer mineralization (Figure 9-1 and Figure 9-2). Little variance exists in any of the other rock units, however, some mineralized hydrothermal zone samples reported high density values.





Figure 9-1: Density Measurements at Ambrex by Rock Unit





Figure 9-2: Density Measurements at Arex by Rock Unit

SLR is of the opinion that the data is suitable for the estimation of Mineral Resources and Mineral Reserves.





10.0 MINERAL PROCESSING AND METALLURGICAL TESTING

10.1 Introduction

Numerous metallurgical studies on the Project were carried out from 2005 to 2013 to identify the best processing option. The evolution of the key studies and the process technologies under consideration were documented by VM Holding S.A. (VMH, 2015) and previously reported by RPA (RPA, 2017 and RPA, 2018). It was determined through metallurgical test work that sequential flotation (Cu-Pb-Zn), rather than bulk flotation into a single concentrate, presented better economics due to higher recoveries and concentrate grades.

Additional test work on drill core from the Project was conducted by SGS GEOSOL Laboratórios (SGS GEOSOL) from May 2016 to January 2017 to provide experimental data to support engineering studies. Information on sample validation and additional metallurgical testing has largely been provided by Validação das Amostras Seleccionadas para Teste Metalurgico (LCASSIS Consultoria em Recursos Minerais (LCASSIS), 2017), the SGS GEOSOL 2017 Report (SGS GEOSOL, 2017), and the Metallurgical Test work Report (Worley Parsons, 2017a).

Locked cycle test (LCT) work was also conducted in November 2017 by SGS GEOSOL to provide experimental data on the treatment of various types of mineralization, including, Link Stringer, Stringer Global, Link Stratabound, Ambrex Stringer, Ambrex Stratabound, and Strata Global. To the best of SLR's knowledge, this test work program and the results were not compiled in a final report for review. The final results of this test work were used to define the process route selection.

Pilot studies were undertaken by SGS GEOSOL on Project mineralization and the results were reported in the 2018 Pilot Study (SGS GEOSOL, 2018).

Metallurgical data obtained from testing was integrated into the FEL3 process design by SNC-Lavalin Group Inc. (SNC-Lavalin) (SNC-Lavalin, 2018a and 2018b).

Subsequent to RPA's 2018 Technical Report (RPA, 2018), pilot plant flotation test work commenced in 2020 using bulk samples at Nexa's Vazante Mine pilot facility located in Mina Gerais State, Brazil. In addition, grinding and flotation test work was completed by SGS GEOSOL in 2020 (SGS GEOSOL, 2020) on composites representing the first 11 quarters of processing plant feed. The 2020 test work utilized samples of blended ore (stringer and stratabound) based on a revised strategy of processing combined ore types rather than campaigning stratabound and stringer ores through the plant separately as had been previously planned. Independently, an evaluation of the grinding circuit included in the process design was completed by Mineral Processing Solutions (MinPro) in April 2020 (MinPro, 2020).

SGS GEOSOL is an independent laboratory in Vespasiano, Mato Grosso, Brazil, providing analytical and mineral processing test work services to the mining sector, and is certified to ISO 9001, ISO 14001, and ISO 17025.

10.2 Metallurgical Sampling

Three master composite samples representing the Arex Stratabound, Arex Stringer, and Ambrex Stratabound deposits were prepared from original drill core. These samples were subjected to comminution, flotation, rheology, settling, and filtration bench scale tests, as well as chemical and mineralogical characterization (SGS GEOSOL, 2017).

Shipments of samples for testing included:

- First shipment (May 2016) - 100 kg sample from the Arex body, material was combined to form a composite sample (75% Arex Stratabound, 25% Arex Stringer) for preliminary flotation test work in Phase 1 testing.
- Second shipment (July 2016) - 550 kg sample, core samples were combined to form three master composites: Arex Stringer, Arex Stratabound, and Ambrex Stratabound, which were used for optimization and definitive flotation tests.
- Variability Samples (July 2016) - 500 kg sample, core samples were combined to form ten Arex Stringer variability samples, ten Arex Stratabound variability samples, and eight Ambrex variability samples.





Detailed sample preparation for comminution was conducted by SGS GEOSOL to generate representative aliquots of material in specific size intervals for different types of tests. The material for comminution testing was sent to SGS Chile, while Bond Ball Mill Grindability testing was conducted at SGS GEOSOL in Brazil.

Material crushed to 2.0 mm was homogenized and separated into one-kilogram sub-samples, which were placed in plastic bags, sealed, and stored in a freezer for flotation test work.

Figure 10-1 and Figure 10-2 illustrate the location of the metallurgical samples selected relative to the Life of Mine (LOM) stopes and the representativeness of sampling in each deposit.

Samples for the 2018 SGS GEOSOL Pilot Study consisted of Arex and Ambrex Stratabound materials, and Arex Stringer materials, as well as dilution material. These samples were prepared individually and then composites were prepared of stringer and stratabound material totalling approximately 11 t. The samples were chosen from NQ core to be representative of the global grades of the Aripuanã deposit, as well as spatially representative and representative of the proportions of the different ore types. Dilution material from Ambrex STB and Arex STB was added to help achieve the target grades and deposit proportional representation.





Figure 10-1: Location of 2017 Arex Metallurgical Samples





Figure 10-2: Location of 2017 Ambrex Metallurgical Samples





10.3 Metallurgical Testing

10.3.1 2016 Phase 1

The 2016 SGS GEOSOL metallurgical test program was carried out in two phases. In Phase 1, a single bulk master composite sample of Arex Stringer and Stratabound mineralization representing both deposits at a ratio of 75% stratabound to 25% stringer mineralization was tested. A total of 24 open circuit bench scale flotation tests and two LCTs were conducted using the blended composite sample. The purpose of the testing was to verify the primary grind size (as this has implications for the downstream backfill plant) and to confirm if treating a blended mineralization would result in good metallurgical performance when compared to treating the materials separately. Information on preliminary flotation test work is presented in detail in Appendix G of the SGS GEOSOL 2017 Report.

Preliminary test results indicated that a sequential flotation circuit with a short talc pre-flotation step followed by talc depression at a coarse primary grind size of 80% passing (P₈₀) 150 µm produced acceptable results (Table 10-1). The results were as follows:

- Final Cu concentrate: 30.3% Cu, 80.4% recovery.
- Final Pb concentrate: 45.4% Pb, 91.5% recovery (although zinc contamination of the lead concentrate was high).
- Final Zn concentrate: 56.3% Zn, 83.9% recovery.

Although parameters were not optimized, circuit conditions were identified for use in Phase 2. The overall results from LCTs were consistent with previous LCT results and the zinc and lead concentrate quality was found to be better than in previous tests. The blended composite of the Arex mineralization resulted in acceptable metallurgical performance in Phase 1 testing.





Table 10-1: Phase I - LCT 2 Results
Nexa Resources S.A. - Aripuanã Zinc Project

Product	Grade (%)						Recovery (%)					
	Cu	Fe	MgO	Pb	Zn	S	Cu	Fe	MgO	Pb	Zn	S
Calculated Feed	0.59	15.5	12.1	1.61	3.50	8.40	-	-	-	-	-	-
Talc Rougher Concentrate	0.57	14.9	11.0	1.60	3.80	7.59	9.52	1.43	4.14	1.17	0.70	1.31
Copper Recleaner Concentrate	30.3	29.0	0.59	1.50	4.66	33.4	80.43	2.95	0.08	1.39	1.86	6.68
Lead Recleaner Concentrate	0.62	12.9	1.88	45.4	11.6	20.8	3.48	2.77	0.55	91.50	9.85	8.84
Zinc Recleaner Concentrate	0.20	9.02	0.10	0.44	56.3	35.5	1.99	3.43	0.05	1.57	83.92	26.55
Final Tailings	0.09	15.1	12.2	0.10	0.19	4.91	14.09	90.86	99.32	5.54	4.38	57.93





10.3.2 2016 Phase 2

Phase 2 testing was comprised of a more comprehensive testing program undertaken on both blended and individual Arex and Ambrex materials, with variability testing conducted on the different lithologies (SGS GEOSOL, 2017). Test work consisted of comminution, flotation, mineralogy, thickening, filtration, and rheology testing. Bench scale flotation tests were conducted to establish circuit parameters for various mineralization blends prior to conducting LCTs. A series of LCTs were carried out on each master composite sample and various blends to optimize circuit performance and to evaluate the flowsheet configuration. Information on optimization flotation test work is presented in detail in Appendix H of the SGS GEOSOL 2017 Report. Optimum conditions from development test work were applied to testing various variability samples.

10.3.2.1 Comminution

A variety of comminution test work was completed, including:

- Crushing Work Index (CWi)
- Semi-Autogenous Grinding (SAG) Mill Comminution (SMC)
- SAG Power Index (SPI)
- Bond Work Index (BWi)
- Bond Abrasion Index (Ai)

Information on comminution test work is presented in detail in Appendix E of the SGS GEOSOL 2017 Report. A brief description of these tests and the results are summarized below.

10.3.2.1.1 CWi

The Bond Impact Work Index can be determined from the CWi test and used to calculate net power requirements for sizing crushers. Additionally, the CWi can be used to determine the required open side settings for jaw and gyratory crushers, or closed side settings for cone crushers to achieve a given product size. Table 10-2 summarizes the results of CWi testing. Arex Stringer mineralization is considered to be moderately hard, while Ambrex mineralization is classified as soft.

Table 10-2: CWi Results
Nexa Resources S.A. - Aripuanã Zinc Project

Sample	Maximum Impact Work Index (kWh/t)	Minimum Impact Work Index (kWh/t)	Average Impact Work Index (kWh/t)	Specific Gravity
Arex STB	18.47	4.39	9.13	3.31
Arex STR	18.81	4.83	9.32	2.93
Ambrex	10.91	3.87	6.35	3.67

Notes:

1. STB - Stratabound
2. STR - Stringer

10.3.2.1.2 SMC

SMC results are used to determine the drop weight index (DWI), which is a measure of the strength of the rock when broken under impact conditions. The DWI is directly related to the JK rock breakage parameters A and b, which can be used to estimate these parameters. The JKTech Abrasion Test determines the parameter, Ta, which characterizes





the resistance of the particles to fracture by abrasion. If the value of Ta is low, then there is a higher resistance to abrasion. The results of the SMC testing are summarized in Table 10-3.

Table 10-3: SMC Results
Nexa Resources S.A. - Aripuanã Zinc Project

Sample	DWI (kWh/m ³)	A	b	A x b	SG	T _a
Arex STB	5.83	56.5	0.95	53.7	3.12	0.44
Arex STR	9.42	54.2	0.57	30.9	2.92	0.27
Ambrex	6.86	59.2	0.85	50.3	3.45	0.38

10.3.2.1.3 SPI

SPI is a measure of the hardness of an ore from a SAG or autogenous grinding (AG) perspective. The SPI test measures the energy required to perform a standard size reduction. SPI tests are aimed at determining SAG and ball mill power requirements.

SPI determinations were conducted for all master composite and variability samples (total of 30 samples) and the results are presented in Table 10-4. SGS Chile did not convert SPI minutes into power, therefore SPI values were not used in any comminution simulations. The results did not demonstrate a wide variation in hardness within the deposit. Samples were characterized as soft to moderate and the average SPI value for variability samples was 59.6 minutes.

Table 10-4: SPI Results
Nexa Resources S.A. - Aripuanã Zinc Project

Sample Number	Sample	SPI (minutes)
	Arex Stratabound (STB) Master Composite	47
	Arex Stringer (STR) Master Composite	88
	Ambrex Stratabound (STB) Master Composite	48
1	Arex STB Variability - High Sulphur	44
2	Arex STB Variability - Tremolite	55
3	Arex STB Variability - Pyrrhotite	80
4	Arex STB Variability - High Zinc	68
5	Arex STB Variability - Low Iron	47
6	Arex STB Variability - Low Zinc	52
7	Arex STB Variability - Pyrite	63
8	Arex STB Variability - Talc	39
9	Arex STB Variability - Chlorites	78
10	Arex STB Variability - Carbonates	44
11	Arex STR Variability - Low Iron	66
12	Arex STR Variability -Sulphur	81





Sample Number	Sample	SPI (minutes)
13	Arex STR Variability - High Pyrrhotite	71
14	Arex STR Variability - High Gold	79
15	Arex STR Variability - High Pyrite	67
16	Arex STR Variability - High Copper	78
17	Arex STR Variability - Talc	53
18	Arex STR Variability - High Iron	81
19	Arex STR Variability - Low Copper	69
20	Ambrex STB Variability - Low Zinc	46
21	Ambrex STB Variability - Carbonates	40
22	Ambrex STB Variability - Pyrrhotite	62
23	Ambrex STB Variability - Talc	50
24	Ambrex STB Variability - High Zinc	54
25	Ambrex STB Variability - Sulphides	55
26	Ambrex STB Variability - Pyrite	47
27	Ambrex STB Variability - Tremolite	40

10.3.2.1.4 BWi

BWi determinations were performed on master composites and all variability samples. A total of 31 BWi determinations were carried out using a closing screen size of 150 µm. Table 10-5 lists the BWi results. No major difference was noted between the master composites and the variability samples. The material was classified as moderate to soft based on the BWi results.





Table 10-5: BWI Results
Nexa Resources S.A. - Aripuanã Zinc Project

Sample Number	Sample	BWi (kWh/t)
	Arex STB Master Composite	10.6
	Arex STRMaster Composite	12.4
	Arex Mix	12.1
	Ambrex STB Master Composite	10.8 / 10.3
1	Arex STB Variability - High Sulphur	8.6
2	Arex STB Variability - Tremolite	9.9
3	Arex STB Variability - Pyrrhotite	12.1
4	Arex STB Variability - High Zinc	10.6
5	Arex STB Variability - Low Iron	8.9
6	Arex STB Variability - Low Zinc	11.8
7	Arex STB Variability - Pyrite	10.8
8	Arex STB Variability - Talc	9.9
9	Arex STB Variability - Chlorites	11.2
10	Arex STB Variability - Carbonates	11.8
11	Arex STR Variability - Low Iron	11.9
12	Arex STR Variability -Sulphur	12.4
13	Arex STR Variability - High Pyrrhotite	13.6
14	Arex STR Variability - High Gold	12.7
15	Arex STR Variability - High Pyrite	12.9
16	Arex STR Variability - High Copper	14.2
17	Arex STR Variability - Talc	14.1
18	Arex STR Variability - High Iron	14.6
19	Arex STR Variability - Low Copper	12.9
20	Ambrex STB Variability - Low Zinc	9.5
21	Ambrex STB Variability - Carbonates	9.9
22	Ambrex STB Variability - Pyrrhotite	11.1
23	Ambrex STB Variability - Talc	10.2
24	Ambrex STB Variability - High Zinc	10.3
25	Ambrex STB Variability - Sulphides	10.4
26	Ambrex STB Variability - Pyrite	9.1
27	Ambrex STB Variability - Tremolite	9.6

10.3.2.1.5 AI





Ai can be used to determine steel media and liner wear in crushers, rod mills, and ball mills. The Ai test results are summarized in Table 10-6. The mineralization tested was classified as moderately abrasive.

Table 10-6: Ai Results
Nexa Resources S.A. - Aripuanã Zinc Project

Sample	Ai (g)
Arex Stratabound Master Composite	0.086
Arex Stringer Master Composite	0.1425
Ambrex Master Composite	0.1448

10.3.2.1.6 RWi

Bond rod mill work index (RWi) can be used to calculate net power requirements of the mill circuit, where the mill operates in closed circuit with a classifier. The RWi results are listed in Table 10-7.

Table 10-7: RWi Results
Nexa Resources S.A. - Aripuanã Zinc Project

Sample	RWi (kWh/t)
Arex Stratabound Master Composite	12.2
Arex Stringer Master Composite	15.4
Ambrex Master Composite	11.2

10.3.2.2 Flotation

Phase 2 flotation testing was conducted using master composite samples of the Arex Stratabound, Arex Stringer, and Ambrex Stratabound mineralization, as well as three Arex blended mineralization with varying ratios of stratabound to stringer material (75%:25%, 50%:50%, and 25%:75%). The main objective of the Phase 2 flotation testing was to determine the highest grade and recovery achievable for each sample under different reagent dosages and flotation times under a sequential flotation scheme (Cu-Pb-Zn). The Phase 2 flotation test program and results were documented in detail by SGS GEOSOL (SGS GEOSOL, 2017).

A simplified diagram of the sequential flotation process developed is illustrated in Figure 10-3.

The optimization test work determined that the best LCT results in terms of concentrate grades and recoveries achieved were as follows (SGS GEOSOL, 2017):

- Arex Stratabound Master Composite: LCT 028
- Arex Stringer Master Composite: LCT 011 and LCT 025 (Cu flotation only)
- Arex Mixed (75% Stratabound, 25% Stringer): LCT 030
- Ambrex Stratabound Master Composite: LCT 029

The results from these LCTs are summarized in Table 10-8 to Table 10-14 and SGS GEOSOL's key findings were as follows:

- Master composites of Arex Stratabound and Ambrex Stratabound mineralization were similar in zinc and lead feed assays and flotation recovery, however, the Ambrex sample exhibited low copper concentrate grade and recovery.





- The Arex Stringer master composite sample was high in copper feed assay and the resulting copper concentrate was also high in grade and recovery. Zinc and lead concentrate grades and recovery were low as a result of their feed grades being low.
- The Arex Blended sample (75% Stratabound, 25% Stringer) exhibited the best flotation results:
 - o Cu concentrate: 31.3% Cu, 76.9% recovery
 - o Pb concentrate: 51.7% Pb, 82.4% recovery
 - o Zn concentrate: 52.4% Zn, 83.9% recovery
- Cycles on the majority of LCTs were not stabilized, thus confirmation of the results would require additional testing. Separate water systems were recommended for the flotation circuits to help future LCTs achieve equilibrium.
- While flotation columns are preferred and widely accepted in industry for use in the final cleaning stage, column flotation testing was not carried out at the bench scale.





Figure 10-3: Simplified Sequential Flotation Circuit





Table 10-8: Summary of Key Optimization LCT Results
Nexa Resources S.A. - Aripuanã Zinc Project

LCT	Grade							Distribution							
	% Cu	% Pb	% Zn	% Mg	% Fe	ppm Au	ppm Ag	Wt.%	% Cu	% Pb	% Zn	% Mg	% Fe	% Au	% Ag
	LCT 028 - Arex Stratabound Master Composite														
Calculated Feed	0.33	1.53	4.51	7.03	12.9	0.20	33.7	100	100	100	100	100	100	100	100
Talc Tail	0.04	0.73	2.30	11.6	8.21	-	-	17.5	2.11	8.36	8.92	28.9	11.1	-	-
Cu Final Conc.	26.7	3.63	7.16	0.79	31.7	11.3	1,068	0.86	69.5	2.05	1.37	0.10	2.11	49.7	27.2
Pb Final Conc.	0.81	60.6	8.39	0.54	5.89	1.53	852	2.01	4.92	79.8	3.74	0.15	0.92	15.6	50.7
Zn Final Conc.	0.26	0.54	48.6	0.98	9.38	0.24	40.0	7.64	6.01	2.70	82.5	1.06	5.55	9.34	9.06
Rougher Tail	0.08	0.15	0.22	6.81	14.4	-	-	72.0	17.4	7.08	3.5	69.8	80.3	-	-
	LCT 011 - Arex Stringer Master Composite														
Calculated Feed	1.02	0.18	0.24	2.62	11.2	0.5	12.5	100	100	100	100	100	100	100	100
Talc Tail	Due to the low content of talc in feed, talc flotation was excluded from LCT circuit in this test														
Cu Final Conc.	25.4	2.68	4.45	0.43	33.1	13.5	253	3.85	95.7	55.8	71.8	0.64	11.4	93.3	77.7
Pb Final Conc.	1.93	10.7	3.85	1.69	31.7	4.65	210	0.67	1.26	38.6	10.8	0.43	1.89	6.3	11.2
Zn Final Conc.	0.46	0.20	4.89	3.80	17.5	0.31	12.0	0.48	0.21	0.50	9.5	0.67	0.72	0.29	0.44
Rougher Tail	0.03	0.01	0.02	2.71	10.1	-	-	95.0	2.79	5.14	7.97	98.3	86.0	-	-





LCT	Grade							Distribution							
	% Cu	% Pb	% Zn	% Mg	% Fe	ppm Au	ppm Ag	Wt.%	% Cu	% Pb	% Zn	% Mg	% Fe	% Au	% Ag
	LCT 025 - Arex Stringer Master Composite (Copper Flotation Only)														
Calculated Feed	1.02	0.19	0.26	2.34	11.2	0.49	12.5	100	100	100	100	100	100	100	100
Talc Tail	Due to the low content of talc in feed, talc flotation was excluded from LCT circuit in this test														
Cu Final Conc.	26.7	1.84	2.63	0.54	36.2	13.8	252	3.73	98.1	35.4	37.5	0.87	12.1	93	75.1
Pb Final Conc.	Due to the low content of lead in feed, lead flotation excluded from LCT circuit in this test														
Zn Final Conc.	Due to the low content of zinc in feed, zinc flotation excluded from LCT circuit in this test														
Rougher Tail	0.02	0.13	0.17	2.41	10.2	-	-	96.3	1.89	64.6	62.5	99.1	87.9	-	-
	LCT 030 - Arex Mixed (75% Stratabound, 25% Stringer)														
Calculated Feed	0.45	1.34	3.56	5.90	12.2	0.27	28.4	100	100	100	100	100	100	100	100
Talc Tail	0.06	0.64	1.56	11.8	8.28	-	-	13.1	1.75	6.22	5.73	26.1	8.88	-	-
Cu Final Conc.	31.3	1.14	3.45	0.28	35.2	14.4	660	1.10	76.9	0.93	1.06	0.05	3.17	58.4	25.5
Pb Final Conc.	1.45	51.7	10.4	0.49	12.0	2.8	741	2.14	6.95	82.4	6.26	0.18	2.11	22.0	55.8
Zn Final Conc.	0.31	0.81	52.4	0.66	9.65	0.3	44.0	5.69	3.95	3.43	83.9	0.63	4.51	6.32	8.81
Rougher Tail	0.06	0.12	0.14	5.52	12.7	-	-	78.0	10.5	6.97	3.1	73.1	81.3	-	-
	LCT 009 - Ambrex Stratabound Master Composite														
Calculated Feed	0.08	1.89	4.36	5.38	17.0	0.18	36.7	100	100	100	100	100	100	100	100
Talc Tail	0.02	1.06	2.36	11.6	9.65	-	-	5.58	1.38	3.13	3.02	12.0	3.17	-	-
Cu Final Conc.	4.54	3.38	2.49	12.0	10.9	6.76	1,117	1.05	58.9	1.88	0.60	2.34	0.67	38.9	32.0
Pb Final Conc.	0.18	43.9	6.50	0.65	20.0	0.61	446	3.62	8.05	84.0	5.40	0.43	4.27	12.1	44.0
Zn Final Conc.	0.13	0.61	53.9	0.13	11.3	0.30	43.0	7.02	11.3	2.26	86.8	0.17	4.67	11.6	8.23
Rougher Tail	0.02	0.20	0.22	5.54	17.9	-	-	82.7	20.4	8.74	4.2	85.1	87.2	-	-





LCT	Grade							Distribution							
	% Cu	% Pb	% Zn	% Mg	% Fe	ppm Au	ppm Ag	Wt.%	% Cu	% Pb	% Zn	% Mg	% Fe	% Au	% Ag
	LCT 029 - Ambrex Stratabound Master Composite														
Calculated Feed	0.07	1.64	4.39	5.11	20.5	0.18	36.7	100	100	100	100	100	100	100	100
Talc Tail	0.02	1.05	2.51	11.8	11.6	-	-	13.1	4.01	8.40	7.50	30.2	7.43	-	-
Cu Final Conc.	24.6	3.13	8.58	0.52	28.3	57.4	3,328	0.11	40.3	0.20	0.21	0.01	0.15	33.7	9.72
Pb Final Conc.	0.30	40.8	6.12	0.33	24.6	1.83	466	3.01	13.8	74.9	4.19	0.19	3.61	30.2	38.3
Zn Final Conc.	0.15	0.90	45.3	0.52	14.5	0.39	52.0	8.21	18.8	4.51	84.7	0.84	5.81	17.6	11.6
Rougher Tail	0.02	0.26	0.20	4.65	22.5	-	-	75.6	23.1	12.0	3.44	68.8	83.0	-	-





Table 10-9: LCT 028 Conditions and Results- Arex Stratabound Master Composite
Nexa Resources S.A. - Aripuanã Zinc Project



Source: SGS GEOSOL, 2017



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Technical Report Summary - January 15, 2021



Table 10-10: LCT 011 Conditions and Results- Arex Stringer Master Composite
Nexa Resources S.A. - Aripuanã Zinc Project



Source: SGS GEOSOL, 2017



Nexa Resources S.A. | Aripuanã Zinc Project, SLR Project No: 233.03252.R0000
Technical Report Summary - January 15, 2021



Table 10-11: LCT 025 Conditions and Results- Arex Stringer Master Composite
Nexa Resources S.A. - Aripuanã Zinc Project



Source: SGS GEOSOL, 2017



Nexa Resources S.A. | Aripuanã Zinc Project, SLR Project No: 233.03252.R0000
Technical Report Summary - January 15, 2021



Table 10-12: LCT 030 Conditions and Results- Arex Blended (75% Stratabound, 25% Stringer)
Nexa Resources S.A. - Aripuanã Zinc Project



Source: SGS GEOSOL, 2017



Nexa Resources S.A. | Aripuanã Zinc Project, SLR Project No: 233.03252.R0000
Technical Report Summary - January 15, 2021



**Table 10-13: LCT 009 Conditions and Results- Ambrex Stratabound Master Composite
Nexa Resources S.A. - Aripuanã Zinc Project**



Source: SGS GEOSOL, 2017



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Technical Report Summary - January 15, 2021



**Table 10-14: LCT 029 Conditions and Results- Ambrex Stratabound Master Composite
Nexa Resources S.A. - Aripuanã Zinc Project**



Source: SGS GEOSOL, 2017



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Technical Report Summary - January 15, 2021



The metallurgical recoveries referenced by SNC-Lavalin in the process design criteria (SNC-Lavalin 2018b) for the feasibility study (FS) appear to be consistent with those calculated based on SGS GEOSOL 2017 test work:

- Copper recovery (Stringer) = 86.9%
- Copper recovery (Stratabound) = 67.5%
- Lead recovery (Stratabound) = 85.9%
- Zinc recovery (Stratabound) = 89.4%

The LOM economics were developed using relationships between head grade, concentrate grade, and recovery that were established based on the LCTs. The relationship between concentrate grade divided by the head grade is known as the enrichment ratio (Er), which is a function of the mass pull to the concentrate. In general, the recovery is stated as a relationship to head grade.

SLR notes that not all of the LCTs achieved equilibrium. Due to the low correlations between head grade and recovery in the LCTs, it was determined that the Er ratio would be used where applicable for recovery, and the 2018 pilot plant results would be used in other cases. Nexa determined that the pilot plant results better reflected recovery of stratabound zinc. If concentrates with grades lower than those achieved during testing can be marketed, the metallurgical recoveries used in the cash flow model are:

- Copper Recovery (Stringer) = $102.2014 - (0.4471 \times \text{Er})$, based on LCTs and with LOM Er of 34
- Copper Recovery (Stratabound) = 67.5% based on test work
- Lead Recovery (Stratabound) = $\exp[0.0608 \times \ln(1 - \text{Er}/79.31) + 4.4801] + 0.1$, based on LCTs and LOM Er of 29.3
- Zinc Recovery (Stratabound) = 89.4% based the 2018 pilot plant test work

Based on a review of available metallurgical data, elevated levels of fluorine have been found in some of the concentrates. SLR is of the opinion that concentrate blending will result in final concentrates which contain acceptable levels of deleterious elements.

Optimum conditions from development test work were applied to flotation testing of different variability samples. Each variability sample was subjected to copper, lead, and zinc flotation via an open cleaner circuit (same configuration used for LCT, except that there was no recirculation of cleaner and recleaner tailings). Talc flotation was only performed on samples from Arex Stratabound or Ambrex Stratabound mineralization.

The results from variability flotation testing are presented in detail in Appendix I of the SGS GEOSOL 2017 Report. Figure 10-4 and Figure 10-5 illustrate the variation of metal assays in the flotation products. There are large variations in metal assay and metal distribution to the talc tail and recleaner concentrates. In the cases where the variation was negative, the results for the variability sample were below the result obtained for the respective master composite with the exception of zinc reported in the zinc recleaner concentrate.

10.3.2.3 Settling, Rheology, and Filtration

Settling and rheology test work on feed samples from master composites of the Arex and Ambrex individual materials and the Arex Mixed material was conducted at SGS Chile. Details of the test work program are presented in Appendix J of the SGS GEOSOL 2017 Report. The best settling results were obtained using 3 g/t of the BASF SE (BASF) Magnafloc 10 flocculant (Table 10-15). Rheology test work on the products from settling tests was also conducted using a Hake 550 viscometer (Figure 10-6 and Figure 10-7).





Table 10-15: Summary of Settling Tests Using Magnafloc 10 Flocculant (3 g/t)
Nexa Resources S.A. - Aripuanã Zinc Project

Parameter	Arex Stratabound	Arex Stringer	Arex Mixed (75% Stratabound, 25% Stringer)	Ambrex Stratabound
Initial % Solids	18	18	18	18
% Solids After Sedimentation	65	66	66	67
Settling Velocity (mm/s)	1.5	2	2	2
Unit Area (m ² /tph)	0.7	0.5	0.5	0.6
Yield Point No Shear (PA)	52	29	42	41
Yield Point Full Shear (PA)	1.7	0.6	2.3	2.3





Source: SGS GEOSOL, 2017



Figure 10-4: Variation of Metal Assays in Flotation Products





Source: SGS GEOSOL, 2017



Figure 10-5: Variation of Metal Distribution in Flotation Products





Source: SGS GEOSOL, 2017



Figure 10-6: Yield Stress versus Solids Percentage



Figure 10-7: Viscosity versus Solids Percentage





Settling test work on flotation tailings from Arex Stratabound, Arex Stringer, and Arex Blended (75% Stratabound, 25% Stringer) mineralization was conducted by Andritz AG (Andritz). Details of the Andritz test work program are presented in Appendix K of the SGS GEOSOL 2017 Report. Filtration testing of the Ambrex Stratabound flotation tailings was also performed. The best settling results were obtained using the BASF Magnafloc 10 flocculant, resulting in 60% to 75% solids in the products. A summary of the filtration test work is presented in Table 10-16.

**Table 10-16: Summary of Filtration Test Work Conducted by Andritz
Nexa Resources S.A. - Aripuanã Zinc Project**

Operating Parameter	Arex Stratabound	Arex Stringer	Arex Mixed (75% Stratabound, 25% Stringer)	Ambrex Stratabound
Filtration Throughput – Dry Basis (tph)	211	211	211	211
Production Days per Year	365	365	365	365
Equipment Availability (%)	90	90	90	90
Pulp Density (t/m ³)	1.71	1.65	1.66	1.63
Feed Solids Content (%)	61	61	63	63
Cake Thickness (mm)	40	40	40	40
Cake Moisture (%)	7	9	9	7
Cake Solids Content (%)	93	91	91	93
Approximate Filtration Rate (kg/h-m ²)	104	94	92	94
Recommended Filter Press Model	Overhead	Overhead	Overhead	Overhead
Recommended Number of Units	2	2	2	2
Recommended Frame	2000/180	2000/180	2000/180	2000/180
Recommended Filter Fabric	Andritz 211k	Andritz 211k	Andritz 211k	Andritz 211k
Feed Pressure (bar)	6	6	6	6
Chamber Pressure (bar)	8	8	8	8
Chamber Size (mm)	2000x2000	2000x2000	2000x2000	2000x2000
Number of Chambers per Unit	146 to 152	162 to 168	166 to 168	162 to 168

In its FEL 3 study SNC-Lavalin relied on the FEL 2 data for estimation and sizing of equipment in the following areas:

- Concentrate filtration and thickening.
- Filtration and thickening reject talc.
- Thickening and filtration of final flotation tails.

10.3.3 Phase 2 (FEL 3)

LCT test work was also conducted in November 2017 to provide experimental data on the treatment of various types of mineralization, including: Link Stringer, Stringer Global, Link Stratabound, Ambrex Stringer, Ambrex Stratabound, and Stratabound Global. The results were evaluated based on stratabound and stringer material. To the best of SLR's knowledge, this test work program and the results have not been compiled in a final report for review, however, the data for LCT 004F2 (Stringer Global) has been considered in the FEL 3 process design for copper flotation (SNC-Lavalin, 2018a).





The results from this series of LCTs are summarized in Table 10-17 to Table 10-22.





Table 10-17: LCT 003F2 Conditions and Results - Link Stringer Composite
Nexa Resources S.A. - Aripuanã Zinc Project



Source: SGS GEOSOL, 2017



Nexa Resources S.A. | Aripuanã Zinc Project, SLR Project No: 233.03252.R0000
Technical Report Summary - January 15, 2021



Table 10-18: LCT 004F2 Conditions and Results - Stringer Global Composite
Nexa Resources S.A. - Aripuanã Zinc Project



Source: SGS GEOSOL, 2017



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Technical Report Summary - January 15, 2021



Table 10-19: LCT 005F2 Conditions and Results - Link Stratabound Composite
Nexa Resources S.A. - Aripuanã Zinc Project



Source: SGS GEOSOL, 2017



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Technical Report Summary - January 15, 2021



Table 10-20: LCT 006F2 Conditions and Results - Ambrex Stringer Composite
Nexa Resources S.A. - Aripuanã Zinc Project



Source: SGS GEOSOL, 2017



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Technical Report Summary - January 15, 2021



Table 10-21: LCT 007F2 Conditions and Results - Ambrex Stratabound Composite
Nexa Resources S.A. - Aripuanã Zinc Project



Source: SGS GEOSOL, 2017



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Technical Report Summary - January 15, 2021



Table 10-22: LCT 008F2 Conditions and Results - Strata Global Composite
Nexa Resources S.A. - Aripuanã Zinc Project



Source: SGS GEOSOL, 2017



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Technical Report Summary - January 15, 2021



10.3.4 SGS Pilot Studies

Pilot plant studies were undertaken by SGS GEOSOL in 2018 on samples of Arex and Ambrex mineralization to define the conditions and circuits for grinding and flotation of stringer and stratabound materials. The objective of the pilot plant studies was to produce chalcopyrite concentrate with a copper content of 27% to 28% and to produce lead and zinc concentrates containing approximately 55% Pb and 55% Zn.

Table 10-23 lists the average head grades of the two composite samples tested.

Table 10-23: 2018 Pilot Plant Samples
Nexa Resources S.A. - Aripuanã Zinc Project

Sample	Weight (t)	Cu (%)	Pb (%)	Zn (%)	Ag (ppm)	Au (ppm)
Stringer	6.0	0.82	0.11	0.31	13	0.92
Stratabound	7.5	0.17	1.93	5.50	47	0.33

The key findings from pilot testing were as follows:

- Stringer sample. A final copper concentrate was produced from a circuit consisting of rougher, cleaner, and recleaner flotation, following by cleaner scavenger column flotation. The copper concentrate contained approximately 24.1% Cu and copper recovery was 85.8%, however, high levels of Zn, MgO, and SiO2 (4.65%, 4.66% and 10.65, respectively) were reported as contaminants. Based on these results, additional metallurgical testing was required to improve the quality of the copper concentrate.
- Stratabound sample. Talc was rejected to a talc concentrate containing 27.2% MgO, and MgO recovery was 17.8%. Copper flotation consisted of a rougher-scavenger circuit, which produced a rougher concentrate of 3.63% Cu at 69.0% Cu recovery. The levels of Pb, Zn, and MgO in the rougher concentrate were 1.91%, 3.67% and 14.3%, respectively, however, the low copper content in the feed made it difficult to carry out the copper cleaner and recleaning stages. For lead and zinc flotation, rougher and scavenger flotation was carried out in mechanical cells followed by cleaner and recleaner flotation in column cells. A final lead concentrate was produced containing 62.1% Pb and a lead recovery of 80.3%, while a final zinc concentrate was produced containing 60.8% Zn and a zinc recovery of 87.5%.
- The Stratabound sample was found to be more friable than the stringer sample.

Information from pilot plant comminution and flotation testing was used by SNC-Lavalin in the estimation and sizing of process equipment in the FEL 3 study (SNC-Lavalin, 2018a), however due to the low copper content in stratabound material, data related to stratabound copper flotation and concentration needed further validation.

10.3.5 SGS Test Work on Quarterly Composites

From September 2019 to May 2020, SGS GEOSOL completed test work on quarterly composites (based on the FEL3 LOM plan) with the objective of optimizing flotation conditions and predicting the performance of the Aripuanã plant over the first two years of operation when processing ore consisting of both stratabound and stringer ore. Test work included chemical analysis, BWi and Ai determinations, open circuit flotation tests to confirm operating conditions using 22 variability samples including rougher and cleaner kinetics tests, and LCTs on nine quarterly samples.

Key observations and conclusions drawn from the test work included:

- The head assay of the quarterly samples dropped from Q4 2020 to Q3 2021 and then stabilized at approximately 0.3% Cu, 1.2% Pb, and 2.9% Zn. Gold assays ranged from 0.1 ppm Au to 0.9 ppm Au, and silver assays ranged from 14 ppm Ag to 83 ppm Ag.
- While BWi values ranged from 14.2 kWh/t to 16.4 kWh/t, higher than the range previously observed (10.0 kWh/t to 12.0 kWh/t), chemical analysis of the samples used for the BWi and Ai determinations indicated that the samples were waste material. Ai values ranged from 0.033 g to 0.140 g.





- Flotation of the variability and quarterly samples was more difficult than experienced previously, with higher losses of copper to the talc concentrate, high levels of iron sulphides in the final concentrates, and lower metal recoveries.
- The main variables determining flotation selectivity were identified as being the methyl isobutyl carbinol (MIBC) and sodium metabisulphite (SMBS) dosages, as well as rougher and cleaner residence times.
- Due to high copper losses to the talc concentrate when using a talc flotation circuit, as was similarly noted in the FEL3 design (rougher, scavenger, and cleaner stages), the circuit adopted for the LCTs on the quarterly samples incorporated reverse copper flotation from the talc concentrate. This was subsequently also adopted in the Aripuanã processing plant design of the talc circuit.
- Coarser regrinds of the rougher concentrates for copper, lead, and zinc (45 µm for copper and 75 µm for lead and zinc) resulted in improved recoveries with little effect on concentrate grades for copper and zinc, but a severe decrease in lead rougher concentrate grade.
- The LCTs indicated an accumulation of iron sulphides in the circulating loads that affected both copper and lead flotation performance.

Head assays of the quarterly composites are shown in Table 10-24.

Table 10-24: Head Assays - Quarterly Composites
Nexa Resources S.A. - Aripuanã Zinc Project



Source: SGS GEOSOL, 2020

Eleven LCTs were completed, nine on the composites representing the first nine quarters of production, and two on a composite made up of the nine quarterly composites. While the majority of LCTs did not achieve steady state, they did show that high recoveries of copper, lead, and zinc to concentrates with acceptable grades could be achieved when processing ore consisting of blends of stratabound and stringer ores. Results for the LCT using the blend of quarterly composites are shown in Table 10-25.





Table 10-25: Head Assays and Test Results - Quarterly Composite BLEND
Nexa Resources S.A. - Aripuanã Zinc Project



Source: SGS GEOSOL, 2020





10.3.6 Grinding Circuit Simulations

MinPro conducted grinding circuit simulations in 2020 to evaluate the capacity of the FEL3 grinding circuit for stringer and stratabound ores. The simulations included base cases for stratabound and stringer ores separately, followed by scenarios consisting of ore blends in the following proportions:

- 85% Stratabound and 15% Stringer
- 70% Stratabound and 30% Stringer
- 50% Stratabound and 50% Stringer
- 30% Stratabound and 70% Stringer
- 15% Stratabound and 85% Stringer

MinPro used comminution data generated from earlier test work. This data is summarized in Table 10-26.

Table 10-26: Comminution Data Used for Grinding Circuit Simulations
Nexa Resources S.A. - Aripuanã Zinc Project



Source: MinPro, 2020

The BWi values used for the different ore types correspond to the highest results measured for the variability samples in the 2017 SGS GEOSOL test work, while the Axb values used were those measured for the Arex Stratabound and Arex Stringer master composites in the 2017 SGS GEOSOL test work. The MinPro 2020 simulations indicated that the base case throughput would be limited to 289 tph (6,300 tpd) for stratabound ore and 216 tph (4,730 tpd) for stringer ore. For blends of stratabound and stringer ore the circuit would have throughput capacities that fell between the base case capacities. In addition, MinPro concluded that the stratabound ore throughput was ball mill limited, while the stringer ore throughput was SAG mill limited. MinPro also noted that the grinding circuit throughput would be reduced in circumstances where the pebble crusher is not in use and that this would be more marked for ore blends with greater proportions of stringer ore.

SLR calculated grinding circuit throughput using 75th percentile values for ore hardness / competency and estimates that throughput for stringer ore of up to 5,000 tpd can be achieved, which agrees with the project design criteria.

10.4 Summary

To process Aripuanã zinc mineralization, separate material types were identified during characterization. Due to different recovery kinetics during bench testing, and lower zinc and lead grades, it was initially decided to process stringer and stratabound ores separately and to by-pass lead and zinc flotation circuits during the processing of stringer mineralization. Blending of stratabound and stringer ore however demonstrated that acceptable recoveries of copper, lead, and zinc to concentrates with saleable grades could be achieved while processing these blends.





For the FEL3 study, SNC-Lavalin referenced supporting SGS GEOSOL data from LCT 004F2 (Stringer Global) and pilot test FT-03 (Stratabound Global) to develop the process design criteria and flowcharts. Historical FEL2 data was used for estimation and sizing of equipment for concentrate, reject talc, and final flotation tailings filtration and thickening.

Copper concentrate grades and recoveries for stringer materials in pilot scale testing were below targets and required further study. Pilot plant testing of stratabound mineralization successfully demonstrated that lead and zinc concentrates could be produced at saleable metal grades. LCTs conducted by SGS GEOSOL in 2019/2020 on composites representing quarterly mine production of stratabound and stringer ores combined demonstrated that saleable copper, lead, and zinc concentrates could be produced. Although recoveries were generally acceptable, these, as well as concentrate grades, require confirmation since many of these LCTs did not reach steady state. Pilot plant studies using bulk blended samples (stratabound and stringer ore) drawn from the ROM stockpile at Aripuanã were continuing at the time of writing this Technical Report Summary and SLR has not had the opportunity to review results from this testing.

During the 2019/2020 open cycle flotation tests leading up to the LCTs on quarterly samples based on the FEL3 LOM plan, difficulties were experienced with copper losses to the talc concentrate while using a talc circuit similar to that in the FEL3 design. Further test work indicated that reverse flotation of copper from the talc concentrate could recover copper initially reporting to the talc concentrate, and this configuration was used for the LCTs and is suggested for the processing plant. This configuration would require only redirection of certain streams and the addition of reagents already in use, while using the equipment already included in the design. Most of the LCTs did not reach equilibrium, and recovery and concentrate grade values derived from earlier test work that have been used in project cash flow calculations need to be confirmed by completing the ongoing pilot test work at Nexa's Vazante Mine using bulk blended ore samples simulating the processing of stringer and stratabound material together.

Grinding circuit simulations indicated that throughput would be limited to 289 tph (6,300 tpd) for stratabound ore and 216 tph (4,730 tpd) for stringer ore. For blends of stratabound and stringer ore the circuit would have throughput capacities in between the base case capacities. Grinding circuit throughput will be reduced in circumstances where the pebble crusher is not in use, with these reductions being more marked for ore blends with greater proportions of stringer ore. SLR estimates that stringer ore throughput of up to 5,000 tpd can be achieved for ore corresponding to the 75th percentile ore hardness values determined in test work.

In SLR's opinion the metallurgical test work is adequate for the estimation of Mineral Resources and Mineral Reserves.





11.0 MINERAL RESOURCE ESTIMATES

11.1 Summary

The block models were completed by Nexa personnel using Datamine Studio, and Leapfrog. Wireframes for geology and mineralization were constructed in Leapfrog based on geology sections, assay results, lithological information, and structural data. Assays were capped to various levels based on exploratory data analysis and then composited to one-metre lengths. Wireframes were filled with blocks measuring 5 m by 5 m by 5 m for Arex, Link, and Ambrex, and 10 m by 5 m by 5 m for Babaçú with sub-celling at wireframe boundaries. Blocks were interpolated with grade using ordinary kriging (OK) and inverse distance cubed (ID³). Block estimates were validated using industry standard validation techniques. Classification of blocks was based on distance-based criteria.

The SEC definitions for Mineral Resources in S-K 1300 were used for Mineral Resource classification which are consistent with Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (CIM (2014) definitions).

The Mineral Resource estimate for the Project was completed by Nexa in two separate block models:

- Arex, Link, and Ambrex – dated May 19, 2020
- Babaçú – dated January 10, 2020

The Arex, Link, and Ambrex estimate represents an update to the existing block model, incorporating the additional drill holes completed in each area.

An initial Inferred Mineral Resource estimate for Babaçú was disclosed in early 2020 with an effective date of December 31, 2019. Additional assay results were received in December 2019 and were used to update the block model in January 2020. The classification was also revised in the updated block model.

Underground Mineral Resources are reported exclusive of Mineral Reserves within potentially mineable shapes generated using the Deswik Stope Optimizer (DSO), envisaging bulk longhole stoping and cut and fill mining methods (Figure 11-1). A summary of the Aripuanã Mineral Resources, effective September 30, 2020, is provided in Table 11-1 and a summary of Mineral Resources by type and area in Table 11-2. Nexa used a long-term forecast of the R\$/US\$ exchange rate of \$3.67 in conversion of costs and metal prices between Brazilian Reais and US dollars.





Table 11-1: Summary of Mineral Resources - September 30, 2020
Nexa Resources S.A. - Aripuanã Zinc Project

Classification	Tonnes (Mt)	Grade					Contained Metal				
		(% Zn)	(% Pb)	(% Cu)	(g/t Au)	(g/t Ag)	(000 t Zn)	(000 t Pb)	(000 t Cu)	(000 oz Au)	(Moz Ag)
Stratabound											
Measured	2.2	3.19	1.19	0.16	0.14	35.32	71	26	3	10	2.5
Indicated	3.5	2.71	0.90	0.08	0.14	23.05	95	32	3	16	2.6
M+I	5.7	2.90	1.01	0.11	0.14	27.80	166	58	6	25	5.1
Inferred	29.1	4.48	1.65	0.19	0.24	42.75	1,302	479	56	226	40.0
Stringer											
Measured	0.7	0.31	0.13	1.09	0.78	12.30	2	1	8	18	0.3
Indicated	1.7	0.06	0.04	0.67	1.04	7.83	1	1	11	55	0.4
M+I	2.4	0.13	0.07	0.80	0.96	9.16	3	2	19	73	0.7
Inferred	10.4	0.04	0.03	0.72	1.53	8.78	4	3	75	510	2.9
Total											
Measured	2.9	2.50	0.93	0.38	0.29	29.78	73	27	11	27	2.8
Indicated	5.2	1.86	0.63	0.27	0.43	18.17	96	32	14	71	3.0
M+I	8.1	2.09	0.74	0.31	0.38	22.36	169	60	25	98	5.8
Inferred	39.5	3.31	1.22	0.33	0.58	33.83	1,307	482	131	737	42.9

Notes:

1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources which are consistent with CIM (2014) definitions.
2. Mineral Resources are reported on a 100% Nexa attributable ownership basis.
3. Mineral Resources are reported using a US\$45/t cut-off value for transverse longhole mining and longitudinal longhole retreat areas and US\$55/t cut-off value for cut and fill areas.
4. The NSR is calculated based on metal prices: Zn: US\$2,869/t (US\$1.30/lb), Pb: US\$ 2,249/t (US\$1.02/lb); Cu: US\$7,427/t (US\$3.37/lb); Au: US\$1,768/oz, and Ag: US\$19.38/oz.
5. Metallurgical recoveries are accounted for in the NSR calculations based on metallurgical test work and are variable as a function of head grade. Recoveries at the LOM average head grades for stratabound material are 89.4% for Zn, 83.4% for Pb, 67.5% for Cu, 70.0% for Ag, and 70.0% for Au. Recoveries at the LOM average head grades for stringer material are 88.8% for Cu, 50.0% for Ag, and 50.0% for Au.
6. Mineral Resources are reported exclusive of Mineral Reserves within potentially mineable shapes.
7. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
8. Numbers may not add due to rounding.

The SLR QP has performed a detailed review of the Mineral Resource estimate completed by Nexa, including the support data. The SLR QP is of the opinion that the Mineral Resource estimate has been completed to a high standard and is suitable to support the estimation of Mineral Reserves.

The SLR QP is of the opinion that, with consideration of the recommendations summarized in Section 1 and Section 23, any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.





Table 11-2: Mineral Resources by Type and Area - September 20, 2020
Nexa Resources S.A. - Aripuanã Zinc Project

Area	Tonnes (Mt)	Stratabound					Contained Metal				
		Grade									
		(% Zn)	(% Pb)	(% Cu)	(g/t Au)	(g/t Ag)	(000 t Zn)	(000 t Pb)	(000 t Cu)	(000 oz Au)	(Moz Ag)
Arex											
Measured	1.4	3.32	1.25	0.21	0.14	38	44.9	16.9	2.8	6.3	1.6
Indicated	0.2	2.45	0.90	0.22	0.14	23	5.3	1.9	0.5	1.0	0.2
M+I	1.6	3.20	1.20	0.21	0.14	36	50.2	18.9	3.3	7.3	1.8
Inferred	1.3	4.05	1.38	0.45	0.26	28	54.0	18.4	5.9	11.3	1.2
Link											
Measured	0.4	3.70	1.41	0.13	0.19	44	14.5	5.5	0.5	2.4	0.6
Indicated	1.5	2.83	0.90	0.10	0.16	24	43.6	13.9	1.6	7.8	1.2
M+I	1.9	3.00	1.01	0.11	0.16	28	58.1	19.4	2.1	10.2	1.7
Inferred	2.9	3.15	0.85	0.40	0.32	27	90.7	24.6	11.5	29.8	2.5
Ambrex											
Measured	0.5	2.41	0.83	0.03	0.08	21	11.3	3.9	0.2	1.1	0.3
Indicated	1.8	2.65	0.90	0.04	0.12	23	46.4	15.8	0.7	6.8	1.3
M+I	2.2	2.60	0.89	0.04	0.11	22	57.7	19.7	0.9	8.0	1.6
Inferred	10.6	6.20	2.07	0.08	0.37	53	657.1	219.4	8.9	124.7	18.0
Babaçú											
Measured											
Indicated											
M+I											
Inferred	14.3	3.50	1.52	0.21	0.13	40	500.5	216.4	29.9	60.4	18.3





Area	Tonnes (Mt)	Stringer					Contained Metal				
		Grade									
		(% Zn)	(% Pb)	(% Cu)	(g/t Au)	(g/t Ag)	(000 t Zn)	(000 t Pb)	(000 t Cu)	(000 oz Au)	(Moz Ag)
Arex											
Measured	0.7	0.31	0.13	1.09	0.78	12	2.2	0.9	7.7	17.6	0.3
Indicated	0.4	0.07	0.04	0.44	0.75	5	0.3	0.2	1.9	10.4	0.1
M+I	1.1	0.22	0.10	0.84	0.77	10	2.5	1.1	9.5	28.1	0.3
Inferred	1.6	0.02	0.03	0.45	2.67	7	0.4	0.5	7.0	133.2	0.4
Link											
Measured	-	-	-	-	-	-	-	-	-	-	-
Indicated	0.7	0.06	0.07	0.92	1.35	10	0.4	0.4	6.1	29.1	0.2
M+I	0.7	0.06	0.07	0.92	1.35	10	0.4	0.4	6.1	29.1	0.2
Inferred	2.7	0.06	0.03	0.95	1.09	11	1.5	0.9	25.7	94.8	0.9
Ambrex											
Measured	-	-	-	-	-	-	-	-	-	-	-
Indicated	0.6	0.04	0.02	0.56	0.88	7	0.2	0.1	3.1	15.8	0.1
M+I	0.6	0.04	0.02	0.56	0.88	7	0.2	0.1	3.1	15.8	0.1
Inferred	5.5	0.03	0.02	0.65	1.54	6	1.5	1.2	35.7	269.3	1.1
Babaçú											
Measured	-	-	-	-	-	-	-	-	-	-	-
Indicated	-	-	-	-	-	-	-	-	-	-	-
M+I	-	-	-	-	-	-	-	-	-	-	-
Inferred	0.7	0.14	0.12	1.02	0.62	25	0.9	0.8	6.7	13.0	0.5

- Notes:
1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources which are consistent with CIM (2014) definitions.
 2. Mineral Resources are reported on a 100% Nexa attributable ownership basis.
 3. Mineral Resources are reported using a US\$45/t cut-off value for transverse longhole mining and longitudinal longhole retreat areas and US\$55/t cut-off value for cut and fill areas.
 4. The NSR is calculated based on metal prices: Zn: US\$2,869/t (US\$1.30/lb), Pb: US\$ 2,249/t (US\$1.02/lb); Cu: US\$7,427/t (US\$3.37/lb); Au: US\$1,768/oz, and Ag: US\$19.38/oz.
 5. Metallurgical recoveries are accounted for in the NSR calculations based on metallurgical test work and are variable as a function of head grade. Recoveries at the LOM average head grades for stratabound material are 89.4% for Zn, 83.4% for Pb, 67.5% for Cu, 70.0% for Ag, and 70.0% for Au. Recoveries at the LOM average head grades for stringer material are 88.8% for Cu, 50.0% for Ag, and 50.0% for Au.
 6. Mineral Resources are reported exclusive of Mineral Reserves within potentially mineable shapes.





- 7. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
- 8. Numbers may not add due to rounding.





Figure 11-1: Isometric View Showing the Potentially Mineable Shapes Used for Reporting





11.2 Comparison with Previous Estimate

The previous estimate for Arex, Link, and Ambrex was effective as of December 31, 2019 but was based on the December 31, 2018 block model, which had remained unchanged between year-ends 2018 and 2019. The previous estimate for Babaçu is dated December 31, 2019. Differences between the previous and the current estimates can be attributed to the following:

- A 2.7 Mt decrease in the Mineral Reserves from the previous estimate. This item had the most significant impact on the exclusive Mineral Resource report.
- Revisiting of the classification at Babaçu as well as inclusion of a small number of additional assays received during December 2019, which resulted in a 9% increase to the Inferred stratabound tonnes at Babaçu.
- The use of DSO potentially mineable shapes for resource reporting which had the impact of increasing tonnes.
- Changes in NSR calculations and cut-off values. Changes to prices and metallurgical recoveries adopted.
- Additional drilling and an update to the Arex and Link wireframes (only a minor impact).

SLR notes that there is only a minor difference between the previous and current Arex, Link, and Ambrex block models due to the small amount of additional drilling at the Project.

Table 11-3 presents the comparison with previous Mineral Resources estimates.





Table 11-3: Comparison with Previous Mineral Resource Estimates
Nexa Resources S.A. - Aripuanã Zinc Project



Nexa Resources S.A. | Aripuanã Zinc Project, SLR Project No: 233.03252.R0000
Technical Report Summary - January 15, 2021



11.3 Net Smelter Return Cut-Off Value

An NSR value was assigned to blocks for the purposes of validation of the geological interpretation and resource reporting. NSR is the estimated dollar value per tonne of mineralized material after allowance for metallurgical recovery and consideration of smelter terms, including revenue from payable metals, treatment charges, refining charges, price participation, penalties, smelter losses, transportation, and sales charges.

Input parameters used to develop the NSR calculation have been derived from metallurgical test work on the Project, smelter terms from comparable projects, and information provided by Nexa. These assumptions are dependent on the processing scenario and will be sensitive to changes in inputs from further metallurgical test work. Key assumptions are listed below.

Metal prices and exchange rate:

- US\$2,868/t Zn
- US\$2,249/t Pb
- US\$7,427/t Cu
- US\$1,768/oz Au
- US\$19.38/oz Ag
- R\$3.67:US\$1.00

Nexa reviewed supply and demand projections for zinc, lead, and copper, as well as consensus long-term (10 year) metal price forecasts. SLR verified that Nexa’s selected metal prices for estimating Mineral Reserves are in line with independent forecasts from banks and other lenders, which reflect the averages of the prices forecast for the next ten years. Prices selected for Mineral Resource estimation are 15% higher, which is in line with typical industry practice.

Metallurgical recoveries are based on preliminary metallurgical testing and are summarized by mineralization type:

11.3.1 Stratabound

Copper Concentrate:

- 20% Ag recovery to copper concentrate
- 50% Au recovery to copper concentrate
- 67.5% Cu recovery to copper concentrate grading 27% Cu

Lead Concentrate:

- 20% Au recovery to lead concentrate
- 50% Ag recovery to lead concentrate
- 83.4% Pb recovery to lead concentrate grading 61% Pb

Zinc Concentrate

- 89.4% Zn recovery to zinc concentrate grading 49% Zn

11.3.2 Stringer

Copper Concentrate:

- 63% Au recovery to copper concentrate
- 50% Ag recovery to copper concentrate
- 88.8% Cu recovery to copper concentrate grading 27% Cu

Standard smelting and refining charges were applied to the various concentrates. It has been assumed that the concentrates would be marketed internationally.





For the purposes of developing an NSR cut-off value, a total unit operating cost of US\$45.00/t of mineralization for longhole stoping and longitudinal longhole retreat areas, and US\$55.00/t for cut and fill was estimated, which included mining, processing, and general and administration (G&A) expenses. It should be noted that there are no cut and fill reserves in the mine plan, the method has been included on a conceptual basis for reporting of shallow dipping resources not captured due to the limitations of the longhole stoping parameters. A small part of the resources is related to cut and fill DSO shapes.

11.4 Topography

A LiDAR topographic survey was completed over the Project in 2008. The resulting digital terrain surface (DTM) was made available in AutoCAD Drawing Exchange (DXF) and Datamine. The surface has been validated using survey control points and drill hole collars.

At Nexa’s request, the coordinate system was changed from SAD69 to SIRGAS2000, which is the official DATUM of Brazil. For drill holes that were already in the database, the original coordinates were stored, and new columns were created for the transformed coordinates. Survey pickups for new drill holes are measured in the SIRGAS2000 coordinate system.

11.5 Arex, Link, and Ambrex

11.5.1 Resource Database

The resource database contains drilling information and analytical results up to March 30, 2020. Information received after this date was not used in the Mineral Resource estimate. The database comprises 643 drill holes for a total of 194,262.54 meters of drilling. A total of 124 drill holes were completed by Karmin/Anglo American prior to Nexa’s involvement in the Project (pre-2004). These 124 drill holes were internally reviewed and found to be acceptable to support Mineral Resource estimation.

Nexa maintains the resource database in Datamine Fusion. Data were amalgamated, parsed as required, and imported into Datamine Studio and Leapfrog.

For the purpose of the Mineral Resource Estimate, a total of 56 drill holes were excluded from the database. The drill holes excluded either lacked information, were historic RC drilling or were drilled for the purpose of metallurgical testing.

The SLR QP is of the opinion that the drill hole database is valid and suitable to estimate Mineral Resources for the Project.

11.5.2 Geological Interpretation

Wireframes of the stratabound and stringer mineralization for Arex, Link, and Ambrex were constructed within the lithology at a cut-off grade of 0.6% Zn for stratabound zones and 0.5% Cu in the stringer zones (Figure 11-2). Wireframe construction was completed using Leapfrog. Nexa also prepared a litho-structural model to support the mineralized wireframes. This model incorporated local lithology, hydrothermal alteration, weathering profile and cross-cutting faults that influence the geometry of the mineralization. A zone of discontinuous remobilized stratabound mineralization within a fault zone in the upper sector of Ambrex was also modelled and assigned to stratabound mineralization. In zones where stratabound and stringer mineralization intersected, samples that satisfied the cut-off grade criteria for both ore types were included as stratabound. Some drill hole intercepts below the cut-off grade were included to maintain geological continuity.

Mineralization at Arex strikes at approximately 110° azimuth, extending over a 1,400 m strike length. Thin lenses of intermingling stratabound and stringer mineralization within two principal limbs dip from ten degrees to 60° to the northeast are modelled to join in some areas near surface. The main Arex mineralized zone comes close to outcropping at surface and is characterized by tightly folded, well defined stringer and stratabound zones. Individual lenses range from less than one metre to 15 m in thickness and are generally from two metres to seven metres thick. The Arex mineralization zone has an overall thickness of approximately 125 m, and individual lenses are separated by barren,





hydrothermally altered rock from one metre to tens of metres thick. The main mineralization is delineated between two steeply dipping faults.

The Link deposit is located southeast along strike from Arex over a strike length of approximately 850 m, with an approximate overlap with Arex of 100 m occurring to the northwest. Link mineralization bears a close similarity to Ambrex in that the stringer zone occurs at a high angle to the stratabound zone. The Link stratabound mineralization comes close to surface and extends to a depth of 500 m below surface while the Link stringer zone mineralization begins approximately 200 m below surface and extends to a depth of approximately 400 m below surface.

The Ambrex deposit is located a further 100 m southeast of Link. Mineralization strikes at approximately 125° and has a known strike extent of approximately 1.05 m based on current drilling. Ambrex is dominated by stratabound mineralization, with smaller, less well-defined stringer mineralization found perpendicular on the east side. Ambrex stratabound mineralization above the Gossan Fault Zone dips at approximately 40° to the southeast. At depth, the Ambrex mineralization is folded and dips from near vertical to 70° to the southwest. Ambrex has an upper depth of 60 m below surface, but generally is 100 m below surface. The deepest mineralization intersection within the Ambrex model is over 700 m below surface and the deposit remains open at depth. Ambrex stratabound mineralization is well defined and follows stratigraphy. Ambrex stringer mineralization crosses stratigraphy following structural features and is less well defined due to unfavourable drilling angles.

The stratabound mineralization lenses range from one metre to 30 m thick, with an average thickness of approximately nine metres while the stringer zone thickness ranges from one metre to 20 m with an average of approximately five metre thickness.

SLR's review of the mineralized wireframes included a comparison of the geological model cross sections and level plans prepared by on-site geologists, drill hole information, and a NSR value calculated from drill hole assays. Assumptions used in the NSR calculation are described under Net Smelter Return Cut-Off Value in this section. SLR is of the opinion that the wireframes have been completed to a high standard and are suitable for Mineral Resource and Mineral Reserve estimation. SLR did note that in minor areas at Ambrex poorly angled holes with respect to the mineralization contacts were driving the interpretation and possibly inflating the volumes. SLR recommends infilling areas where poorly angled drill holes are driving the geological interpretation.

Stratabound and stringer mineralization were modelled individually at the three deposits and were named according to the nomenclature set out in Table 11-4.

**Table 11-4: Comparison with Previous Mineral Resource Estimates
Nexa Resources S.A. - Aripuanã Zinc Project**

Area	Ore Type	Number of Lenses	Name Range
Arex	Stratabound	17	100+
	Stringer	18	200+
Link	Stratabound	15	300+
	Stringer	14	400+
Ambrex	Stratabound	18	500+
	Stringer	13	600+

Figure 11-3 to Figure 11-5 present the Arex, Link, and Ambrex geological models, respectively.





Figure 11-2: 3D Isometric View of the Arex, Link, and Ambrex Wireframes





Figure 11-3: Arex Geological Model





Figure 11-4: Link Geological Model





Figure 11-5: Ambrex Geological Model





11.5.3 Treatment of High Grade Assays

Nexa applied high grade capping to zinc, lead, copper, gold, and silver assays in order to limit the influence of a small amount of extreme values located in the upper tail of the metal distributions. Log probability plots were inspected for each domain in isolation and a high grade cap was applied where significant inflections or population breaks occurred. Examples of these can be seen in Figure 11-6 and Figure 11-7. No capping was performed in the hydrothermal zone and for the variables iron, sulphur, magnesium, and density. Raw assays were capped prior to compositing. High grade capping was not required for all elements and some domains did not require capping for any element. The capping grades applied to each domain is shown in Table 11-5. The basic statistics of capped and uncapped sample populations is summarized by area and ore type in Table 11-6.

SLR has reviewed the capped and uncapped sample distributions for all elements and all domains and concludes that the values used are appropriate for this deposit.





Table 11-5: Arex, Link, and Ambrex Grade Capping Levels
Nexa Resources S.A. - Aripuanã Zinc Project

Arex						Link						Ambrex					
Body	Zn (%)	Pb (%)	Cu (%)	Au (g/t)	Ag (g/t)	Body	Zn (%)	Pb (%)	Cu (%)	Au (g/t)	Ag (g/t)	Body	Zn (%)	Pb (%)	Cu (%)	Au (g/t)	Ag (g/t)
100	—	—	—	—	120	300	40	21	11	12.5	—	500	27	12	0.4	1	210
101	—	—	0.45	—	—	301	25	—	—	—	160	501	40	15	0.2	—	600
102	3	—	0.64	—	—	302	—	5	—	—	165	502	—	—	—	—	40
103	—	4	—	—	—	303	40	18	1.5	4.2	230	503	—	—	No capping required	—	—
104	3	—	—	—	—	304	45	—	—	5	—	504	10	—	—	—	—
105	30	13	—	—	500	305	—	—	No capping required	—	—	505	20	—	—	0.9	—
106	—	—	No capping required	—	—	306	13	5	—	5	—	506	10	1.5	—	—	30
107	—	—	No capping required	—	—	307	—	—	—	—	300	507	—	—	0.2	1.5	—
108	—	10	—	—	100	308	—	—	No capping required	—	—	508	—	—	0.5	—	—
109	—	—	1	1	—	309	10	—	—	—	30	509	5	3	—	—	45
110	—	—	—	—	100	310	40	17	1.5	3	—	510	4	—	—	—	—
111	—	—	—	—	130	311	17	10	2	3	—	511	20	6	0.5	0.7	—
112	—	—	—	—	—	312	—	—	No capping required	2	—	512	—	17	—	—	560
113	—	—	No capping required	—	—	313	—	—	No capping required	0.7	2	600	513	25	10	0.5	—
114	—	—	No capping required	—	—	314	—	—	No capping required	—	—	514	30	10	0.2	0.5	—
115	—	—	No capping required	—	—	315	—	—	No capping required	—	—	515	—	—	—	2	—
116	—	—	8	—	800	400	—	—	No capping required	—	—	516	15	8	0.2	0.9	130
117	—	—	—	8	1000	401	0.1	—	—	—	—	517	—	—	1.2	2.3	—
200	8	—	—	—	—	402	0.8	2	—	—	—	518	—	—	0.6	1.8	300
201	—	—	No capping required	—	—	403	2	2.2	16	18	—	600	—	—	No capping required	—	—





Atrax						Link						Ambrexx					
Body	Zn (%)	Pb (%)	Cu (%)	As (g/t)	Ag (g/t)	Body	Zn (%)	Pb (%)	Cu (%)	As (g/t)	Ag (g/t)	Body	Zn (%)	Pb (%)	Cu (%)	As (g/t)	Ag (g/t)
202	5	—	6	11	—	404	—	—	10	8.5	—	601	—	—	3.5	3	40
203	2	—	—	10	—	405	—	—	—	4.5	—	602	—	—	—	25	—
205	—	—	3.3	2	40	406	—	—	No capping required	—	—	603	—	—	No capping required	—	—
206	—	—	0.8	—	—	407	—	—	3	8.5	35	604	1.6	—	6.5	25	75
207	—	—	4.3	11	—	408	0.25	—	—	—	—	605	—	—	No capping required	—	—
208	—	—	5	7	—	409	—	—	—	2.5	—	606	2	0.7	—	—	—
209	—	—	No capping required	—	—	410	—	—	—	6	100	607	—	—	4	3	—
210	—	—	No capping required	—	—	411	—	—	3.5	10	—	608	1.5	1.6	3	10	—
211	—	—	No capping required	—	—	412	—	—	—	8	—	609	—	—	5	—	60
212	—	—	No capping required	—	—	413	—	1	—	6	30	610	0.2	0.4	—	2	35
213	—	—	—	10	150	414	—	—	No capping required	—	—	611	—	—	6	3	—
214	14	—	—	25	200	—	—	—	—	—	—	612	—	3	—	—	60
215	—	—	5	—	—	—	—	—	—	—	—	613	—	1	—	—	—
216	8	—	—	9	110	—	—	—	—	—	—	—	—	—	—	—	—
217	—	—	—	8	125	—	—	—	—	—	—	—	—	—	—	—	—
218	—	—	3	—	15	—	—	—	—	—	—	—	—	—	—	—	—





Table 11-6: Arex, Link, and Ambrex Uncapped versus Capped Assay Statistics
Nexa Resources S.A. - Aripuanã Zinc Project

Area	Type	Grade	Count (m)	Sampled	Minimum	Uncapped					Capped					Metal Loss
						Maximum	Mean	Stdev	Variance	CV	Maximum	Mean	Stdev	Variance	CV	
Arex	Stratabound	Zn (%)	2916	2885	0.0025	45.34	5.02	7.07	49.96	1.41	45.34	5.01	7.06	49.83	1.41	0%
		Pb (%)	2916	2885	0.0001	35.33	1.8	3.1	9.62	1.73	35.33	1.79	3.08	9.46	1.72	0%
		Cu (%)	2916	2885	0.0001	16.57	0.36	1.15	1.33	3.2	14.03	0.36	1.11	1.24	3.13	-1%
		Au (g/t)	2916	2643	0.0025	25.74	0.25	0.84	0.71	3.34	8.01	0.24	0.61	0.37	2.55	-5%
		Ag (g/t)	2916	2879	0.005	2180	48.61	102.8	10568.23	2.11	1000	47.55	93.68	8776.08	1.97	-2%
		Zn (%)	2297	2271	0.0001	21	0.25	1.25	1.57	5.05	18.45	0.24	1.19	1.43	4.95	-3%
		Pb (%)	2297	2271	0.0001	27.5	0.09	0.66	0.44	7.01	27.5	0.09	0.66	0.44	7.01	0%
		Cu (%)	2297	2271	0.0001	20.7	1.36	2.39	5.73	1.76	20.7	1.34	2.37	5.6	1.76	-1%
		Au (g/t)	2297	2253	0.0025	150	1.52	6.08	36.98	4.01	138.9	1.28	3.97	15.77	3.11	16%
		Ag (g/t)	2297	2263	0.005	536	14.76	30.61	937.25	2.07	200	14.07	25.65	657.98	1.82	-5%
Link	Stratabound	Zn (%)	4791	4780	0.0038	50.38	4.52	7.3	53.32	1.62	45	4.5	7.23	52.27	1.61	0%
		Pb (%)	4791	4780	0.0002	28.2	1.61	3.01	9.08	1.87	22.99	1.6	2.97	8.83	1.85	-1%
		Cu (%)	4791	4780	0.0001	19.24	0.16	0.82	0.67	5.08	11	0.15	0.73	0.53	4.76	-5%
		Au (g/t)	4791	4647	0.0025	22.7	0.27	0.92	0.84	3.35	12.5	0.26	0.74	0.54	2.86	-6%
		Ag (g/t)	4791	4763	0.005	829	39.62	77.19	5957.55	1.96	789	38.7	75.82	5748.69	1.96	-1%
		Zn (%)	1517	1515	0.0001	35.51	0.14	1.43	2.04	10.41	3.2	0.06	0.18	0.03	3.32	-60%
		Pb (%)	1517	1515	0.0001	14	0.06	0.51	0.26	7.98	4.95	0.05	0.28	0.08	5.48	-20%
		Cu (%)	1517	1515	0.0001	52.36	0.85	2.66	7.07	3.13	18.11	0.77	1.81	2.58	2.1	-10%
		Au (g/t)	1517	1515	0.0025	68.9	1.08	2.87	8.24	2.66	21.3	0.98	1.82	3.31	1.65	-9%
		Ag (g/t)	1517	1514	0.005	211	9.13	20.34	413.71	2.23	211	8.67	17.83	318.07	2.06	-5%





Area	Type	Grade	Count (m)	Sampled	Minimum	Uncapped					Capped					Metal Loss
						Maximum	Mean	Stdev	Variance	CV	Maximum	Mean	Stdev	Variance	CV	
Ambreex	Stratobound	Zn (%)	5642	5607	0.002	60.9	4.85	6.38	40.71	1.32	46.9	4.81	6.26	39.15	1.3	-1%
		Pb (%)	5642	5607	0.0001	42.81	1.81	3.16	10	1.75	42.81	1.79	3.09	9.54	1.72	-1%
		Cu (%)	5642	5607	0	4.03	0.86	0.15	0.02	2.43	1.2	0.65	0.08	0.01	1.53	-10%
		Au (g/t)	5642	4506	0	6.22	0.19	0.35	0.12	1.8	4.13	0.19	0.31	0.09	1.65	-3%
		Ag (g/t)	5642	5607	0.005	3309	42.97	84.61	7199.02	1.97	1240	42.24	88.71	6514.6	1.91	-2%
Stringer		Zn (%)	1722	1719	0.0004	25.5	0.11	0.87	0.76	7.79	5.79	0.07	0.31	0.1	4.34	-36%
		Pb (%)	1722	1719	0.0001	7.95	0.06	0.37	0.13	5.86	3.96	0.05	0.24	0.06	4.55	-16%
		Cu (%)	1722	1719	0.0004	11.1	0.7	1	1.01	1.43	6.5	0.69	0.93	0.87	1.35	-2%
		Au (g/t)	1722	1709	0.0025	96.7	1.19	4.27	18.24	3.6	25	1.03	2.42	5.84	2.36	-14%
		Ag (g/t)	1722	1719	0.005	605	8.98	18.56	344.51	2.07	116	8.62	12.27	150.58	1.42	-4%





Figure 11-6: Capping Analysis for Body=117 (Arex)





Figure 11-7: Cu Capping Analysis for Body=606 (Ambrex Stringer)

11.5.4 Compositing

Nexa composited the capped assays to one metre, which corresponds to the dominant sampling length for the deposit. Composites were weighted by length and unsampled core intervals were ignored. Gold was sampled to a lesser extent than other economic variables.

The basic statistics for the composites is provided in Table 11-7 and a comparison between raw assay and composite lengths is shown in Figure 11-8.

SLR recommends investigating the impact of weighting the composites by density.





Table 11-7: Arex, Link, and Ambrex Composite Statistics
Nexa Resources S.A. - Aripuanã Zinc Project

Area	Type	Grade	Count (m)	Sampled	Minimum	Maximum	Mean	Stdev	Variance	CV
Arex	Stratabound	Zn (%)	2428	2377	0.0028	44.42	5.01	6.29	39.62	1.26
		Pb (%)	2428	2377	0.0001	28.3	1.79	2.75	7.56	1.54
		Cu (%)	2428	2377	0.0001	12.35	0.36	1.03	1.05	2.88
		Au (g/t)	2428	2167	0.0025	8	0.24	0.55	0.3	2.29
		Ag (g/t)	2428	2372	0.005	764	48	85	7294	1.8
	Stringer	Zn (%)	1962	1909	0.0001	17.89	0.24	1.08	1.18	4.5
		Pb (%)	1962	1909	0.0001	11.27	0.09	0.53	0.28	5.64
		Cu (%)	1962	1909	0.0001	20.44	1.34	2.19	4.81	1.63
		Au (g/t)	1962	1892	0.0025	124.73	1.28	3.58	12.85	2.81
		Ag (g/t)	1962	1903	0.005	200	14	24	576	1.71
Link	Stratabound	Zn (%)	4064	4043	0.0041	42.63	4.5	6.61	43.71	1.47
		Pb (%)	4064	4043	0.0003	21	1.6	2.7	7.28	1.68
		Cu (%)	4064	4043	0.0001	11	0.15	0.7	0.49	4.56
		Au (g/t)	4064	3926	0.0025	12.5	0.26	0.69	0.47	2.67
		Ag (g/t)	4064	4031	0.005	620	39	69	4755	1.78
	Stringer	Zn (%)	1288	1284	0.0001	2.18	0.06	0.17	0.03	3.06
		Pb (%)	1288	1284	0.0001	4.79	0.05	0.26	0.07	5.2
		Cu (%)	1288	1284	0.0002	16	0.77	1.48	2.2	1.94
		Au (g/t)	1288	1284	0.0025	18	0.98	1.66	2.74	1.68
		Ag (g/t)	1288	1283	0.005	161	9	16	263	1.87
Ambrex	Stratabound	Zn (%)	5030	4963	0.0022	46.78	4.81	5.81	33.8	1.21
		Pb (%)	5030	4963	0.0004	29.53	1.79	2.81	7.91	1.57
		Cu (%)	5030	4963	0.0001	1.2	0.05	0.08	0.01	1.45
		Au (g/t)	5030	3919	0.0025	3.55	0.19	0.29	0.08	1.55
		Ag (g/t)	5030	4963	0.1	1035	42	74	5440	1.75
	Stringer	Zn (%)	1538	1535	0.0004	4.56	0.07	0.29	0.08	4.05
		Pb (%)	1538	1535	0.0001	3.26	0.05	0.22	0.05	4.2
		Cu (%)	1538	1535	0.0005	6.05	0.69	0.84	0.7	1.22
		Au (g/t)	1538	1526	0.0025	25	1.03	2.1	4.43	2.05
		Ag (g/t)	1538	1535	0.005	116	9	11	127	1.31





Figure 11-8: Comparison of Histograms for Assay and Composite Length - Arex, Link, and Ambrex

11.5.5 Exploratory Data Analysis

Nexa performed exploratory statistical analysis including boundary, bivariate and univariate statistical analysis.

Given the large quantity of individual wireframes, Nexa divided the wireframe domains into groups based on the geological continuity: stratabound and stringer for Arex, Link, and Ambrex.

The bivariate analysis results show strong correlations between stratabound Pb-Zn, Pb-Ag and Cu-Au, while for stringer mineralization, good correlations between Cu-Ag and Fe-S exist. In general, stratabound and stringer mineralization iron and sulphur show strong correlations. The results are consistent with the deposit type.

Figure 11-9 presents the correlation matrices by type and area.





Figure 11-9: Correlation Matrices by Type and Area - Arex, Link, and Ambrex





11.5.6 Variography

Experimental correlograms (plotted as variograms) were fit for zinc, lead, copper, gold, silver, and density to each group - stratabound and stringer for Arex, Link, and Ambrex. Nexa correlograms are shown in in Figure 11-10 and Figure 11-11. Table 11-8 shows the parameters used.

The correlograms were completed using an open-source Python program developed by Nexa personnel which collects sample pairs as a function of the variable orientation. The major, semi-major, and minor directions are defined prior to experimental variography by local anisotropy angles. Each sample pair has a unique rotation depending on the local anisotropy defined. SLR is of the opinion that this methodology is suitable for the style of mineralization.

It should be noted that the major and semi-major directions are expressed as a 90° tolerance angle within the plane resulting in identical variograms for the two directions.

Table 11-8: Arex, Link, and Ambrex Correlogram Parameters
Nexa Resources S.A. - Aripuanã Zinc Project

			Nugget	Structure 1				Structure 2			
				Range X	Range Y	Range Z	C1	Range X	Range Y	Range Z	C2
Arex	Stratabound	Zn	0.1	8	8	3	0.6	50	50	12	0.3
		Pb	0.1	8	8	3	0.6	50	50	20	0.3
		Cu	0.1	8	8	4	0.4	50	50	10	0.5
		Au	0.05	5	5	2	0.6	30	30	7	0.35
		Ag	0.1	10	10	8	0.55	100	100	20	0.35
	Stringer	Dens	0.1	10	10	6	0.6	100	100	10	0.3
		Zn	0.1	10	10	2	0.5	40	40	5	0.4
		Pb	0.1	10	10	4	0.6	40	40	8	0.3
		Cu	0.1	10	10	5	0.5	40	40	15	0.4
		Au	0.1	5	5	2	0.65	55	55	6	0.25
		Ag	0.1	5	5	8	0.5	55	55	15	0.4
		Dens	0.1	10	10	8	0.4	60	60	15	0.5



			Structure 1					Structure 2				
Link			Nugget	Range X	Range Y	Range Z	C1	Range X	Range Y	Range Z	C2	
Link	Stratabound	Zn	0.1	10	10	8	0.55	55	55	15	0.35	
		Pb	0.1	10	10	7	0.55	55	55	15	0.35	
		Cu	0.05	10	10	6	0.5	35	35	10	0.45	
		Au	0.05	8	8	4	0.55	40	40	10	0.4	
		Ag	0.05	8	8	4	0.6	65	65	18	0.35	
		Dens	0.1	8	8	8	0.45	65	65	20	0.45	
		Stringer	Zn	0.1	7	7	4	0.75	50	50	6	0.15
			Pb	0.1	8	8	4	0.7	40	40	6	0.2
			Cu	0.1	5	5	5	0.5	60	60	15	0.4
			Au	0.1	5	5	3	0.5	50	50	8	0.4
			Ag	0.05	8	8	4	0.6	100	100	12	0.35
			Dens	0.1	15	15	5	0.3	40	40	8	0.6
	Ambrex	Stratabound	Zn	0.1	10	10	8	0.5	40	40	13	0.4
			Pb	0.1	8	8	7	0.5	55	55	18	0.4
			Cu	0.1	8	8	5	0.5	45	45	10	0.4
			Au	0.1	10	10	10	0.4	75	75	16	0.5
			Ag	0.1	10	10	8	0.5	75	75	20	0.4
			Dens	0.1	8	8	7	0.4	45	45	25	0.5
		Stringer	Zn	0.1	8	8	3	0.65	50	50	13	0.25
			Pb	0.1	8	8	7	0.6	55	55	10	0.3
			Cu	0.1	8	8	4	0.55	25	25	8	0.35
			Au	0.1	8	8	2	0.7	80	80	5	0.2
			Ag	0.1	7	7	7	0.6	40	40	10	0.3
			Dens	0.1	10	10	8	0.3	80	80	10	0.6





Figure 11-10: Arex Stratabound Correlograms (Plotted as Variograms)





Figure 11-11: Ambrex Stringer Correlograms (Plotted as Variograms)





11.5.7 Block Model

Arex, Link, and Ambrex wireframes were filled with blocks in Datamine Studio. The final block model covers the three areas. The block model was sub-celled at wireframes boundaries with parent cells measuring 5.0 m by 5.0 m by 5.0 m and minimum sub-cell sizes of 1.0 m by 1.0 m by 1.0 m. The block model setup is given in Table 11-9.

The block size is appropriate for the drill spacing and proposed mining method and is suitable to support the estimation of Mineral Resources and Mineral Reserves. Comparisons between wireframe and block model volumes are reasonable.

Table 11-9: Arex, Link, and Ambrex Block Model Setup
Nexa Resources S.A. - Aripuanã Zinc Project

Parameter	X	Y	Z
Origin (m)	223,872	8,885,560	-760
Block Size (m)	5	5	5
Number of Blocks	852	745	229

11.5.8 Interpolation Strategy

Grades were interpolated into blocks on a parent cell basis using OK. ID³ was used for groups that did not yield interpretable variograms. Variables zinc, lead, copper, gold, silver, iron, sulphur, magnesium, and density are interpolated, and estimates are not density weighted.

Search ellipsoids were oriented based on dynamic anisotropy angles extracted from the mineralization wireframes. The interpolation strategy is based on Quantitative Kriging Neighbourhood Analysis (QKNA) of previous updates and is designed to avoid oversmoothing of block grades as a result of the OK runs with low relative nugget effects of 5% or 10%. The search strategy is given in Table 11-10.





Table 11-10: Arex, Link, and Ambrex Sample Selection Strategy
Nexa Resources S.A. - Aripuanã Zinc Project

Orebody	Search Ranges			Used	Octant Search			Minimum Samples	Pass 1		Search Expansion	Minimum Samples	Pass 2		Search Expansion	Pass 3		Max per hole
	X	Y	Z		Minimum Octants	Min per Octant	Max per Octant		Maximum Samples	Maximum Samples			Maximum Samples	Maximum Samples				
100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 200, 205, 206, 208, 211, 214, 215, 216, 217, 218	30	30	8	No	2	1	10	6	15	2	6	15	10	2	25	5		
210, 212, 207, 209, 201, 202, 203, 213, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518	30	30	10	No	2	1	10	6	15	2	6	15	15	4	15	5		
	30	30	10	No	2	1	10	3	15	2	6	15	25	2	15	5		
	20	20	5	No	2	1	10	3	15	2	6	15	10	6	15	5		
	30	30	10	No	2	1	10	6	15	2	6	15	15	4	15	5		





	Search Ranges				Octant Search				Pass 1			Pass 2		Pass 3		Max per hole
	X	Y	Z		Used	Minimum Octants	Min per Octant		Max per Octant	Minimum Samples		Maximum Samples	Search Expansion	Minimum Samples	Maximum Samples	
Orebody																
400, 401, 402																
403, 404, 405																
406, 407, 408																
409, 410, 411																
412, 413, 414																
600, 601, 602	30	30	8	No	2	1	4	4	10	2	4	10	10	1	10	8
603, 604, 605																
606, 607, 608																
609, 610, 611																
612, 613																
1000	20	20	10	No	1	1	4	1	5	2	1	5	2	1	5	—



11.5.9 Classification

Definitions for resource categories used in this report are those defined by SEC in S-K 1300. Mineral Resources are classified into Measured, Indicated, and Inferred categories.

Blocks were classified as Measured, Indicated, and Inferred based on drill hole spacing requirements determined from global variograms for the stratabound and stringer domains for each deposit. Figure 11-12 provides examples for Arex and Ambrex. Flagging of the blocks by drill hole spacing was done by using a search pass with dimensions as described in Table 11-11 and capturing at least three drill holes.

The first pass involved a numerical classification as described of blocks followed by a post processing of the classification to remove isolated blocks classified as Measured or Indicated.

The classification criteria for each area are listed in the Table 11-11 and the global variograms for Arex and Ambrex, used as a basis for the classification scheme, are shown in Figure 11-12. Figure 11-13 shows a 3D perspective with the final classification designation.

The classification of the Mineral Resource estimate was applied as follows:

- Measured: Measured blocks were defined, using criteria as defined in Table 11-11, and supported with data of a low level of uncertainty as follows:
 - o Drilling, sampling, and sample preparation and assay procedures follow industry standards and best practices.
 - o Reliability of sampling data. Excellent database integrity and representativity based on SLR's independent data verification and validation, as well as no significant bias observed in QA/QC analysis results.
 - o Confidence in interpretation and modelling of geological and estimation domains. The drillholes spacing is sufficient to confirm the location and continuity of grade and has been confirmed by underground mapping in places at Arex.
 - o Good agreement of visual assessments of the geometries of mineralized domain in relation to drill hole spacing. While the deformation has led to complex geometries at Arex, Link, and Ambrex, the drill spacing is sufficient to confirm the locations and continuity of grade.
 - o Geology and grade continuity. Based on drilling and underground mapping, trend analysis and variography, Arex, Link and Ambrex show good geology and grade continuity.
 - o Confidence in estimation of block grades for the main metals. Block grades correlate well with composite data, statistically and spatially, locally and globally.
 - o Acceptable bulk density representativity. Sufficient density measurements have been taken over the entire deposit.
 - o Well supported drilling spacing criteria. Based on three drill holes and reasonable ranges of the variograms.
- Indicated: Indicated blocks were defined, using criteria as defined in Table 11-11, and supported with data of a low and/or medium level of uncertainty as follows:
 - o Drilling, sampling, and sample preparation and assay procedures follow industry standards and best practices.
 - o Reliability of sampling data. Excellent database integrity and representativity based on SLR's independent data verification and validation, as well as no significant bias observed in QA/QC analysis results.





- o Confidence in interpretation and modelling of geological and estimation domains. While the deformation has led to complex geometries at Arex, Link and Ambrex, the drill spacing is sufficient to assume the locations and continuity of grade.
- o Good agreement of visual assessments of the geometries of mineralized domain in relation to drill hole spacing.
- o Geology and Grade Continuity. Based on drilling and underground mapping, trend analysis and variography, Arex, Link and Ambrex show good geology and grade continuity.
- o Confidence in estimation of block grades for the main metals. Block grades correlate well with composite data, statistically and spatially, locally and globally.
- o Acceptable bulk density representativity. Sufficient density measurements have been taken over the entire deposit.
- o Well supported drilling spacing criteria. Based on three drill holes and reasonable ranges of the variograms for the indicated category.

Inferred: Inferred blocks were defined, using criteria as defined in Table 11-11 and supported with data of a low and/or medium and/or high level of uncertainty as follows:

- o Drilling, sampling, and sample preparation and assay procedures s follow industry standards and best practices.
- o Reliability of sampling data: Excellent database integrity and representativity based on SLR's independent data verification and validation, as well as no significant bias observed in QA/QC analysis results.
- o Confidence in interpretation and modelling of geological and estimation domains. Link and Ambrex have more complex geometries and extrapolation of the interpretations into these areas supported by wider drill hole spacing is implied.
- o Good agreement of visual assessments of the geometries of mineralized domain in relation to drill hole spacing. Arex has a relatively well defined geometries while, Ambrex and Link interpretations are implied from areas of tighter drill hole spacing.
- o Geology and grade continuity. Based on drilling and underground mapping, trend analysis and variography, the deposits show good geology and grade continuity. The location and continuity of grade is more complex in Ambrex and Link.
- o Confidence in estimation of block grades for the main metals. Block grades correlate reasonably well with composite data, statistically and spatially, locally and globally.
- o Acceptable bulk density representativity. Sufficient density measurements have been taken over the entire deposit.
- o Infill drilling is required to determine continuity of mineralization in areas of wide drill spacing in order to upgrade Inferred Resources to Indicated. Inferred drilling spacing was defined based on reasonable ranges of the variogram.





Table 11-11: Nexa Search Ellipse Ranges for Classification Criteria - Arex, Link, and Ambrex
Nexa Resources S.A. - Aripuanã Zinc Project

Area	Type	Measured	Indicated	Inferred
Arex	Stratabound	25 m x 25 m	50 m x 50 m	100 m x 100 m
	Stringer	20 m x 20 m	50 m x 50 m	100 m x 100 m
Link	Stratabound	20 m x 20 m	50 m x 50 m	100 m x 100 m
	Stringer	15 m x 15 m	35 m x 35 m	100 m x 100 m
Ambrex	Stratabound	20 m x 20 m	50 m x 50 m	100 m x 100 m
	Stringer	15 m x 15 m	30 m x 30 m	100 m x 100 m
Minimum DDH in ellipse ¹	All	3	3	-

Note:

1. Minimum DDH in ellipse refers to the isotropic search ellipsoid used to flag the distances in the blocks





Figure 11-12: Global Variograms Used for Classification Criteria - Arex and Ambrex





Figure 11-13: Arex, Link, and Ambrex Final Classification Designation
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11.5.10Block Model Validation

A number of validation steps were performed by Nexa and SLR including:

- Comparison between OK and NN mean grades (Figure 11-14 and Figure 11-15).
- Swath plots (Figure 11-16 and Figure 11-17).
- Visual inspection of composites versus block grades (Figure 11-18 to Figure 11-20)

For many of the variables, areas and mineralization types, there is good agreement between the NN and OK means. Similar trends are observed on the swath plots. Some significant discrepancies are observed for OK versus NN for zinc, lead, and silver for zones 108 and 313.

In SLR’s opinion, the validation performed by Nexa and SLR are typical industry standard validation techniques and in general, the results presented suggest the that the block model has been completed to a high standard, in line with industry best practices.





Figure 11-14: Comparison Between OK and NN Means (Stratabound) - Arex, Link, and Ambrex



Figure 11-15: Comparison Between OK And NN Means (Stringer) - Arex, Link, and Ambrex



Figure 11-16: Swath Plot - Stratabound - Easting





Figure 11-17: Swath Plot - Stringer - Easting





Figure 11-18: Arex Vertical Section Showing Zn and Cu Block versus Composite Grades





Figure 11-19: Link Vertical Section Showing Zn and Cu Block versus Composite Grades





Figure 11-20: Ambrex Vertical Section Showing Zn and Cu Block versus Composite Grades





11.6 Babaçú

11.6.1 Resource Database

The resource database contains drilling information and analytical results up to December 31, 2019. Information received after this date was not used in the Mineral Resource estimate. The database used comprises Babaçú and Ambrex drilling. There is a total of 44 drill holes intersecting the Babaçú mineralization (26,889 m).

Nexa maintains the resource database in Datamine Fusion. Data were amalgamated and parsed as required and imported into Datamine Studio and Leapfrog. Despite the changes of the database coordinates datum during 2019 (from SAD69 to SIRGAS2000 - zone 21S), the Babaçú model was still made using the SAD69 datum.

Section 9 describes the resource database verification steps carried out by Nexa and SLR. SLR is of the opinion that the drill hole database is valid and suitable to estimate Mineral Resources for the Project.

11.6.2 Geological Interpretation

Wireframes of the stratabound and stringer mineralization at Babaçú were constructed considering geology at a cut-off grade of 0.6% Zn (or Pb) in the stratabound zones and 0.5% Cu in the stringer zones in Leapfrog (Figure 11-21). Samples with both zinc and copper grades above cut-off grades were considered to be stratabound type mineralization. Some drill hole intercepts with grades below cut-off grade were included to maintain geological continuity. The mineralization wireframes follow a similar interpretation to the Ambrex deposit.





Figure 11-21: Plan View of Ambrex and Babaçu Mineralization Wireframes





11.6.3 Capping of High Grades

Nexa applied high grade capping to Zn, Pb, Cu, Au, and Ag assays in order to limit the influence of a small amount of extreme values located in the upper tail of the metal distributions. Log probability plots were inspected for stratabound and stringer wireframes and capping grades were selected according to inflections on log probability plots (Figure 11-22). A summary of capping grades used and capped versus uncapped statistics are provided in Table 11-12 and Table 11-13.

SLR reviewed the capping levels utilized by Nexa and is of the opinion that, in general, the capping grades are reasonable.

Table 11-12: Babaçú Grade Capping Levels
Nexa Resources S.A. - Aripuanã Zinc Project

Capping Values - Mineralized Domains					
Domain	Zn (%)	Pb (%)	Cu (%)	Au (g/t)	Ag (g/t)
Stratabound	30	13	2	1	300
Stringer	3	3	9	6	250





Table 11-13: Babaçü Uncapped versus Capped Assay Statistics
Nexa Resources S.A. - Aripuanã Zinc Project

Type	Grade	Count	Sampled	Minimum	Uncapped					Capped					Metal Loss
					Maximum	Mean	Stdev	Variance	CV	Maximum	Mean	Stdev	Variance	CV	
Stratabound	Zn (%)	2227	2227	0.0013	42.04	2.96	5.19	26.98	1.76	30	2.93	5.06	25.64	1.73	-1%
Pb (%)		2227	2227	0.0002	51.83	1.16	2.86	8.21	2.48	13	1.08	2.15	4.62	2	-7%
Cu (%)		2227	2227	0.0001	13.85	0.14	0.53	0.28	3.68	2	0.12	0.33	0.11	2.69	-16%
Au (g/t)		2227	2073	0.0025	6.87	0.11	0.32	0.1	3.02	1	0.09	0.18	0.03	1.96	-16%
Ag (g/t)		2227	2227	0	1150	31.83	71.21	5070.5	2.24	300	29.4	53.02	2811.1	1.8	-8%
Stringer	Zn (%)	550	550	0.0009	9.03	0.2	0.7	0.49	3.45	3	0.17	0.42	0.17	2.43	-15%
Pb (%)		550	550	0.0001	23.48	0.21	1.11	1.24	5.35	3	0.16	0.42	0.18	2.7	-25%
Cu (%)		550	550	0.0004	18.65	1.02	1.7	2.88	1.66	9	0.99	1.45	2.12	1.47	-3%
Au (g/t)		550	550	0.0025	34.1	0.62	1.77	3.12	2.84	6	0.55	0.96	0.93	1.76	-12%
Ag (g/t)		550	550	0.03	607	25.07	48.81	2382.5	1.95	250	23.99	40.83	1667	1.7	-4%





Figure 11-22: Babaçû Capping Analysis for Stringer





11.6.4 Compositing

Nexa composited the capped assays to one metre, which corresponds to the dominant sampling length for the deposit. Composites were weighted by length (Figure 11-23).



Figure 11-23: Histograms for Assay (Left) and Composite (Right) Lengths - Babaçú

11.6.5 Exploratory Data Analysis

Nexa performed exploratory statistical analysis including bivariate and univariate statistical analysis. The univariate statistics for the composites are provided in Table 11-14. The bivariate analysis results show strong correlations for stratabound Pb-Zn, Pb-Ag, and Cu-Au mineralization and good correlations for stringer Cu-Ag mineralization. Figure 11-24 presents the correlation matrices by type and area.





Table 11-14: Babaçú Composite Statistics
Nexa Resources S.A. - Aripuanã Zinc Project

Type	Grade	Count	Sampled	Minimum	Uncapped					Capped					Metal Loss
					Maximum	Mean	Stdev	Variance	CV	Maximum	Mean	Stdev	Variance	CV	
Stratabound	Zn (%)	1792	1792	0.0013	40.16	2.96	4.73	22.38	1.6	30	2.93	4.6	21.19	1.57	-1%
	Pb (%)	1792	1792	0.0002	40.79	1.16	2.47	6.1	2.14	13	1.08	1.92	3.67	1.78	-7%
	Cu (%)	1792	1792	0.0001	9.17	0.14	0.47	0.22	3.27	2	0.12	0.3	0.09	2.5	-16%
Stringer	Au (g/t)	1792	1646	0.0025	4.58	0.11	0.28	0.08	2.6	1	0.09	0.16	0.03	1.81	-16%
	Ag (g/t)	1792	1792	0.0202	730	31.83	62.14	3861	1.95	300	29.4	47.26	2233.14	1.61	-8%
	Zn (%)	439	439	0.001	8.63	0.2	0.64	0.41	3.14	3	0.17	0.39	0.15	2.26	-15%
	Pb (%)	439	439	0.0001	18.33	0.21	0.98	0.96	4.7	2.74	0.16	0.37	0.14	2.4	-25%
	Cu (%)	439	439	0.0004	17.23	1.02	1.55	2.39	1.51	9	0.99	1.32	1.75	1.34	-3%
	Au (g/t)	439	439	0.0025	22.27	0.62	1.44	2.06	2.31	4.97	0.55	0.84	0.71	1.53	-12%
	Ag (g/t)	439	439	0.04	425.95	25.07	44.91	2017.11	1.79	250	23.99	37.96	1440.79	1.58	-4%





Figure 11-24: Correlation Matrices by Mineralization Type - Babaçú

11.6.6 Block Model

Babaçú wireframes were filled with blocks in Datamine Studio RM. The final block model covers both zones. The block model was sub-celled at wireframes boundaries with parent cells measuring 10 m by 5 m by 5 m and minimum sub-cell sizes of 1.25 m by 1.00 m by 0.50 m. The block model setup and a description of the block model attributes are given in the sequence (Table 11-15).

The block size is appropriate for the drill spacing and proposed mining method and is suitable to support the estimation of Mineral Resources and Mineral Reserves. Comparisons between wireframe and block model volumes are good.

Table 11-15: Babaçú Block Model Setup
Nexa Resources S.A. - Aripuanã Zinc Project

Parameter	X	Y	Z
Origin (m)	226,350	8,885,950	-900
Block Size (m)	10	5	5
Number of Blocks	165	300	250

11.6.7 Interpolation Strategy

Grades were interpolated into blocks on a parent cell basis using ID³. Variables Zn, Pb, Cu, Au, Ag, and density are interpolated, and estimates are not density weighted.

Search ellipsoids were oriented based on dynamic anisotropy angles extracted for the mineralization wireframes. The estimation strategy is summarized in Table 11-16.





Table 11-16: Babaçú Sample Selection Strategy
Nexa Resources S.A. – Aripuanã Zinc Project

Pass Number	Search Ranges (m)			Selection Criteria		
	X	Y	Z	Minimum Samples	Maximum Samples	Max per hole
1	20	20	10	6	15	5
2	50	50	25	6	15	5
3	100	100	50	6	15	5
4	250	250	100	1	12	-

11.6.8 Classification

Definitions for resource categories used for Babaçú are those defined by the SEC for Mineral Resources in S-K 1300.

Babaçú blocks were classified as Inferred only due to large drill hole spacing in the area. The Inferred classification criteria are based on a drilling grid of 100 m. A large proportion of blocks were left unclassified due to the large drill spacing and complex structural context.

Figure 11-25 presents the final classification designation.

The classification of the Mineral Resource estimate was applied as follows:

- Inferred: Inferred blocks were defined, based on a drilling grid of 100 m, and supported with data of a low and/or medium and/or high level of uncertainty as follows:
 - o Drilling, sampling, and sample preparation and assay procedures s follow industry standards and best practices.
 - o Reliability of sampling data: Excellent database integrity and representativity based on SLR's independent data verification and validation, as well as no significant bias observed in QA/QC analysis results.
 - o Confidence in interpretation and modelling of geological and estimation domains. Babaçú has a complex geometry and extrapolation of the interpretations in in areas of wider drill hole spacing is implied.
 - o Good agreement of visual assessments of the geometries of mineralized domain in relation to drill hole spacing. Babaçú interpretations are implied from areas of wider drill hole spacing.
 - o Geology and grade continuity. Based on drilling, trend analysis and variography, the deposit shows good geology and grade continuity. The location and continuity of grade is implied by the current drilling pattern.
 - o Confidence in estimation of block grades for the main metals. Block grades correlate reasonably with composite data, statistically and spatially, locally and globally.
 - o Acceptable bulk density representativity. Sufficient density measurements have been taken over the entire deposit.
 - o Infill drilling is required to determine continuity of mineralization in areas of wide drill spacing in order to upgrade Inferred Resources to Indicated. Inferred drilling spacing was defined based on reasonable distances.





Figure 11-25: Babaçú Final Classification Designation





11.6.9 Block Model Validation

A number of validation steps were performed by Nexa including:

- Comparison between ID³ and NN mean grades (Table 11-17).
- Swath plots (Figure 11-26 to Figure 11-30).
- Visual inspection of composites versus block grades (Figure 11-31 and Figure 11-32).

In SLR’s opinion, the validation was performed using typical industry standard validation techniques and in general, the results presented are suitable for an Inferred Mineral Resource.

Table 11-17: Comparison Between ID³ and NN Means - Babaçú
Nexa Resources S.A. - Aripuanã Zinc Project

Domain	Grade	Estimate Mean	NN Mean	Est./NN
Inferred Stratabound	Zn (%)	2.99	2.97	100.7%
	Pb (%)	1.24	1.34	93.0%
	Cu (%)	0.18	0.16	108.4%
	Au (g/t)	0.11	0.10	106.5%
Unclassified Stratabound	Ag (g/t)	34.1	35.3	96.7%
	Zn (%)	3.82	3.99	95.7%
	Pb (%)	1.65	1.94	84.9%
	Cu (%)	0.18	0.18	97.9%
	Au (g/t)	0.13	0.13	100.1%
	Ag (g/t)	36.5	41.7	87.4%
Unclassified Stringer	Zn (%)	0.18	0.18	98.0%
	Pb (%)	0.14	0.14	102.0%
	Cu (%)	1.33	1.32	100.8%
	Au (g/t)	0.80	0.78	102.2%
	Ag (g/t)	32.6	32.0	101.8%





Figure 11-26: Babaçú Zn Stratabound Swath Plot - Easting



Figure 11-27: Babaçú Pb Stratabound Swath Plot - Easting



Figure 11-28: Babaçú Ag Stratabound Swath Plot - Easting



Figure 11-29: Babaçú Cu Stringer Swath Plot - Easting



Figure 11-30: Babaçú Au Stringer Swath Plot - Easting





Figure 11-31: Babaçú Vertical Sections Showing Zn Block versus Composite Grades





Figure 11-32: Babaçú Vertical Sections Showing Cu Block versus Composite Grades





11.7 Risks and Uncertainties to Mineral Resources

Based on SLR’s review of the Aripuanã Mineral Resource estimate, the following risks have been identified:

- Inflation of wireframe volumes due to poorly angled holes at Ambrex.
- Metal price volatility, lower long-term metal prices would result in a decrease in Mineral Resources.
- Variability in grade may result in variances in the reconciliation results during production.
- The classification is currently based theoretical criteria and will need to be refined with experience during mining.

Many of the risks and uncertainties related to the Mineral Resources can be resolved by additional drilling and reconciliation once commercial production is achieved.





12.0 MINERAL RESERVE ESTIMATES

12.1 Summary

The Mineral Reserves were estimated by Nexa and reviewed by SLR.

The Aripuanã Mineral Reserves are based in three main orebodies, Arex, Link, and Ambrex. The main commodities produced are zinc, lead, copper, silver, and gold. The Mineral Reserve estimate for the Project as of September 30, 2020 is presented in Table 12-1.

Table 12-1: Summary of Mineral Reserves - September 30, 2020
Nexa Resources S.A. - Aripuanã Zinc Project

Deposit/Category	Tonnes (Mt)	Grade				
		(% Zn)	(% Pb)	(% Cu)	(g/t Au)	(g/t Ag)
Arex						
Proven	4.216	2.97	1.07	0.65	0.45	33.83
Probable	1.101	1.99	0.69	0.75	0.75	23.97
Proven & Probable	5.317	2.77	0.99	0.67	0.52	31.78
Link						
Proven	1.370	4.63	1.73	0.13	0.27	37.78
Probable	5.342	3.95	1.32	0.22	0.32	32.31
Proven & Probable	6.713	4.09	1.40	0.20	0.31	33.42
Ambrex						
Proven	4.495	4.18	1.59	0.05	0.15	37.55
Probable	6.982	3.59	1.44	0.12	0.27	34.81
Proven & Probable	11.477	3.82	1.50	0.09	0.22	35.88
Total						
Proven	10.082	3.74	1.39	0.31	0.29	36.02
Probable	13.425	3.60	1.33	0.21	0.33	32.93
Proven & Probable	23.507	3.66	1.36	0.25	0.31	34.25

Notes:

1. The definitions for Mineral Reserves in S-K 1300 were followed for Mineral Reserves which are consistent with CIM (2014) definitions.
2. The Mineral Reserve estimate is reported on a 100% Nexa attributable ownership basis.
3. Mineral Reserves are estimated at a break-even cut-off value of NSR = US\$45.00/t processed. Some incremental material with values between US\$40/t and US\$45/t was included.
4. Mineral Reserves are estimated using an average long-term zinc price of US\$1.13/lb Zn, a long-term lead price of US\$0.89/lb Pb, a long-term copper price of US\$2.93/lb Cu, a long-term silver price of \$16.85/oz Ag, and a long-term gold price of US\$1,538/oz Au.





5. Metallurgical recoveries are accounted for in the NSR calculations based on metallurgical test work and are variable as a function of head grade. Recoveries at the LOM average head grades for stratabound material are 89.4% for Zn, 83.4% for Pb, 67.5% for Cu, 70.0% for Ag, and 70.0% for Au. Recoveries at the LOM average head grades for stringer material are 88.8% for Cu, 50.0% for Ag, and 50.0% for Au.
6. A minimum mining width of 4 m was used.
7. Numbers may not add due to rounding.

Contained metal in the Mineral Reserves consists of 859,800 t Zn, 319,000 t Pb, 59,700 t Cu, 25.9 Moz Ag and 236,100 oz Au.

Nexa reviewed supply and demand projections for zinc, lead, and copper, as well as consensus long-term (10 year) metal price forecasts. SLR verified that Nexa's selected metal prices for estimating Mineral Reserves are in line with independent forecasts from banks and other lenders.

The SLR QP is not aware of any risk factors associated with, or changes to, any aspects of the modifying factors such as mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate.

12.2 Dilution

The dilution that has been applied is related to the selected mining method. The two main mining methods used at Aripuanã are longitudinal longhole retreat (bench stoping) and transverse longhole mining (vertical retreat mining or VRM) with primary and secondary stope extraction. Dilution is applied on a percentage basis, with no grade applied to the diluting material. The dilution for each method is summarized in Table 12-2.

Table 12-2: Dilution Nexa Resources S.A. - Aripuanã Zinc Project		
	Item	Percent Dilution (%)
	Development	0
	Bench Stope	15
	Primary VRM	5
	Secondary VRM	12

In SLR's opinion, it is better to apply dilution as a hanging wall/footwall distance, rather than a global percentage (as has been done here). The percentage approach applies too much dilution to larger stopes and not enough to smaller stopes.

SLR reviewed the impact of applying this method to the Mineral Reserves, and observed the following:

- The application of this method has little impact on VRM stopes - the stope size is fairly constant.
- To check the impact on Bench Stopes, a dilution of 1.25 m was applied to each side (which results in the global percentage of 15% dilution at the average width of eight metres).
- Bench Stopes range from four metres wide to 15 m wide.
- Applied to narrower stopes (four metres to six metres wide, or the bottom 18% of the range), this gives 31.6% to 20.8% dilution (higher than average, as expected).
- Applied to wider stopes (13 m to 15 m wide, or the top 18% of the range), this gives 8.3% to 9.7% dilution (lower than average, as expected).
- The groups are fairly well balanced - 20% of stopes are narrow, 24% are wide. There is no significant skew here to introduce a bias to the total.





- The higher dilution would cause 14 narrow stopes to drop below an NSR of \$40/t, however, they remain within the range of the incremental cut-off.
- SLR did not observe any instances where wider stopes were rejected because they have too much dilution at 15% but may meet cut-off criteria at 8% to 10% dilution.

Based on the above, SLR concludes that using percentage dilution may introduce small inaccuracies to some individual stope estimates, however, it has little impact on the overall estimate.

SLR has reviewed the impacts of changes to the dilution estimate. While increasing dilution could render some reserves below cut-off grade, the proportion is relatively low and overall the Mineral Reserves are relatively insensitive to dilution fluctuations.

12.3 Extraction

The extraction ratio is related to the mining method and is applied on a percentage basis. The amount of extraction for each method is presented in Table 12-3.

Table 12-3: Extraction Percentage Nexa Resources S.A. - Aripuanã Zinc Project	
Item	Extraction (%)
Development	100
Bench Stope	90
Primary VRM	90
Secondary VRM	85

Mineral Reserve tonnage and metal content are affected in direct proportion to variations in extraction.

12.4 Cut-off Value

The NSR cut-off value was determined using the Mineral Reserve metal prices, metal recoveries, transport, treatment, and refining costs, as well as mine operating cost. Metal prices are based on Nexa’s projections. Nexa’s long term price model uses multiple variables including supply (mine and refined), demand, cost drivers, capital cost, and other key elements. The long-term prices derived are in line with the consensus annual forecasts for the next ten years from independent banks and financial institutions.

The cut-off value used for the Mineral Reserves is based on an NSR value. The NSR formula is:

$$NSR = (Total\ Operating\ Cost)/(Tonnes\ Processed)$$

The two main types of mineralization in the deposit are stratabound and stringer. These two types of mineralization have different processing characteristics, and as a result, different parameters are used to calculate their respective NSR value. Cut-off and NSR parameters used to calculate the NSR value are summarized in Table 12-4. The break-even NSR cut-off value is approximately US\$34.35/t. First-pass mine design used a cut-off value of \$US45/t, to allow for uncertainty around exchange rates (break-even cut-off NSR plus a US\$10/t margin). Upon review of the results, a limited number of stopes with NSR values down to US\$40.00/t were included for continuity.

NSR factors are applied directly to the design based on the Net Revenue by Metal as presented in Table 12-4.





Table 12-4: NSR DATA
Nexa Resources S.A. - Aripuanã Zinc Project

Item	Units	Stratabound	Stringer
Net Metallurgical Recovery			
Zn	%	89.4	0
Pb	%	83.3	0
Cu	%	59.3	87.8
Au	%	70	63
Ag	%	76	50
Cu Concentrate Payable %			
Cu	%	96.7	
Au	%	90	
Ag	%	90	
Pb Concentrate Payable %			
Pb	%	95	
Au	%	95	
Ag	%	95	
Zn Concentrate Payable %			
Zn	%	85	
Au	%	0	
Ag	%	70	
Charges			
Logistics and TC			
Zn Concentrate	US\$/t conc	\$363	
Pb Concentrate	US\$/t conc	\$340	
Cu Concentrate	US\$/t conc	\$334	
Integrated Zn			
Conversion Cost	US\$/t Zn prod	\$414	
Premium	US\$/t Zn Prod	\$233	
Refining Cost			
Au in Pb conc	US\$/oz	\$10.00	
Au in Cu conc	US\$/oz	\$8.00	
Ag in Pb conc	US\$/oz	\$1.00	
Ag in Cu conc	US\$/oz	\$0.50	
Royalty NSR			
Arex & Link Royalties	%	4.9	





Item	Units	Stratabound	Stringer
Ambrex Royalties	%	5.4	
Net Revenue by Metal			
Zn	%	61	0
Pb	%	15	0
Cu	%	6	58
Au	%	6	40
Ag	%	12	3
Operating Costs			
Mining	US\$/t proc	\$15.34	
Process and Tailings	US\$/t proc	\$13.31	
G&A	US\$/t proc	\$5.69	





13.0 MINING METHODS

13.1 Summary

Currently, Aripuanã is focused on mining three main elongated mineralized zones, Arex, Link, and Ambrex, that have been defined in the central portion of the Project.

The Arex, Link, and Ambrex deposits are separate VMS deposits with differing mineral compositions in stratabound and stringer forms and complex geometric shapes.

The deposit geometry is amenable to a number of underground mechanized mining techniques including cut and fill and bulk stoping methods. A nominal production target of 6,065 tpd has been used as the basis for the mine production schedule.

Mining will be undertaken using conventional mechanized underground mobile mining equipment via a network of declines, access drifts, and ore drives. Access to the Arex, Link, and Ambrex deposits will be via separate portals, which will access the deposits from the most favourable topographic locations.

13.2 Mine Design

The mine design has been based on using modern mobile trackless equipment with independent decline accesses into the Arex, Link, and Ambrex deposits.

The three deposits will be accessed from three independent surface cut and cover portals and ramps designed at a gradient of 14% to be driven with an arched profile and cross-sectional area (CSA) of 27 m² to accommodate the selected major equipment. The main loading and hauling equipment will be 12.5 t class load haul dump units (LHD) combined with 35.5 t class haul trucks.

Main mining sublevels will be spaced 75 m apart, with stope sublevels placed at 25 m spacing. The upper sublevel in each level will contain a five metre sill pillar. The two mining methods will be longitudinal retreat longhole mining, and VRM with primary and secondary sequencing. Backfilling of stopes will be completed using paste fill, cemented rockfill, and rockfill.

Figure 13-1 shows the mine design for the entire Project, while Figure 13-2 to Figure 13-4 show the mine design for each separate deposit.





Figure 13-1: Aripuanã Long Section





Figure 13-2: Arex Long Section





Figure 13-3: Link Long Section





Figure 13-4: Ambrex Long Section





Material movement at Aripuanã will be completed via ramps using haulage trucks. Primary development consists of ramps and raises. Secondary development consists of cross cuts, level access, footwall drives, ore drives, and all infrastructure development (sumps, remucks, etc.).

Table 13-1 presents the development dimensions used in the current mine design.

Table 13-1: Development Dimensions Nexa Resources S.A. - Aripuanã Zinc Project		
Activity	Type	Dimensions (m)
Primary Development	Raisebore	3.1 diameter
	Ramps	5.0 x 5.5
	Sublevels	
	Cross Cuts	
	Footwall Drives	
Secondary Lateral Development	Ore Drives	
	Sumps, pumps, elec.	5.0 x 5.5

13.3 Mining Method

A nominal production target of 6,065 tpd (2.2 million tonne per annum (Mtpa)) has been used as the basis for the Aripuanã production schedule.

Nexa has undertaken a number of mining method option studies, which have selected a combination of longitudinal longhole retreat stoping (bench stoping) for narrow zones and VRM for thicker zones of the deposits. To increase the extraction ratio, a primary and secondary stoping sequence will be used in the VRM areas with cemented paste fill used to backfill stopes. Finished longhole retreat stopes will be backfilled with rockfill.

The primary mining method selected for the Arex deposit is longitudinal retreat mining. The majority of the Link and Ambrex deposits will be mined using VRM, with longitudinal longhole retreat mining utilized in minor areas. The tonnage split between VRM and bench stoping is approximately 60:40.

An estimate of the potentially mineable tonnage has been generated based upon the estimated Mineral Resources. The estimate includes both Measured and Indicated Mineral Resources. DSO was used to generate stope shapes to a minimum dip of 50°. A Minimum Mining Width (MMW) of four metres has been applied.

No hanging wall or footwall dilution was added in the DSO analysis, however, it was accounted for in the mine scheduling.

13.4 Underground Mining Fleet

The main underground mining fleet is listed below in Table 13-2. The fleet will be mainly sourced from Sandvik AB, Normet Group Oy, and Volvo Group.

13.5 Labour

The Aripuanã Zinc Project will see an increase of personnel on site as the project ramps up. Table 13-3 below shows the personnel ramp up over the life of mine.





Table 13-2: Main Underground Mining Fleet
Nexa Resources S.A. - Aripuanã Zinc Project

			2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Scaler	Arex	Arex - Scaler	-	0.6	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	-
	Link	Link - Scaler	-	-	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Ambrex	Ambrex - Scaler	-	-	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	1.0	1.0
Total			-	1.0	1.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	3.0	2.0
Robolt	Arex	Arex - Robolt	-	0.5	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	-
	Link	Link - Robolt	-	-	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Ambrex	Ambrex - Robolt	-	-	0.5	1.0	2.0	1.0	1.0	1.0	1.0	1.0	2.0	1.0	1.0
Total			-	1.0	1.0	3.0	4.0	3.0	3.0	3.0	3.0	3.0	4.0	3.0	2.0
Jumbo	Arex	Arex - Jumbo	-	0.6	0.5	1.0	1.1	2.0	1.1	1.2	1.0	1.0	1.0	1.0	-
	Link	Link - Jumbo	-	-	-	1.3	1.2	1.1	2.0	1.2	2.0	2.0	1.0	1.0	1.0
	Ambrex	Ambrex - Jumbo	-	-	0.5	1.3	1.8	1.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Total			-	1.0	1.0	4.0	5.0	4.0	5.0	4.0	5.0	5.0	4.0	4.0	3.0
Truck 30t	Arex	Arex - Truck 30t	-	1.0	0.7	1.0	1.3	1.7	1.8	1.9	1.7	1.2	0.8	0.1	-
	Link	Link - Truck 30t	-	-	-	2.2	1.7	1.7	1.8	2.2	2.0	1.8	1.3	2.0	1.1
	Ambrex	Ambrex - Truck 30t	-	-	0.4	2.2	3.0	2.5	2.3	2.2	2.7	3.3	4.4	4.0	5.1
Total			-	1.2	1.2	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0	7.0
Truck 45t	Arex	Arex - Truck 45t	1.0	2.3	2.7	3.0	3.2	2.3	2.1	2.6	1.9	1.6	1.7	3.8	-
	Link	Link - Truck 45t	-	1.8	3.0	4.0	3.1	1.9	3.1	3.2	2.7	2.9	3.3	1.7	2.6
	Ambrex	Ambrex - Truck 45t	-	-	-	0.1	0.7	2.3	2.4	1.9	3.9	4.1	4.1	4.0	6.6
Total			2.0	5.0	6.0	8.0	7.0	7.0	8.0	8.0	9.0	9.0	10.0	10.0	10.0
LHD R1700	Arex	Arex - LHD R1700	-	0.7	0.6	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.2	-



			2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
	Link	Link - LHD R1700	-	-	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Ambrex	Ambrex - LHD R1700	-	-	1.0	1.0	1.1	1.1	1.0	1.0	1.0	1.1	1.1	1.1	1.1
	Total	Total - LHD R1700	-	1.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
LHD R2900	Arex	Arex - LHD R2900	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	-
	Link	Link - LHD R2900	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Ambrex	Ambrex - LHD R2900	-	-	-	0.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1
Fandrill	Total	Total - LHD R2900	1.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0
	Arex	Arex - Fandrill	1.0	2.0	2.0	1.3	2.0	1.0	1.0	1.0	1.0	0.7	0.7	0.8	-
	Link	Link - Fandrill	0.9	2.0	3.0	3.0	2.0	2.0	1.3	2.0	1.0	2.0	1.2	0.6	0.6
	Ambrex	Ambrex - Fandrill	-	-	0.1	1.0	1.0	1.3	2.0	2.0	1.7	1.8	2.0	2.0	3.0
	Total	Total - Fandrill	2.0	4.0	5.0	5.0	5.0	4.0	4.0	5.0	4.0	5.0	4.0	3.0	4.0
	Cabolt	Arex - Cabolt	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-
	Link	Link - Cabolt	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	Ambrex	Ambrex - Cabolt	-	-	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2
	Total	Total - Cabolt	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0





Table 13-3: Site Personnel
Nexa Resources S.A. - Aripuanã Zinc Project

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Mine		39	118	273	450	456	456	456	461	461	452	452	451	451	451.0
Plant			15	168	171	171	171	171	169	169	171	171	171	171	171.0
G&A	13	36	53	87	95	95	95	95	87	87	92	92	92	92	92.0
Total	13	75	186	528	716	722	722	722	717	717	715	715	714	714	714



Nexa Resources S.A. | Aripuanã Zinc Project, SLR Project No: 233.03252.R0000
Technical Report Summary - January 15, 2021



13.6 Geotechnical Considerations

The studies related to the Project’s geomechanical context were initially developed by the consulting firm BVP Engineering, having been detailed, at a later stage, by the consulting firm Walm Engineering (Walm), during the conceptual design stage.

The available geomechanical data prepared by Walm indicates that, in general, good ground conditions are anticipated in the Aripuanã underground. Nevertheless, geomechanical information is continuously updated by means of mapping of underground exposures during development and geotechnical core logging.

The geomechanical characterization of the three targets Arex, Link and Ambrex is based upon the tridimensional geomechanical model developed by Walm and is summarized below.

13.6.1 Arex

Geomechanical characterization was performed using the Bieniawski (1989) Rock Mass Rating (RMR) classification system and indicated good (Class II) to very good (Class I) geomechanical domains, consisting of strong to very strong intact rock, slightly weathered to unweathered rock walls and slightly to moderately jointed rock masses. Good rock masses are located far from the influence of superficial weathering. They are composed of strong intact rock and show a low degree of jointing, exhibiting some or no degree of weathering. The top of the unweathered rock layer is normally at a depth of 50 m to 70 m, usually below the weathered rock mass (Class III). The thickness of rock mass Class II varies from 80 m to 300 m. Rock mass Class I consists of strong rock material and shows unweathered discontinuities and low degree of jointing and is situated immediately below rock mass Class II.

The fair rock mass (Class III), which consists of moderately strong rock material and exhibits moderately weathered discontinuities and a moderate degree of jointing, occurs predominantly at shallow depths, however, it may occur as discontinuous thin lenses within rock masses of higher geomechanical quality (Classes I and II). These small lenses are related to the degree of jointing of the rock mass and/or to lower intact rock strength and may also be associated with faults and shear zones of brittle behavior. In general, its thickness varies from 5 m to 17 m, in the form of continuous layers.

The poor and very poor rock masses (Classes IV and V) and the soil/saprolite layer are situated at shallow depths, close to the surface, and represent the weathering profile over the rock masses of better geomechanical quality. Classes IV and V are in the form of 10 m to 15 m thick lenses. The soil/saprolite layer is 35 m thick on average and becomes thicker within flat topography regions.

In general, the geomechanical classification, obtained from the developed model, indicates that this region of the Project consists, mostly, of rock masses Class II (RMR ≈ 70) and Class III (RMR ≈ 54), prevailing Class II. Data from laboratory tests revealed that the uniaxial compressive strength of the intact rock is approximately 100 MPa to 250 MPa and therefore is classified as R5 (very strong) according to the International Society for Rock Mechanics (ISRM).

As a result of this work, a 3D geomechanical model was developed by Walm using Micromine software to present the 3D distribution of the rock mass classes within the Arex target region. This 3D geomechanical model was prepared by linking vertical geomechanical sections, generating solids and surfaces. Figure 13-5 presents a view of the geomechanical model for the Arex orebody. Similar models were also generated for Link and Ambrex.





Figure 13-5: Perspective 3D Solid Geomechanical Schematic





13.6.2 Link

Geomechanical characterization was performed using the RMR classification system and indicated good (Class II) to very good (Class I) geomechanical domains, consisting of strong to very strong intact rock, slightly weathered to unweathered rock walls and slightly to moderately jointed rock masses. They are composed of strong intact rock and show a low degree of jointing, exhibiting some or no degree of weathering. The top of the unweathered rock layer is normally at a depth of 40 m to 90 m, and usually below the weathered rock mass (Class III). The thickness of rock mass Class II varies from 125 m to 480 m. Class I is situated immediately below the Class II rock mass and their interface usually occur at z = -225 m.

Rock mass Class III is found at shallow depths, normally below rock masses Class IV, and at medium to large depths. Initially, it is characterized as a transition from weathering to fresh/unweathering rock and consist of moderately weathered rock material, exhibiting moderate to high strength and moderate degree of jointing. In general, its thickness varies from two metres to 34 m, in the form of continuous layers.

The poor and very poor rock masses (Classes IV and V) and the soil/saprolite layer are situated at shallow depths, close to the surface, and represent the weathering profile over the rock masses of better geomechanical quality. The soil/saprolite layer covers the entire studied region and are 30 m thick on average, becoming thicker within flat topography regions. Class V is two metres to 30 m thick and may be up to 52 m thick locally. Class IV is in the form of thinner layers, normally 10 m thick, as discontinuous lenses of restrict occurrence within the studied region.

13.6.3 Ambrex

Geomechanical characterization was performed using the classification system RMR and indicated good (Class II) to very good (Class I) geomechanical domains, consisting of strong to very strong intact rock, slightly weathered to unweathered rock walls and slightly to moderately jointed rock masses. The top of the unweathered rock layer is normally at a depth of 37 m to 80 m, usually below the weathered rock mass (Class III). The thickness of rock mass Class II varies from 150 m to 600 m. Class I is situated immediately below the Class II rock mass and their interface usually occur at z = -200 m.

Class III constitutes the main transition level to fresh/unweathered rock. It is found at shallow depths, normally below rock masses Class IV, and at medium to large depths. As a transition layer from weathering to fresh/unweathered rock, it consists of moderately weathered rock material, exhibiting moderate to high strength and moderate degree of jointing. In general, its thickness varies from five metres to 45 m, in the form of continuous layers, within the entire body extent.

The poor and very poor rock masses (Classes IV and V) and the soil/saprolite layer are situated at shallow depths, close to the surface, and represent the weathering profile over the rock masses of better geomechanical quality. The soil/saprolite layer covers the entire studied region and are 30 m thick on average, becoming thicker within flat topography regions. Class V occurs in the form of five metre to 40 m thick continuous layers and is situated within the transition zone from soil/saprolite to rock masses Classes IV and III. Class IV is in the form of approximately regular thin layers, approximately 10 m thick within the central region of the body, or, more rarely, as isolated/negligible lenses below Class V layers.

In general, the geomechanical classification, obtained from the developed model, indicates that this region of the Project consists, mostly, of rock masses Class II (RMR ≈ 71) and Class III (RMR ≈ 54), prevailing Class II. Data from laboratory tests revealed that the uniaxial compressive strength of the intact rock is around 100 MPa to 250 MPa and therefore is classified as R5 (very strong) according to the ISRM.

13.6.4 Assumptions for Mining

To ensure stability, there will be no stopes designed within Class III or poorer rock masses, thereby leaving these portions as an integral part of the crown pillar. Currently, numerical modelling, using the Finite Element Method (FEM), is being applied to optimize ore recovery. The studies also comprise an update of the tridimensional geotechnical model with focus on providing accurate data for the numerical model.





The firm REDE Engenharia e Sondagem S/A carried out in-situ stress measurement, applying the Fracture Pressurization Method (FPM), in order to investigate the stress state prior to excavation. From the results, it was possible to conclude that the initial stress state is defined as it follows:

- βH = 123° (major horizontal stress direction)
- KH = 1.92 (major horizontal/vertical stress ratio)
- Kh = 1.44 (minor horizontal/vertical stress ratio)

This information will be used as input data in numerical models for underground stability analysis. As stoping progresses, this data will be calibrated.

13.6.5 Sequencing

For the geotechnical stability analysis of the Arex, Link, and Ambrex stopes, assumptions were made pertaining to the selected mining methods, longhole retreat mining (Bench Stoping) and primary/secondary sublevel stoping (VRM), excavation design, and data from geotechnical core logging, which was used as the basis of the underground mine tridimensional geomechanical model.

The VRM extraction sequence will be bottom up in both primary and secondary stopes. On each level, the primary stopes will be mined upwards from the bottom sublevel. The optimization of stoping sequences will be evaluated by numerical modelling and the success of paste fill operations will ensure flexibility regarding primary and secondary stopes extraction. There is potential to optimize the extraction sequence as part of the detailed mine design and scheduling, and as more data is acquired.

In bench stoping areas, stopes are to be retreat mined and backfilled with rockfill after completion of extraction.

13.6.5.1 Arex

For the Arex mining method selection process, five metre to 20 m wide mineralized zones at depths from zero metres to 700 m have been considered. The average dip of the orebody is virtually uniform for the entire mineralization, being usually vertical or subvertical, with a minimum dip of approximately 60°. Therefore, bench stoping was selected for the majority of this target, with few portions to be mined using the VRM method where the orebody becomes wider.

Sill and rib pillars have been designed for a number of scenarios, which involve mining panels of 75 m between levels and 25 m between sublevels by bench stoping. The results obtained from the studies demonstrated very good ore recovery, varying from 80% to 96%, considering rib pillar recovery.

The applied empirical methods and numerical modelling suggest that stopes will be geotechnically stable and, therefore, there will be no need for systematic cable bolt reinforcement of the excavation wall. Localized cable bolting may be required to address specific situations.

13.6.5.2 Link

For the Link mining method selection process, five metre to 80 m wide mineralized zones at depths from 100 m to 600 m have been considered, thereby putting the mineralization at shallow to intermediate depths. The average dip of the orebody is relatively steep, with a minimum dip of approximately 73°. Given the wider thickness of the orebody, VRM was selected as the primary mining method for this target. The success of production operations using VRM is related to the paste fill system, which will enable stope backfilling and, therefore, full ore recovery.

Sill and rib pillars have been designed for a number of scenarios, which involve mining panels of 75 m between levels and 25 m between sublevels by bench stoping, and panels of 25 m between levels, with no sublevels, by VRM. The results obtained from the studies demonstrated very good ore recovery, varying from 86% to 95%, considering mining of primary and secondary stopes.





The applied empirical methods and numerical modelling suggest that stopes will be geotechnically stable and, therefore, there will be no need for systematic cable bolt reinforcement of the excavation wall. Localized cable bolting may be required to address specific situations.

13.6.5.3 Ambrex

For the Ambrex mining method selection process, five metre to 100 m wide mineralized zones at depths from 100 m to 750 m have been considered, thereby putting the mineralization at shallow to intermediate depths. The average dip of the orebody is relatively steep, with a minimum dip of approximately 73°. Given the wider thickness of the orebody, VRM was selected as the primary mining method for this target. The success of production operations using VRM is related to the paste fill system, which will enable stope backfilling and, therefore, full ore recovery.

Sill and rib pillars have been designed for a number of scenarios, which involve mining panels of 75 m between levels and 25 m between sublevels by bench stoping, and panels of 25 m between levels, with no sublevels, by VRM. The results obtained from the studies demonstrated a very good ore recovery, varying from 86% to 95%, considering mining of primary and secondary stopes.

The applied empirical methods and numerical modelling suggest that stopes will be geotechnically stable and, therefore, there will be no need for systematic cable bolt reinforcement of the excavation wall. Localized cable bolting may be required to address specific situations.

13.7 Ventilation

The ventilation system for the Arex, Link, and Ambrex orebodies is a pull system which uses a combination of axial and centrifugal fans which can be modified for future growth. Fresh air and exhaust raises are located in the level access in each orebody. As a result, mining on the levels is ventilated using auxiliary fans and ventilation ducting. Regulators will control the air flow on each level for the fresh air and exhaust access.

The design of the ventilation system complies with the Brazilian mining regulations which require the calculation of fresh air flow based on the following:

- The maximum number of personnel and underground equipment.
- Consumption of explosives used.
- Monthly tonnages produced.

The three criteria are shown in Figure 13-6.





Figure 13-6: Ventilation Requirements

The auxiliary fans selected for the Project will provide 37 m³/s of ventilation over up to 165 m using 1.4 m diameter ducting and 1.2 m diameter, 150 hp fans. Fans can be stacked together to allow the ventilation to be projected. In order to provide sufficient air for a truck and LHD, two sets of ducting and fans will be required in the areas which do not have flow through ventilation.

13.8 Backfill

The process plant will produce tailings quantities of approximately 90% of the plant feed. Tailings will be dry stacked on surface or used as backfill for underground voids. It is planned that backfill be placed as consolidated paste fill with the specifications as outlined in Table 13-4. The strengths achieved by consolidated paste fill meet the geomechanical requirements for primary and bench stopes.





Table 13-4: Backfill Specification
Nexa Resources S.A. - Aripuanã Zinc Project

Description	Units	Consolidated Paste Fill
Solids	% solid	76%
Water	% solid	24%
Cement	% solid	4%
Density	g / cm ³	2.1

In general, waste rock will be used as backfill for bench stoping areas and the remaining waste generated will be hauled to the surface and placed in waste dumps.

13.9 Production Schedule

The production schedule for the Project is summarized in Table 13-5. A nominal target of 6,065 tpd was used in preparing the mining schedule, with feed to the plant consisting of stratabound and stringer material types, managed via stockpiling.

The deposits support a production rate of 2.2 Mtpa, with average annual metal production of:

- Zinc: 72,700 t.
- Lead: 25,200 t.
- Copper: 3,600 t.
- Silver: 1.85 Moz (contained in copper and lead concentrates); and
- Gold: 14,300 oz (contained in copper and lead concentrates).

This average annual production is equivalent to 122,000 t zinc per annum (tpa), after converting other metals based on net revenue.





Table 13-5: Production Schedule
Nexa Resources S.A. - Aripuanã Zinc Project

Aripuanã Project		Mining Plan		Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year
		UNITS	TOTAL	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
MINING																
Underground																
Operation Days				30.0	100.0	365	365	365	365	365	365	365	365	365	365	365
Tonnes mined per day				1,325	3,478	3,589	5,891	6,050	5,908	5,931	6,073	6,260	6,250	6,062	6,155	5,170
Production		000 tonnes	23,507	40	348	1,310	2,150	2,208	2,157	2,165	2,217	2,285	2,281	2,213	2,247	1,887
Stratabound		000 tonnes	21,030	20	246	1,027	1,874	2,091	1,710	1,743	2,020	2,246	2,258	1,898	2,120	1,777
Stringer		000 tonnes	2,477	20	102	283	276	118	446	422	197	39	23	315	126	110
Grade																
Zn Grade		%	3.66%	1.6%	2.9%	3.2%	3.8%	3.9%	3.5%	3.6%	3.6%	4.0%	3.9%	3.3%	3.7%	3.8%
Pb Grade		%	1.36%	0.4%	1.1%	1.2%	1.3%	1.4%	1.3%	1.3%	1.3%	1.6%	1.4%	1.3%	1.4%	1.4%
Cu Grade		%	0.25%	0.9%	0.5%	0.7%	0.4%	0.3%	0.3%	0.3%	0.3%	0.1%	0.1%	0.2%	0.1%	0.1%
Ag Grade		oz/t	1.10	0.49	0.85	1.04	1.04	1.17	1.17	1.11	1.21	1.28	1.01	0.95	1.04	1.11
Au Grade		oz/t	0.01	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01
Contained Metal in ROM																
Zn		000 tonnes	860	0.6	10.1	42.5	81.5	85.6	75.5	77.1	79.6	91.6	88.2	73.0	82.5	71.9
Pb		000 tonnes	319	0.2	3.8	15.3	28.8	30.4	28.3	28.5	28.7	36.6	31.3	28.4	32.4	26.3





Aripuanã Project	Mining Plan		Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year
	UNITS	TOTAL	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	14
Cu	000 tonnes	60	0.4	1.9	9.5	9.7	6.1	7.4	6.2	7.1	2.2	1.6	3.4	2.3	2.0
Ag	000 oz	25,887	19.4	296.4	1,364.1	2,233.5	2,575.9	2,528.8	2,407.4	2,689.8	2,925.9	2,314.3	2,102.1	2,335.1	2,094.1
Au	000 oz	236	0.6	4.8	25.6	30.0	20.4	28.5	24.3	21.3	14.2	10.8	24.7	16.1	14.7
PROCESSING															
Mill Feed	000 tonnes	23,507			1,698	2,150	2,208	2,157	2,165	2,217	2,285	2,281	2,213	2,247	1,887
Head Grade															
Zn	%	3.66%			3.14%	3.79%	3.87%	3.50%	3.56%	3.59%	4.01%	3.87%	3.30%	3.67%	3.81%
Pb	%	1.36%			1.14%	1.34%	1.38%	1.31%	1.30%	1.30%	1.60%	1.37%	1.28%	1.44%	1.40%
Cu	%	0.25%			0.69%	0.45%	0.27%	0.35%	0.29%	0.32%	0.10%	0.07%	0.15%	0.10%	0.10%
Ag	oz/t	1.10			0.99	1.04	1.17	1.17	1.11	1.21	1.28	1.01	0.95	1.04	1.11
Au	oz/t	0.01			0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01
Net Recovery															
Zn Recovery	%	89.1%			88.4%	89.2%	89.3%	88.9%	89.1%	88.4%	89.3%	89.4%	89.3%	89.2%	89.3%
Pb Recovery	%	83.0%			82.0%	83.5%	82.5%	83.5%	84.1%	80.7%	84.6%	81.9%	83.2%	83.5%	83.1%
Cu Recovery	%	71.0%			77.9%	75.7%	70.3%	77.8%	78.0%	75.5%	47.8%	29.3%	62.1%	47.8%	48.5%
Ag Recovery	%	75.2%			74.0%	75.0%	75.6%	74.7%	74.9%	74.9%	75.9%	75.9%	75.1%	75.6%	75.7%
Au Recovery	%	67.4%			66.5%	67.5%	68.4%	66.2%	66.6%	67.6%	69.4%	69.4%	66.3%	68.5%	68.0%





Aripuanã Project	Mining Plan		Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year
	UNITS	TOTAL	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	14 2032
Concentrate Production															
Zn Concentrate	000 tonnes	1,380	-	-	84.81	130.96	137.61	121.03	123.67	126.80	147.47	142.04	117.48	132.60	115.75
Zn grade	%	55.50%	0.00%	0.00%	55.50%	55.50%	55.50%	55.50%	55.50%	55.50%	55.50%	55.50%	55.50%	55.50%	55.50%
Ag grade	oz/t	1.09	-	-	1.10	0.98	1.10	1.19	1.12	1.22	1.19	0.98	1.04	1.04	1.07
Pb Concentrate	000 tonnes	461	-	-	27.56	41.76	43.58	41.12	41.63	40.30	53.93	44.54	41.05	47.11	38.06
Pb grade	%	57.50%	0.00%	0.00%	57.50%	57.50%	57.50%	57.50%	57.50%	57.50%	57.50%	57.50%	57.50%	57.50%	57.50%
Ag grade	oz/t	27.36	-	-	28.16	25.72	29.05	29.16	27.70	31.90	27.01	25.91	24.73	24.38	27.20
Au grade	oz/t	0.07	-	-	0.11	0.09	0.07	0.06	0.06	0.07	0.05	0.04	0.06	0.05	0.06
Cu Concentrate I	000 tonnes	72	-	-	16.53	10.72	2.67	11.22	9.88	7.68	1.02	0.54	6.84	2.42	2.07
Cu grade	%	30.00%	0.00%	0.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
Ag grade	oz/t	5.94	-	-	3.86	3.98	8.16	5.81	5.12	7.71	6.26	5.65	5.25	7.88	5.62
Au grade	oz/t	0.89	-	-	0.59	0.62	1.07	0.86	0.76	0.61	0.75	1.12	1.21	0.91	1.29
Cu Concentrate II	000 tonnes	70	-	-	13.95	13.65	11.56	8.07	6.17	10.20	2.54	1.05	0.23	1.25	1.09
Cu grade	%	30.00%	0.00%	0.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
Ag grade	oz/t	313.82	-	-	22.26	31.48	43.81	59.44	74.73	50.44	229.54	437.64	1,755.64	368.61	378.43
Au grade	oz/t	4.24	-	-	0.56	0.71	0.69	0.81	1.00	0.68	2.56	4.66	25.09	5.06	4.79





Aripuanã Project			Mining Plan	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	
			UNITS	TOTAL	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Recovered Metal																	
Recovered Metal	Zn	000 tonnes	766.0			47.1	72.7	76.4	67.2	68.6	70.4	81.8	78.8	65.2	73.6	64.2	
	Pb	000 tonnes	264.9			15.8	24.0	25.1	23.6	23.9	23.2	31.0	25.6	23.6	27.1	21.9	
	Cu	000 tonnes	42.4			9.1	7.3	4.3	5.8	4.8	5.4	1.1	0.5	2.1	1.1	1.0	
	Ag	000 oz	19,476.8			1,243.5	1,675.3	1,946.3	1,888.0	1,803.3	2,013.5	2,220.4	1,757.3	1,578.9	1,764.8	1,585.4	
	Au	000 oz	159.1			20.7	20.3	14.0	18.9	16.1	14.4	9.8	7.5	16.4	11.0	10.0	





14.0 PROCESSING AND RECOVERY METHODS

14.1 Process Description

The Aripuanã process flowsheet has been developed through metallurgical test work and the use of conventional technologies for the treatment and recovery of copper, lead, and zinc as separate concentrates. Plant throughput is planned to be 2,214 Mtpa of run of mine (ROM) ore from the Arex, Link, and Ambrex underground mines. Two main ore types are present at Aripuanã, stratabound and stringer, that have different hardnesses and therefore different throughput rates. Stratabound material, however, will make up the majority of the ore to be processed (approximately 89%) and the feed blend to the plant is expected to peak at 21% stringer material during Year 5. Estimated processing rates for the two ore types individually based on hardness are approximately 5,000 tpd (dry basis) for stringer material and 6,300 tpd (dry basis) for stratabound material. Throughput for the blended ore is estimated as a weighted average of the throughputs of the two ore types. A simplified process flowsheet is presented in Figure 14-1. Key elements of the process flowsheet include primary crushing, a SAG mill followed by a ball milling and pebble crushing (SABC) circuit, talc pre-flotation, and sequential flotation of copper, lead, and zinc for stratabound mineralization, and copper flotation for stringer mineralization (Table 14-1).

Table 14-1: Key Process Design Criteria
Nexa Resources S.A. - Aripuanã Zinc Project

Parameter	Units	Design Value
Throughput		
Operating Schedule	d/a	365
Annual	Mt	2.26
Daily - Stratabound Ore	t	6,300
Daily - Stringer Ore	t	5,000
Utilization		
Primary Crusher	%	75
Grinding and Flotation	%	91
Ore Characteristics		
Head Grade - Stratabound	% Cu	0.18
	% Pb	1.96
	% Zn	5.39
Head Grade - Stringer	% Cu	0.91
	% Pb	0.10
	% Zn	0.31
Comminution		
CWi (Stringer)	kWh/t	9.32
SMC Axb (Stringer)		30.9
BWi (Stringer)	kWh/t	12.4
Al (Stratabound)	g	1.5
Crushing		
Crusher Max Feed Size	mm	600





Parameter	Units	Design Value
Product Size (P ₁₀₀)	mm	140
Product Size (P ₈₀)	mm	118
Grinding		
SAG Mill		
Ball Fill	%	14 to 18
Transfer Size (T ₈₀)	mm	1.7 to 2.0
Pebbles Generated	%	19 to 28
Pebble Crusher		
Ball Mill		Yes
Mill Fill	%	35 to 40
Circulating Load	%	250 to 300
Product Size (P ₈₀)	µm	149
Flotation		
Recovery - Stratabound	% Cu	67.6
	% Pb	84.8
	% Zn	89.5
	% Cu	86.9
		Columns
Recovery - Stringer		27
Talc Flotation Cell Type		Tank cells/columns
Feed Density	% solids	27 to 30
Copper Flotation Cell Type		Tank cells/columns
Feed Density	% solids	27 to 30
Regrind (P ₈₀)	µm	45
Lead Flotation Cell Type		Tank cells/columns
Feed Density	% solids	45
Regrind (P ₈₀)	µm	75
Zinc Flotation Cell Type		Tank cells/columns
Feed Density	% solids	43
Regrind (P ₈₀)	µm	75
Concentrate		
Copper Concentrate Grade	% Cu	30
Lead Concentrate Grade	% Pb	62
Zinc Concentrate Grade	% Zn	58
Concentrate Moisture Content	%	10
Tailings		
Tailings Disposal Type		Dry stack
Tailings Thickener Underflow Density	% solids	65





Parameter	Units	Design Value
Tailings Filter Cake Moisture Content	%	10
Paste Backfill Density	% solids	76
Cement Addition	%	4 to 6

Source: SNC-Lavalin, 2019





Figure 14-1: Simplified Process Flow Sheet





14.1.1 Comminution

ROM material will be trucked from the underground mine to the ROM stockpiles near the primary crushing area. ROM material will be directly discharged into the 80 t capacity (two truckloads) primary crusher dump hopper or held temporarily in four stockpiles based on mineralization type and grade (approximately 7,000 t each, one stringer stockpile and three mixed stockpiles of different grades) and recovered later by front end loader. A static grizzly on top of the dump hopper with 600 mm by 600 mm openings will prevent oversize material from reaching the discharge of the hopper. Discharge of ROM material from the dump hopper will be via apron feeder, which will discharge to a vibrating grizzly with an aperture of 130 mm. Oversize material from the grizzly will feed the primary (jaw) crusher while undersize will bypass the crusher.

The crusher product, with a top size of 140 mm, will be collected on a conveyor belt together with the fines from the apron feeder and grizzly undersize. A metal detector will remove scrap metal from the crushed ore that could damage downstream conveyors and equipment. The conveyor will feed the crushed ore bin with a capacity of 2,500 t. Two additional crushed ore bins may be added at a later stage if required that would bring the combined capacity to 9,100 t. Two variable speed apron feeders per bin will withdraw the crushed product from the bins and deliver it to the grinding circuit via conveyor belt. A belt scale on the conveyor will control the speed of the apron feeders, and as a result the feed rate to the grinding circuit. The grinding circuit will consist of a conventional SAG mill, ball mill, and pebble crusher (SABC configuration). Both grinding mills will have variable speed drives to allow for process optimization over a range of ore competencies and hardnesses.

A double-deck vibrating screen at the discharge of the SAG mill will separate SAG mill discharge into screen oversize (scats and pebbles) and screen undersize. Scats will be separated from the pebbles by belt magnets, leaving the pebbles to be recycled to the SAG mill feed conveyor via the pebble crusher, or directly to the SAG mill feed conveyor when the pebble crusher is undergoing maintenance. Screen undersize will discharge to the grinding circuit pump sump together with the ball mill discharge.

SAG mill discharge screen undersize material and ball mill discharge will be pumped to a set of hydrocyclones that will classify the material into oversize and undersize. The hydrocyclone underflow (oversize) material will return to the ball mill while the hydrocyclone overflow (undersize) with P_{80} 150 μm will be transferred to the flotation feed pump box. An online particle size analyzer will provide periodic measurement of the hydrocyclone overflow stream. A trommel screen on the ball mill discharge will remove scats and the slurry will be combined with the SAG mill discharge screen undersize and recirculated as feed to the hydrocyclones.

14.1.2 Flotation

Flotation will be conducted sequentially, i.e., the production from the comminution circuit will pass through four independent circuits in sequence. The first flotation circuit is for talc and light mineral flotation (mainly minerals containing magnesium) to remove naturally hydrophobic minerals and prevent them from contaminating the sulphide concentrates or interfering with sulphide flotation. Due to the high content of light minerals in stratabound mineralization, these minerals must be removed prior to sulphide flotation, however, since stringer mineralization contains only minor amounts of these minerals, processing of stringer ore only would generally by-pass the talc flotation step as the minor talc content can be depressed with carboxymethyl cellulose (CMC). The flotation circuits for the recovery of copper, lead, and zinc follow talc flotation.

Hydrocyclone overflow slurry will be conditioned prior to being fed to the talc flotation circuit, which consists of three column flotation stages: rougher, cleaner, and reverse copper flotation. Reagents added to the conditioning tank for talc flotation include MIBC as a frother and SMBS as a depressant of iron sulphides (pyrite and pyrrhotite). The talc rougher concentrate will be cleaned in the second column, with the cleaned concentrate reporting to the reverse copper flotation column where talc will be depressed with CMC while copper in the talc concentrate is recovered and reports to downstream sulphide flotation. The final talc concentrate will be combined with the sulphide flotation tailings for disposal. The talc flotation tailings containing copper, lead, and zinc minerals (including copper recovered from the talc concentrate during reverse copper flotation), will proceed to the copper flotation circuit.

Prior to copper rougher flotation, talc flotation tailings will be conditioned in two tanks in series where reagents will be added, including:





- A3894 (dialkyl thionocarbamate, copper collector)
- Zinc sulphate (sphalerite depressant)
- SMBS (iron sulphide depressant)
- MIBC (frother)
- CMC (talc depressant)
- Lime (pH control)

Prior to conditioning and cleaner flotation, copper rougher flotation concentrate will be reground in a vertical stirred mill to P₈₀ 45 µm to increase sulphide liberation and promote cleaner stage recovery. Two stages of cleaning in column cells will produce the final copper concentrate. Copper rougher-scavenger concentrate will be recycled to the rougher flotation feed, while copper rougher-scavenger flotation tailings will feed the lead flotation circuit (stratabound or blended ore). If processing stringer ore, however, the rougher-scavenger flotation tailings can be pumped directly to tailings dewatering. Cleaner circuit tailings are recycled to the copper rougher feed.

Copper rougher-scavenger flotation tailings will be thickened prior to being pumped to the lead flotation circuit. Lead and zinc flotation are only necessary for stratabound mineralization as the stringer ore contains only very low concentrations of lead and zinc minerals. The lead flotation circuit is similar to the copper flotation circuit, however, the quantity of flotation cells and the collector used are different. The reagents used for lead flotation include:

- Aerophine 3418A (dialkyl dithiophosphinate collector for lead)
- Zinc sulphate (sphalerite depressant)
- SMBS (iron sulphide depressant)
- Lime (pH control)
- CMC (talc depressant)
- MIBC (frother).

Prior to lead rougher flotation, the feed slurry will be conditioned with the aforementioned reagents in two tanks in series. The lead circuit consists of rougher flotation, rougher concentrate regrinding to P₈₀ 75 µm, rougher-scavenger flotation, and two-stage cleaner flotation. The product from the lead cleaner flotation circuit will be the final lead concentrate. The lead rougher-scavenger flotation tailings will be pumped to feed the zinc flotation circuit.

The zinc flotation circuit is similar to the copper and lead flotation circuits, however, the quantity of flotation cells and some of the reagents used are different. Lead rougher-scavenger flotation tailings will be thickened prior to being pumped to the zinc flotation circuit. The reagents used for zinc flotation include:

- AERO 208 or A208 (dialkyl dithiophosphate collector for zinc)
- Copper sulphate (sphalerite activator)
- Lime (pH regulator)
- MIBC (frother)

Prior to zinc rougher flotation, the feed slurry will be conditioned with the aforementioned reagents in two tanks in series. The zinc circuit consists of rougher flotation, rougher concentrate regrinding to P₈₀ 75 µm, rougher-scavenger flotation, and two-stage cleaner flotation. The product from the zinc cleaner flotation circuit will be the final zinc concentrate. Zinc rougher-scavenger flotation tailings will be pumped to tailings dewatering for disposal.

14.1.3 Thickening and Filtration

Thickening and filtration will be performed on flotation concentrates and tailings. Three concentrates (copper, lead, and zinc) will be produced, with each thickened and filtered separately. Tailings generated from flotation will consist of talc concentrate and sulphide flotation tailings, which are also thickened separately, then combined and filtered.

The copper, lead, and zinc concentrate slurries will be pumped to storage tanks feeding pressure filters dedicated to each concentrate, which will reduce the moisture to approximately 10%. The filtered copper, lead, and zinc





concentrates will fall by gravity into segregated covered storage areas. The copper and zinc concentrates will be reclaimed by front end loader and loaded into trucks for shipping. Lead concentrate will be reclaimed by front end loader and loaded into containers for shipping. All filtrates will be recovered for re-use in their respective flotation circuits. Excess filtrate and concentrate thickener overflow will be discharged to an engineered wetland treatment system and can then be recycled to the processing plant as make-up water as required or discharged.

Sulphide flotation tailings will be thickened and filtered in three pressure filters and combined with filtered talc concentrate prior to disposal. The sulphide flotation tailings thickener underflow will be filtered to produce a filter cake with approximately 10% moisture that is suitable for dry stacking in two stockpiles (capacity of approximately 5,200 t each). This stockpiled material will be recovered by front end loader and loaded into trucks for transport to the dry stack tailings dump or the paste backfill plant. Filtrates from the pressure filters will be pumped to a recovered water pond and reclaimed for return to the process.

14.1.4 Backfill

The backfill plant of the Project will serve the Arex, Link, and Ambrex mines. Talc concentrate will be combined with flotation tailings and mixed with cement to produce a paste backfill with approximately 76% solids by mass. Backfill will be provided to the underground mines as required.

14.1.5 Recovered and Make-Up Water Systems

The water system is designed to maximize water recovery and recirculation. Water from tailings thickener overflow and tailings filtration will be pumped to a recovered water pond with a two-day retention capacity. After treatment with hydrogen peroxide, the water is pumped to a 600 m³ recovered water tank, which will receive make-up water as required.

Make-up water will be collected from a storage pond close to the processing facilities and will be pumped to a 400 m³ make-up water tank. This water will be used as make-up for recovered water and for specific uses including feed for the water treatment station, pump seal water, fire suppression, vacuum pump seal water, reagent preparation, potable water, and feed to various points in the plant circuit.

14.1.6 Reagent Preparation

14.1.6.1 AERO 3894

AERO 3894 will be supplied as a liquid product at 100% concentration in sealed 200 L drums. The solution from the drums will be transferred to a storage tank and distributed without dilution to talc and copper flotation.

14.1.6.2 AEROPHINE 3418A and AERO 208

AEROPHINE 3418A and AERO 208 will be supplied as liquid products at 100% concentration in sealed 200 L drums and will have identical preparation systems. Solutions will be transferred to storage tanks and distributed without dilution to lead and zinc flotation.

14.1.6.3 Sodium Metabisulphite

SMBS will be supplied in one metric tonne bags and delivered to a storage hopper. A screw feeder will transfer the material from the storage hopper to an agitated mix tank where the SMBS will be dissolved in water to reach a concentration of 5% w/w. The solution will be transferred to a storage tank and pumped at required dosages to talc, copper, and lead flotation.

14.1.6.4 Copper Sulphate

Copper sulphate will be supplied in one metric tonne bags and delivered to a storage hopper. A screw feeder will transfer copper sulphate from the storage hopper to an agitated mix tank where the copper sulphate will be dissolved





in water to reach a concentration of 5% w/w. The solution will be transferred to a storage tank and pumped at required dosages to zinc flotation.

14.1.6.5 Zinc Sulphate

Zinc sulphate will be supplied in one metric tonne bags and delivered to a storage hopper. A screw feeder will transfer the material from the storage hopper to an agitated mix tank, where the copper sulphate will be dissolved in water to reach a concentration of 10%. The solution will be transferred to a storage tank and pumped at required dosages to copper and lead flotation.

14.1.6.6 Methyl Isobutyl Carbinol

MIBC will be supplied in liquid form at 100% concentration in sealed 200 L drums. The frothing agent will be transferred by pump to storage and then distribution tanks. The frother will be added in separate lines to various flotation stages. MIBC will be added to maintain froth stability as required in all flotation stages.

14.1.6.7 Carboxymethyl Cellulose

CMC will be supplied in 500 kg bags and delivered to a storage hopper. A screw feeder will transfer the material from the storage hopper to an agitated mix tank where it will be dissolved in water to reach a concentration of 2% w/w. The solution will be transferred to a storage tank and pumped at required dosages to talc, copper, and lead flotation.

14.1.6.8 Hydrated Lime

Hydrated lime will be supplied in bulk by truck and pneumatically transferred to storage silo. The silo will be vented through a de-dusting system comprised of exhaust fan and bag filter that will capture dust generated during the transfer process. Lime will be transferred to a covered mixing tank using a rotary valve and screw feeder, then mixed with water to prepare a concentrated slurry containing 5% w/w. Lime slurry will be pumped to a lime loop and delivered to various process stages at required dosages to control circuit pH.

14.1.6.9 Cement

Cement will be supplied in bulk by truck and pneumatically transferred to storage silos. The silos will be vented through de-dusting systems comprised of exhaust fans and bag filters that will capture dust generated during the transfer process. Cement will be transferred using a rotary valve and screw feeder to a backfill re-slurrying tank and delivered to an agitated slurry mix tank. Backfill slurry will be pumped to the mine via a pipeline along the access road from the plant to the mine.

14.1.6.10 Flocculant (BASF Magnafloc 10)

Flocculant will be supplied as a solid and delivered in 25 kg sealed bags and transferred to a storage hopper. Material will be transferred from the storage hopper by screw feeder to an agitated tank and a 0.25% w/w suspension will be prepared. The prepared solution will be pumped to a storage tank and distributed to the thickeners.

14.1.7 Compressed Air Systems

A dedicated compressed air system will be provided for the pressure filters for each type of concentrate. One or more compressors, with a stand-by unit, will be available for each filtration system. These compressors will be screw type, air cooled, oil free, and at a pressure of 7.0 kg/cm².

An exclusive small-size compressor will be installed, without a standby unit, to generate dry, oil free air for the laboratory.

Screw compressors will be installed, with one standby unit, to generate dry oil free air for the beneficiation plant and workshop service and instrumentation air.





Dedicated blowers will be installed, with one standby unit, to generate low pressure, oil free air (approximately 0.4 kg/cm²) for flotation (tank cells).

14.1.8 Dust Suppression System

The dust suppression system for primary crushing and the crushed ore storage silos will consist of a central unit with air extraction and filtration systems, as well as piping and spray nozzles for water suppression of dust at conveyor transfer points.

14.1.9 Drainage

A drainage system has been devised throughout the operational area, to capture and contain the following:

- Process area spillage - restricted to process facility buildings. The aim is to contain discharges and overflows that may occur during processing. The effluent will be contained by bunded containment areas, collected in sumps, and returned to the production process.
- Industrial spillage - restricted to areas within the industrial unit and entrance gate areas, which may result from pipe failures or accidental discharges and other spillage. This collection system will be routed to the emergency drainage and/or effluent treatment station. A water, oil, and grease separation system will be installed in the workshop and in areas with industrial effluents.
- Rain - aimed at collecting rainwater in areas without risk of contamination, which can be disposed of in the hydrographic network without treatment.
- Emergency drainage - aimed at controlling emergency situations related to liquid effluents and industrial spillage and installed in appropriate locations so as to prevent pollution of the local drainage network.

14.1.10Effluent Treatment

All effluent (process, stockpile drainage, and precipitation) will be directed to engineered wetlands for passive treatment prior to discharging the water to the receiving environment.

14.2 Labour

Process plant personnel were estimated to be 171 people, including plant management, metallurgical staff, supervisors and operators, and maintenance personnel.





15.0 INFRASTRUCTURE

15.1 Planned Infrastructure

The planned infrastructure at the Project includes:

- Dry stack tailings storage facility (TSF)
- Power supply
- Water storage dam
- Access and site road
- Maintenance shops
- Fuel storage

15.2 Waste Management

The overall waste management strategy for the Project is largely taken from reports by SNC Lavalin (2020a and 2020b). This follows previous work by Worley Parsons (2017a and 2017b). The current waste management strategy includes the following aspects:

- Production of tailings generated by the processing of zinc, lead, and copper from underground mining at the Project.
- Adoption of dry stack (filtered) tailings for surface disposal and cemented paste backfill for underground disposal.
- Tailings production for surface disposal over 13 years is estimated at a total of 6.34 million cubic metres (Mm³) with 4.49 Mm³ in the dry season and 1.87 Mm³ in the wet season.
- Waste rock production for surface disposal of 1.33 Mm³ over 13 years.
- A double lined tailings management facility (TMF) with associated surface runoff collection ponds and access roads.
- A double lined waste rock storage facility and associated surface runoff collection ponds and access roads.

15.3 Waste Production

15.3.1 Tailings Production

Approximately 6.3 Mm³ of tailings will require secure surface disposal over a period of 13 years. In accordance with a regulatory commitment, a minimum of 50% of the tailings must be disposed of in underground mine workings and plans for tailings disposal as cemented paste backfill have been considered. The tailings to be stored on surface will be in accordance with the filtered dry stack method of disposal. If properly filtered, tailings can be spread and compacted in lifts similar to typical earth embankment construction. A basic level design and management of the initial dry stack facility has been considered.

15.3.2 Tailings Properties

The tailings are prone to acid drainage and were classified as Class I according to the Brazilian waste classification standard NBR ABNT 10.004/2004. The technical standards that govern the disposal of Class 1 waste, specify the provision of a double liner system and the use of a leakage detection system. The design has therefore followed the guidelines of NBR 13,028 (ABNT, 2017) and NBR 10,157 (ABNT, 1987) which are for hazardous landfill projects.

A laboratory test program to determine the geotechnical properties of the tailings was also completed by Pattrol Investigacoes Geotecnicas Ltda. (2018). The specific gravity of the tailings samples was 2.9 g/cm³ to 3.2 g/cm³.





15.3.3 Tailings Management Facility Design

Twelve sites were considered by the proponent for above ground tailings deposition in a trade-off study. Option 10A, to the west of the proposed processing plant, is the preferred site for an initial TMF as shown in the site layout in Figure 15-1 (Stack 1 – “PDR 1”). Future tailings storage will be provided by Stack 4 which is to the southeast of the plant. The processing plant site would be centrally located with the Arex deposit to the north and the Ambrex deposit to the east. The water supply dam is located at the south end of the lease area. Excess waste rock will be disposed of to the southwest of the plant at Stack 2.1. Topsoil, excess waste rock, and waste soil will be stockpiled to the southwest of the water supply reservoir.

A plan view of the TMF is shown in Figure 15-2.





Figure 15-1: General Site Plan





Figure 15-2: TMF Stack 1 Plan View (End of Phase 3)





Stack 1 is designed for a total capacity of approximately 4.4 Mm³. The TMF will have a footprint of 25.5 hectares and a maximum height of 59 m. An average external slope of 3 (horizontal) to 1 (vertical) will be maintained with the facility constructed in 10 m high lifts, 7 m wide benches, and 2.3 (horizontal) to 1 (vertical) intermediate slopes. Access roads and ramps will have a minimum width of 10 m.

Stack 1 is located on local high ground with no upstream catchment area and therefore does not have diversion channels. A perimeter rectangular concrete channel will collect and drain runoff to two effluent management ponds (wetlands). The monitoring and instrumentation plan for Stack 1 will consist of the installation of water level meters, piezometers, survey monuments, and monitoring wells. Monitoring wells are mandatory for this type of landfill, according to NBR 10.157 (ABNT, 1987) and must be installed around the pile to check for possible contamination of groundwater in the region, especially in the event of a liner failure.

The foundation preparation and installation of the double lining system (as shown in Figure 15-3) will require the following activities:

- Foundation clearing and grubbing
- Removal of a minimum of 0.6 m of the foundation, this includes topsoil and colluvial layers.
- A 0.3 m thick compacted clay layer with a minimum permeability of 1x10⁻⁹ m/s.
- A 0.3 m thick sand leak detection layer with 0.1 m diameter perforated corrugated geotubes wrapped in a geotextile.
- A single side textured high density polyethylene (HDPE) 1.5 mm geomembrane (textured side up) covered with a 400 g/m² protection geotextile.
- A 0.9 m thick soil protection layer.
- Provision of an internal drainage system to prevent a water table within the stack.

Stack 1 will be developed in three phases. Tailings will be placed in layers of maximum thickness of 0.3 m loose, compacted to 95% of the standard Proctor density. The tailings compaction criteria are to ensure dilating behaviour (i.e., not susceptible to liquefaction). To place and compact the tailings during the wet season (six months), it is proposed to use temporary inflatable warehouses. This system has been used previously in Brazil for several engineering works. Tailings will be transported via trucks and the buckets will be covered in wet season to ensure no moisture is gained.

Geological-geotechnical investigations in the area of Stack 1 have been completed and included drilling, augering, Standard Penetration Tests, and percussive and trench surveys (GeoMaster 2016 and 2018). Laboratory testing of foundation soils have also been completed (GeoMaster 2016) and data used in the stability analyses of Stack 1 which has included both static and pseudo static analyses.

Closing of Stack 1 will include placement of a one metre thick clay soil cover layer, a 0.1 m thick organic soil layer, and hydroseeding to allow revegetation of the area at the end of mining.





Figure 15-3: Double Lining and Leak Detection System for TMF (Stack 1) and Waste Rock Facility (Stack 2)





15.3.4 Waste Rock Storage Facility Design

Waste rock production that requires surface disposal is approximately 1.32 Mm³. A dedicated waste rock facility (WRF) at Stack 2 will receive mining waste rock which is classified as Class IIA waste, by NBR 10.004 (ABNT, 2004). However, due to the uncertainties inherent to the tests carried out for the classification of the material, the waste rock was classified as Class I. Class I waste is required to meet the guidelines proposed by NBR 10.157 (ABNT, 1987), which establishes the criteria for the design, construction, and operation of hazardous waste landfills. The waste rock stack design is therefore similar to the TMF and includes:

- A double lining system with leak detection.
- Perimeter surface canals that collect and drain runoff to an effluent management pond (wetland).
- Hydrogeological monitoring and groundwater and surface monitoring wells around Stack 2.
- Closing the facility with a clay soil cover layer and surface drainage system to allow revegetation of the area at the end of mining.

15.4 Water Collection and Treatment

Due to the high flow rates and expected low concentrations of dissolved metals, water collection and treatment will be carried out using engineered wetlands. Separate facilities will be developed for process water recovered from the plant and for runoff from stockpiles (ore, waste, and dry stacked tailings) and access roads.

The wetlands will treat and discharge water in a controlled manner. The engineered wetlands consist of a solids sedimentation pond, with aerobic and anaerobic passive systems for organic/metals removal and pH adjustment (Figure 15-4).



Figure 15-4: Engineered Wetlands Concept

Figure 15-5 shows a general arrangement of the Aripuanã Wetlands, with the TMF in the foreground, the WRF on the right, and the processing plant area in the background.





Figure 15-5: Aripuanã Wetland Water Treatment

15.5 Power Supply

Electrical power will be provided by SE Juina (National Energy System) through private installations of UHE Dardanelos, where the connection to the Nexa bay will be at 230kV. A 20km long transmission line will connect the Dardanelos substation to the Project's main substation at the mine site. Nexa obtained authorization for the connection from the Ministry of Mines and Energy, and in 2019 obtained the access permit provided by Operador Nacional do Sistema Elétrico (ONS), and subsequently obtained authorization to connect to the national grid from the Agência Nacional de Energia Elétrica (ANEEL). Nexa is in the process of signing the Transmission System Connection Agreement (Contrato de Conexão ao Sistema de Transmissão, or CCT) with Empresa Brasileira de Transmissão de Energia S.A. (EBTE), which is responsible for SE Juina..

15.6 Water Supply

The Project water balance requires a top-up of fresh water supply of approximately 150 m³/h.

Nexa has undertaken a water supply engineering study based on the construction of a water dam and creation of a freshwater lake in a valley adjacent to the Project site (see Figure 15-1).

Nexa has obtained authorization from the regional authority to construct the dam and to draw up to 378 m³/h of fresh water from the dam to supply the Project.

15.7 Site Access

The Project is located 25 km from the city of Aripuanã (population 17,000) and can be accessed by 935 km of paved roads from Cuiaba, the capital city of the state of Mato Grosso. The city of Aripuanã has an airport with a paved runway, which supports small aircraft. Aripuanã is connected to the national highway system by dirt roads of average quality. Vegetation to the sides of the access roads is dense but has been cleared in nearby areas which are mainly used for agriculture.





16.0 MARKET STUDIES

16.1 Markets

The principal commodities that will be produced at the Aripuanã Project – zinc, lead, copper, silver, and gold – are freely traded at prices and terms that are widely known so that prospects for sale of any production are virtually assured. Zinc and copper represent 69% of Aripuanã’s gross revenue, while lead, silver, and gold contribute 31% of the revenue. Approximately 54% of Aripuanã zinc concentrate will be processed at Nexa’s Três Marias and Juiz de Fora zinc refineries in Brazil based on the current LOM plan, although this may change based on the availability of concentrates on the open market in the future. The remainder will be sold on the open market. Lead and copper concentrates will also be sold on the open market. Sales contracts for the concentrates from the Project have not been negotiated yet, however, SLR has reviewed the concentrate terms provided by Nexa (based on its other polymetallic operations in South America) and found them to be consistent with current industry norms.

Market information for this section comes from the industry scenario analysis prepared by Nexa’s Market Intelligence team in July 2020 based on information sourced from different banks and independent financial institutions, economy and politics research groups, and metals consultants.

Nexa’s Market Intelligence team notes that the industry has progressed from volatile markets in 2019 due to US/China trade wars, Brexit, and developing economies slowing down, to more uncertainty in 2020 due to the COVID-19 pandemic, a plunging global economy, the oil crisis, and the US elections. All these factors have affected the market fundamentals.

The SLR QP has reviewed the market studies and analyses and the results support the assumptions in the Technical Report Summary.

16.1.1 Zinc

16.1.1.1 Demand

The major market drivers for zinc demand are construction and infrastructure, transportation and vehicles production, industrial machinery production, batteries, and renewable energy. All these industries have been affected by the COVID-19 pandemic which has caused the global economy to slow down. As a result, zinc metal demand has also decreased in 2020 by approximately 6% compared to 2019.

Nexa’s Market Intelligence team examined several scenarios for demand recovery and future growth and settled on a base case that forecasts pre-COVID-19 levels of demand in the second half of 2022, with a demand compound annual growth rate (CAGR) of approximately 1.3% from 2023 to 2025.

16.1.1.2 Supply

Nexa’s Market Intelligence team’s supply forecast analysis was based on the following industry information: zinc mine start-up and closure, mine production guidance, disruption allowance evaluation, project pipeline, and cost evaluation. Nexa’s analysis results are summarized as follows:

- Project Pipeline: The analysis considered greenfield and brownfield projects forecast to begin production between 2021 and 2025.
- Zinc concentrate production evolution - Global: Zinc mines have been affected by the COVID-19 pandemic, with companies reducing investments and closing operations. This scenario, associated with the fact that there are few zinc projects in the pipeline, is expected to result in limited zinc supply in the long term.
- China concentrate evolution: Although Chinese concentrate supply is projected to increase through the 2021 to 2025 cycle, China showed marginal increments in production in 2020, which led the country to import a significant amount of zinc raw material. The growth perspective significantly depends on the ability of China’s small mines to survive amid volatile market conditions and strong environmental scrutiny by the Chinese government.





· Zinc Global Market Balance: Based on the above considerations, Nexa has forecast a surplus in the market in 2020 and 2021, with a more robust demand growth to be observed from 2022 onwards. From 2024 onwards, the global demand will exceed zinc supply, resulting in a market deficit.

16.1.1.3 Zinc Price Outlook

Zinc prices depend mainly on variations in supply, demand, and the perceived supply/demand balance. The most commonly referenced currency for zinc transactions is US dollars. Nexa’s Market Intelligence team forecasts stressed zinc prices in 2021 and 2022, with a potential price increase to greater than \$2,700/t, starting in 2024 to 2025. Figure 16-1 shows the results of Nexa’s analysis.



Nexa, 2020a

Figure 16-1: Zinc Price Outlook (2020 to 2025)

16.1.2 Copper

16.1.2.1 Demand

The major market drivers for copper demand are power generation and transmission, construction, factory equipment, and the electronics industry. The COVID-19 pandemic affected copper demand in 2020, which increased 1.3% in 2020 compared to 2019, according to independent estimates. In Nexa’s view, the crisis related to the COVID-19 pandemic may also impact demand in the years ahead. However, positive contribution of global trends such as electric vehicles, renewable energy, and urbanization, may contribute to copper demand in the long term.

16.1.2.2 Supply

Nexa’s Market Intelligence team’s supply forecast analysis was based on the following industry information: copper mine start-up and closure, mine production guidance, project pipeline, and cost evaluation for 2020 onwards. Nexa’s forecast analysis results are summarized as follows:



· Project Pipeline: There are few projects in the pipeline, mainly because there are fewer opportunities in mining-friendly jurisdictions.



- Copper concentrate (sulphide) production evolution: Nexa considers that the majority of the production will come from sulphide mines. Nexa forecasts a concentrate production CAGR increase of 4.2% between 2020 and 2025. The increase in supply results from the ramp-up of brownfield projects.
- Copper SXEW (oxide) production evolution: Nexa forecasts a downward trend for SXEW production. Based on Nexa's analysis, the concentrate production CAGR will decrease by 2.7% between 2020 and 2025, as a result of mine closures and reductions in production.
- Refined Copper Market Balance: the copper market has been in deficit for the last three years, leading to lower stocks. Despite this, prices were lower from mid-2018 to mid-2020 mainly due to the trade war between the USA and China, and the COVID-19 pandemic outbreak in 2020. Based on the above production assumptions, Nexa forecast a copper market balance in 2020, with the market driving to a deficit from 2023 onwards, when the global copper demand will surpass the copper supply (Figure 16-2).



Nexa, 2020a

Figure 16-2: Refined Copper Market Balance (2020 to 2025)

16.1.2.3 Copper Price Outlook

The main factors that drive copper prices are variations in supply, demand, and the perceived supply/demand balance. Nexa forecasts stressed copper prices between 2021 and 2024, with a potential price increase to higher than \$6,500/t from 2024 onwards, and a long term price of \$6,627/t. Figure 16-3 show the results of Nexa's analysis.





Nexa, 2020a

Figure 16-3: Copper Price Outlook (2020 to 2025)

16.1.3 Lead, Silver, and Gold

Lead , silver, and gold in conjunction represent 31% of Aripuanã’s gross revenue. Given their impact on the Aripuanã revenue mix, Nexa has based its lead and silver price forecast solely on consensus prices and correlation analysis published by metal market analysts and financial institutions.

16.1.3.1 Lead Price Outlook

Lead represents 19% of Aripuanã’s gross revenue. Nexa’s lead prices were chosen considering a spread applied on the zinc prices curve. These spreads are commonly used and monitored by the market, based on a strong correlation between the two metals. For the cycle 2021 to 2025 a growing spread between US\$ 350/t Pb to US\$ 700/t Pb was considered. Nexa forecasts increasing lead prices between 2021 and 2025 (between US\$ 1,869/t Pb and US\$ 2,247/t Pb), and a lower long term price of US\$ 1,910/t Pb. Figure 16-4 presents the results of Nexa’s lead analysis.





Figure 16-4: Lead Price Outlook (2020-2025)

16.1.3.2 Silver and Gold Price Outlook

Silver and gold represent 9% and 6% of Aripuanã’s gross revenue, respectively. Nexa’s silver and gold prices were chosen based on the median of consensus prices published by banks and institutions on a monthly basis.

Nexa forecasts a declining silver price between 2021 and 2025 (between US\$ 17.30/oz Ag and US\$ 16.40/oz Ag), with a potential long term price increase to US\$ 16.87/oz Ag after year 2025. For gold, Nexa forecasts declining prices between 2021 and 2025 (between US\$ 1,901/oz Au and US\$ 1,466/oz Au), with a potential long term price increase to US\$ 1,500/oz Au after year 2025. The silver and gold forecast curves in Figure 16-5 and Figure 16-6, respectively, present the median silver and gold prices considering 23 different institutional sources.





Figure 16-5: Silver Price Outlook (2020-2025)



Figure 16-6: Gold Price Outlook (2020-2025)





16.2 Contracts

No contracts for operations have been negotiated yet.



Nexa Resources S.A. | Aripuanã Zinc Project, SLR Project No: 233.03252.R0000
Technical Report Summary - January 15, 2021



17.0 ENVIRONMENTAL STUDIES, PERMITTING, AND PLANS, NEGOTIATIONS, OR AGREEMENTS WITH LOCAL INDIVIDUALS OR GROUPS

17.1 Environmental Setting

The surface components of the Aripuanã Project are located approximately 25 km northwest of the municipality of Aripuanã, in the northwestern corner of the Mato Grosso State, Brazil, approximately 1,200 km northwest from Brasília, the federal capital.

Nexa commenced construction of the Project in July 2019 and has progressed with the development of surface infrastructure, with the completion of the surface ramp to underground workings completed in 2019. This allowed for the construction of the ventilation raise, continued development of the exploration drift in the mineralized zone, and the commissioning of the plan to supply provisional power, as reported in the 2019 Nexa annual report. Nexa has further indicated in email communication that underground paste fill is in progress, construction of administrative buildings has started, and progress has been made on the ore processing plant construction. In addition, completion of the water supply dam development is planned for 2020.

Key aspects of the environmental setting include (GeoMinAs 2017, RPA 2017 and SETE 2018):

- **Topography:** The Project area is located within an area called Depressão Amazonica Meridional (RADAM Brasil 1982) and the Depressão Norte do Mato Grosso (Seplan 1999). This depression includes the drainage network of the Aripuanã River and Tenente Marques River. The area is hilly with elevations from 129 MASL to 361 MASL and a general northwest-southeast direction.
- **Climate:** According to the Köppen-Geiger climate classification, the climate in Aripuanã is AM – a Monsoon tropical, megathermal with temperatures in the coolest months above 18°C, with no winter season. Annual precipitation is above 2,000 mm, concentrated in the warmer months, and averages below 600 mm in the driest months.

In the Aripuanã River basin regimen follows the precipitation pattern, with the wet season spanning from November until May. Low flows start in June and end in October. The minimum flows are observed in September and October.

- **Air quality:** Baseline dust monitoring results were below the national standards. Potential sensitive receptors who could be impacted by Project activities were not specifically identified in the Environmental Impact Assessment (EIA) baseline discussion, although the Project's direct and indirect areas of influence were mapped.
- **Geology and potential for acid generation:** The polymetallic deposit of Aripuanã lies in the south-central part of the Amazonian Cráton. The lithological units are represented by the rocks of the Roosevelt Group, the Serra da Providência Granites, in addition to the Caiabís Group.

Laboratory tests have been conducted at several stages of the Project development to determine if there is potential for the mine to generate acid leachate. These tests included static and kinetic testing on ore samples, waste rock or sterile rock samples and tailings. The results show that some waste rock lithologies have the potential to generate acidity due to the oxidation of sulphides and the low presence of neutralizing components. The tailings samples showed a low to zero acidification potential. The paste fill material will not generate acid and is expected to act as a neutralizing material.

Leachate testing showed that the main components above regulatory values (Regulation 357/05, Class II, for materials classified as solid waste according to the Brazilian standard NBR 10004) were aluminum, lead, copper, iron, manganese, and zinc. Solubilized metals were determined to be of natural origin and, like copper and lead, associated with local mineralization, and consistent with the background values of water quality. In tailings, lead was also a component in metal solubilization.

- **Surface water:** The Project area has two creeks, Arrainha Creek and Maranhão Creek, both of which are tributaries of Guaribal Creek, which is a tributary of the Aripuanã River, which drains part of the extreme northwest of the state of Mato Grosso and belongs to the Amazon River basin.





Regarding the surface water quality, due to the geological conditions in the region, metals which presented concentrations above the detection limit are: aluminum, dissolved iron, manganese, barium, and zinc. These are part of the rock composition in the area and do not indicate contamination or pollution.

The 2017 EIA reported August and April 2008 and December 2011 monitoring data. The monitoring data reported in the 2017 EIA was classified according to a Water Quality Index in accordance with the methodology of the National Sanitation Foundation of the United States. The water quality ranged from average in the wetter months to good in the drier months. This was assigned to high volume precipitation events in the wet season causing sediment loading.

In August 2008, the parameters which did not meet the limits established by the Ministry of Environment (CONAMA) Resolution No. 357/05 for Class II water bodies were: phosphorus (all sampling locations, except one), dissolved iron (two locations) and manganese (one location). In April 2008, the parameters were: turbidity (one location), dissolved oxygen (one location), phosphorus (all), dissolved iron (all), dissolved aluminum (two locations), manganese (five locations) and Escherichia coli (three locations). In December 2011, the parameters were: Biological Oxygen Demand (one location), total phosphorus (four locations), dissolved iron (one location), manganese (two locations), and E. coli.

Third-party water users were not specifically identified in the EIA baseline discussion, although the Project's direct and indirect areas of influence were mapped.

• **Groundwater:** The Project area is underlain by poor aquifer zones and non-aquifer zones (geology offers very low conditions of storability and transmissivity of groundwater). The 2017 EIA did not include information on the depth of groundwater nor any hydrocensus exercises to identify third-party groundwater users. One spring was monitored as part of the surface water quality study. Water quality in this spring showed E. coli levels above national standards but the EIA noted that the spring is used by wildlife. All other water quality parameters were reported to be within the applicable national standards (CONAMA Resolution 396/2008). As previously mentioned, third-party water users were not specifically identified in the EIA baseline discussion, although the Project's direct and indirect areas of influence were mapped.

• **Biodiversity:** The Project is located in the Amazon Biome, within the South-Amazonian Ecotone Corridor. In terms of habitat, the planned infrastructure will be located mainly in rainforest with palm trees. Other habitats to be impacted to a lesser degree include rainforest with Justaconta, secondary forest previously impacted by anthropogenic activities, planted pasture, degraded pastureland and areas degraded by artisanal mining activities.

Infrastructure will be placed within 76 ha of Permanent Preservation Areas protected by federal law (No. 12,651/2012). This Permanent Preservation Area is a protected area, which may not necessarily have native vegetation, with the environmental function of preserving water resources, landscape, geological stability and biodiversity, soils and ensure the well-being of human populations. A specific resolution does, however, allow development in exceptional cases for low environmental impact activities in the Permanent Preservation Area.

The floristic surveys showed the occurrence of eight species falling into some category of vulnerability to extinction, four of which were vulnerable, two threatened and two considered deficient in data. These include Euterpe edulis (jussara palm tree), Cordia goeldiana (Freijo tree), Hymenaea courbaril (a common hardwood tree), Aniba rosaeodora (pau-rosa tree in the Magnolia family), Bertholletia excelsa (Brazilian nut tree), Virola bicuhyba (known as the epená, patricá, or cumala tree), Manilkara cavalcantei and Manilkara elata (no common names provided). It was also noted that the Brazilian nut tree species and rubber tree are protected by local law.

The Amazon biome is an important area of endemism for fauna, with a wide variety of food resources and diversity of habitats available in the study area. Fauna surveys identified four bird species that fall into some degree of threat of extinction, they are: Tinamus Tao (Azulone), Harpyja (hawk) and Hypocnemis ochrogyna (ocriceous singer) classified as Vulnerable (VU) at national level and Cherrie's Synallaxis (puruchém) classified as Near Threatened (QA) at the global level (International Union for Conservation of Nature (IUCN), 2017 as cited in GeoMinAs, 2017). Records of some species considered by CITES for the area were also obtained, including the aforementioned Harpyja harpyja (hawk) and Ara macao (Red Macaw). The





Project area has a high diversity of mammal species. Fourteen species are endemic (specific) to the Amazon biome, such as *Mazama nemorivaga* (deer- fuboca), *Dasyprocta fuliginosa* (black agoutis), and the eight primates, *Alouatta puruensis* (guariba), *Ateles chamek* (spider monkey), *Aotus infulatus* (night monkey), *Lagothrix cane* (pot-bellied monkey), *Sapajus apella* (capuchin monkey), *Chiropotes albinasus* (cuxiú), *Cebus unicolor* (cairara) and *Mico intermedius* (sagui-do-rio-Aripuanã). Eight species fall into some national or IUCN category: pot-bellied monkey, spider monkey, cuxiú, *Priodontes maximus* (tatu-canastra), *Tapirus terrestris* (tapir), *Puma concolor* (jaguar), *Tayassu pecari* (pecari), *Otter longicaudis* (otter). When considering herpetofauna, the yellow tortoise *Chelonoidis denticulatus* is a species classified as Vulnerable by the IUCN.

Further afield, there are two conservation areas in the municipality located 100 km to 200 km to the north from the Project: Estação Ecológica Rio Flor do Prado, with an area of 9 ha, and Reserva Extrativista Guariba Roosevelt, with an area of approximately 165 ha.

- **Land use:** The Project area is located on the left banks of Rio Guaribal Creek and right banks of the Roosevelt River. Nexa informed SLR through email communication that the area consists of pastures, managed or unmanaged forests, regenerating forests, and degraded pastures.
- **Noise:** Baseline noise monitoring results were below the national standards. Potential sensitive receptors who could be impacted by Project activities were not specifically identified in the EIA baseline discussion, although the Project's direct and indirect areas of influence were mapped.

17.2 Corporate Policy and Commitments

Nexa does not have an Environmental Policy for the Project. According to Nexa's website and the 2019 Nexa annual report, the Company identifies and manages the main risks from both an operational and a strategic point of view, reducing and mitigating impacts to maintain business sustainability. The Company has an integrated management system that establishes the guidelines that govern the conduct of the businesses, with a focus on quality management of environmental, health and workplace safety and social responsibility issues. In addition, the Company follows applicable environmental laws and regulations pertaining to its business in each country where it operates (Nexa, 2019).

Nexa has stated the following environmental goals in its 2020 annual report:

- 75% of recirculation and lower specific use of water.
- Reduce the specific emission of greenhouse gases by 5 %.
- Decrease the disposal of tailings in dams and reduction by 50 % in the specific generation of mining and smelting waste.
- Ensure that 100 % of the units have a pre-prepared future-use alternative study and an updated decommissioning plan, in line with the sector's benchmark standards.

17.3 Environmental Studies

17.3.1 Project Environmental Impact Assessment and Approval

The environmental licensing process for the Project started in 2008 following the Terms of Reference (ToR) (Ofício nº 20084/CM/SUIMIS/2008) issued by Mato Grosso environmental agency (SEMA/MT). For strategic reasons, the process was put on hold and the field activities performed in 2008 were consolidated into a document in the format of a "Diagnosis of an EIA - Environmental Impact Assessment of the Project" (EIA). In 2012, a new ToR was requested (Ofício nº 85522/CM/SUIMIS/2012), and many of the studies performed as a result were consolidated into a comprehensive EIA. The EIA was completed in 2012, however, it was not filed with the authorities due to low commodity prices at that time. In 2014, with zinc prices increasing, the EIA was filed. Taking into account further exploration on the property, increased production levels were presented in 2015 with productions increasing from 1.2 Mtpa to 1.8 Mtpa. The Mato Grosso environmental agency performed many inspections and the Public Hearing was held on August 26, 2015. During 2015 and 2016, the permitting process was analyzed by the agency, however, due to changes in the engineering process, the analyses were put on hold until all changes were performed. There were





also updates in the biotic media campaigns and the inclusion of the noise and vibration studies. The Project EIA was finalized in 2017 by Geologica Mineração e Assessoria Ltda (GeoMinAs). This is the most recent EIA and the environmental review has been based mainly on this EIA.

17.3.2 Identification of Project-Specific Environmental Baseline Conditions, Risks, and Impacts

Key baseline information is summarized in the Environmental Setting section at the beginning of this section. Comprehensive baseline studies were conducted by specialists in their field as part of the 2017 EIA, which included desktop data collection and review and fieldwork sampling. Sampling results were compared to national standards as relevant, for example air quality results were compared to the national dust concentration standards. The EIA described the methods of data and sample collection, data analysis and references used.

Project impacts were identified in the 2017 EIA by analyzing the planned Project activities and tasks, taking into account location and the environmental setting, for the Project stages, i.e., planning, implementation, operation, and deactivation. Each potential impact was evaluated considering nature (positive or negative), reversibility, incidence (direct versus indirect impacts), spatial scale, magnitude, and duration. Cumulative impacts were considered. Table 17-1 lists the identified environmental impacts and associated management measures or plans to mitigate the impact. Social impacts are discussed separately in the Social or Community Requirements section.

Table 17-1: Environmental Impacts and Management Measures (GeoMinAs, 2017)
Nexa Resources S.A. - Aripuanã Zinc Project

Impact Identified	Management Measures/Programs
Air quality impact due to particulate material generation and combustion gases	· Program of Control and Monitoring of Atmospheric Emissions. · Monitoring Program of Air Quality and Meteorology
Noise generation	· Preventive maintenance of vehicles, machinery, and equipment. · Noise Control and Monitoring Program.
Vibration generated by blasting activities	· Vibration Control and Monitoring Program
Soil structure and erosion processes	· Recovery Plan for Degraded Areas · Control and Monitoring of Erosive Processes.
Silting of water bodies	· Surface and Groundwater Management Program · Recovery Plan for Degraded Areas · Control and Monitoring of Erosive Processes.
Impacts on the Arrainha and Maranhão Creeks due to the construction of the dam, the waste pile and recovered water pond	· Erosive Process Control and Monitoring Program · Surface and Groundwater Management Program.





Changes in the terrain and landscape

- Degraded Areas Recovery Plan
- Decommissioning Program of Site Structures.

Changes in the surface water and soil quality

- Solid Waste Management Program
- Liquid Effluent Management Program Erosive Process Control and Monitoring Program
- Surface and Groundwater Management Program
- Degraded Areas Recovery Plan
- Decommissioning Program of Site Structures
- Mining Mine Closure Plan.

Changes in the aquifer recharge rate
Interference in springs flow
Changes in groundwater flow

- Groundwater and Surface Water Dynamics Monitoring Program.

Changes in groundwater quality

- Surface and Groundwater Management Program
- Liquid Effluent Management Program.

Reduction of the open forest cover, with losses of flora and threatened flora

- Flora Rescue Program
- Degraded Areas Recovery Plan
- Program of Monitoring of Plant species and Wildlife Rescue
- Environmental Education Program.
- Compensatory measures: forest replacement in the Permanent Preservation Areas to be implemented under the Forest Connectivity Program, in addition to the Environmental Compensation Program.

Direct disturbance of 75.85 ha of Permanent Preservation Areas, designated protected areas (due to the establishment of the dam and drainage systems).
Reduction in the connectivity between native vegetation
Losses in vegetation cover in areas already impacted by human activities (pastures with some remnants of original vegetation)

Fauna displacement due to machines, vehicles and people movement and noise generation.

- Terrestrial Fauna Monitoring Program
- Program of Monitoring of Plant species and Wildlife Rescue
- Environmental Education Program.

Risk to fauna due to vehicles and hunting activities
Losses of fauna specimens due to loss of vegetation
Loss in mammals due to habitat loss, including endangered species





Changes in the fish populations due to changes in the surface water flow

- Erosive Process Control and Monitoring Program
- Surface and Groundwater Management Program
- Ichthyofauna Monitoring Subprogram.

Changes in the freshwater biota due water bodies silting

- Erosive Process Control and Monitoring Program
- Surface and Groundwater Management Program
- Degraded Areas Recovery Plan
- Herpetofauna Monitoring Subprogram
- Ichthyofauna Monitoring Subprogram
- Hydrobiological Communities Monitoring Subprogram

Changes in vectors such as insect populations

- Fauna Monitoring Program - Subprogram of Monitoring Entomofauna (Vectors)
- Health Support and Epidemiological Surveillance Program.
- Malaria Control Action Plan.

Change in hydrobiological communities resulting from water quality changes due to backfill activities underground and effluent generation in the sterile deposit, waste, and minerals (Acidic drainage)

- Water and Effluent Management Plan
- Surface and Groundwater Management Program
- Monitoring of Hydrobiological Communities Monitoring Subprogram

Nexa commissioned a Forest Management Plan which was completed in June 2018. This management plan was developed following the guidelines set out in the relevant legislation of the state of Mato Grosso and was required to allow the Project to proceed.

Nexa also commissioned an Environmental Control Plan which was compiled by Solucoes E Tecnologia Ambiental (SETE) in July 2018. This plan provides a detailed account of:

- The Project description
- The management plans as mentioned in Table 17-1, originating from the 2017 EIA
- Decommissioning plan
- Emergency response plan
- Monitoring plans

This plan provides detail in terms of aims and objectives, timing and responsibilities including any needed training and institutions to be involved. The objective of this plan was to meet regulatory requirements through submission to SEMA to obtain the Project Installation Licence. In the SLR QP’s opinion the proposed environmental management plans are adequate to address issues related to environmental compliance.

The 2017 EIA concludes that the most significant Project impacts are those that will directly and indirectly affect, synergistically and cumulatively, vegetation cover and soils in the Permanent Preservation Areas and water resources, as well as changes in fauna communities, both terrestrial and aquatic, highlighting the relevance of local biodiversity, with species of flora and fauna of the Amazon biome, including endangered species (GeoMinAs, 2017). Key





mitigation measures with regard to the Permanent Preservation Areas will be the implementation of a compensation plan and programs aimed at connectivity of habitat.

17.3.3 Monitoring Plans

The 2017 EIA provides some detail on monitoring plans. The 2018 Environmental Control Plan provides detail on the monitoring programs. This plan provides a list of specialists responsible for implementing the plan such as a biologist, agronomist, geologist and community and environmental educator. The monitoring plan covers:

- Air quality and meteorology
- Noise
- Vibration
- Geotechnical monitoring
- Water quality and effluent
- Erosion
- Groundwater and surface water (including linkages between surface and groundwater)
- Terrestrial flora
- Terrestrial fauna (birds, insects, amphibians and reptiles, mammals, bats)
- Aquatic biota (hydrobiological communities i.e. phytoplankton, zooplankton; and fish, including monitoring of trace metals in fish tissues)

In SLR's opinion, the monitoring plans are comprehensive and include goals of the monitoring, legal requirements, methods used for sample or data collection and data analysis, scheduling, technical team, areas, and indicators to be monitored and references. Each monitoring program also describes links to other management and monitoring plans and programs.

17.4 Emergency Preparedness and Response

A detailed risk assessment was conducted for the Project and included in the 2017 EIA. Ninety-one scenarios were identified which could result in accidents or events for which recommendations were made to mitigate or mitigate the risk. The environmental scenarios identified included spills or oil and grease and emission of combustion gases and inhalable particulates. These were assessed as having a low risk. The most significant health and safety risks identified were a potential failure of the water dam, fire or explosions in utility and reagent storage areas, general occurrence of accidents, and underground mine collapse or incidents.

The 2017 EIA included a Risk Management Program and the Emergency Response Plan. The Risk Management Plan aims to prevent the occurrence of accidents and, if they occur, minimize the impacts that may jeopardize the physical integrity of employees and/or the company's assets, as well as the safety of employees and the environment as a whole. The Emergency Response Plan defines the responsibilities, guidelines, and information aimed at the adoption of structured technical and administrative procedures, in order to provide the necessary conditions for the triggering of quick and efficient actions to be adopted when a risk scenario materializes, aiming to minimize possible damage to people, the environment, and property.

17.5 Mine Waste Management

17.5.1.1 Tailings and Waste Rock Management

Approximately 6.3 Mm³ of tailings will be produced and will require surface disposal over a period of 13 years with the remaining tailings applied as cemented paste backfill. In addition, approximately 1.3 Mm³ of waste rock will also be disposed of at surface. The tailings are prone to acid drainage and are classified as Class I according to the Brazilian waste classification standard NBR ABNT 10.004/2004. The waste rock is classified as Class IIA waste, however, due to the uncertainties inherent to the tests, a classification of Class I has also been adopted. Class I waste disposal must meet the guidelines proposed by NBR 10.157 (ABNT, 1987), which establishes the criteria for the design,





construction, and operation of hazardous waste landfills. A double lined storage facility with a leak detection system is therefore required for both the tailings and waste rock disposal.

The provisional design of a dedicated TMF has been completed. The tailings will be filtered to a relatively low moisture content for transport by truck and placed and compacted in thin lifts, similar to typical earth embankment construction. The tailings compaction criteria are to ensure dilating behaviour (i.e., not susceptible to liquefaction). The TMF is located to the west of the plant on local high ground with no upstream catchment. There is no surface tailings pond required with the use of filtered tailings. Surface runoff will be collected by a perimeter concrete channel and directed to two effluent storage ponds. Implementation of inflatable warehouses is proposed for use in the wet season to allow for the placement and compaction in dry conditions. Groundwater and surface water monitoring is required for the operating and closure phases of the Project. At closure, the TMF and WRF will be capped with a clay layer and vegetated. Runoff from the TMF will be directed to a wetland treatment system.

The following recommendations are proposed for the next phase of the design:

- Classify the TMF in terms of the Global Tailings Standard or the Canadian Dam Association. The classification may require more conservative design criteria in terms of flood management and seismic loading.
- Consider the stability assessment of the individual components of the double lined system and the interface between the components in the stability analyses. In particular, the interface between the smooth side of the geomembrane and the sand leakage detection layer.
- Complete a deformation analysis to determine if the long-term strain of the high density polyethylene geomembrane is within acceptable limits.
- Implement measures to control dust generation from the slopes of the TMF and internal access roads and ramps during the dry season.
- Implement requirements to allow the progressive rehabilitation of the slopes.
- Implement deposition planning for the wet season and the associated logistical requirements for the use and management of the inflatable warehouses.
- Investigate the extent of the colluvial layer within the foundation of the TMF to provide a more accurate estimate of the volume of material that must be removed.
- Complete an initial assessment of the stability of the capping clay layer on the intermediate bench slopes to determine if slope flattening is required for closure.
- Determine a source of clay with suitable quality for use as a lining and capping material.
- Complete a formal risk assessment.

17.6 Water Management

Preliminary characterization studies of acid rock drainage included collection of samples and laboratory static and kinetic testing of waste rock and tailings. The results of the tests indicate low acid generating potential. The paste fill material will not generate acid and is expected to act as a neutralizing material (GeoMinAs, 2017).

The water management strategy for the Project includes the implementation of the following main water management facilities:

- Freshwater supply dam
- Water recovery pond
- Wetlands

The freshwater dam (Figure 18-1) will be the source of make-up water for ore processing. The dam will be equipped with an emergency spillway to prevent dam overtopping. The water dam reservoir was designed to meet a demand for 150 m³/hr for the processing of ore in the industrial processing plant of the Project.





The water recovery pond located south of the processing plant area collects the underground mine dewatering and the surface water runoff collected in the processing plant area, the administration area, and the ore stockpile. Water from all these Project components is conveyed first to a wetland, and from the wetland to the water recovery pond.

The TMF and WRF are designed with a double lining system with leak detection that will minimize infiltration of water to the groundwater environment. The water management system has been conceptualized and designed to ensure that the surface drainage water and infiltration to the TMF and WRF will be directed to engineered wetlands (Figure 18-4) for passive treatment prior to discharging the water to the receiving environment. Two wetlands are proposed for the TMF and one wetland for the WRF. Surface runoff from the TMF and WRF is directed to a network of interception and conveyance channels that convey the flows to the wetlands. Rainfall that infiltrates the TMF and WRF footprints gets collected through an internal drain system to prevent accumulation inside the facilities and formation of saturated areas. The internal drains convey the flows to the wetlands.

The NBR 10.157 guidelines developed by the Brazilian Association of Technical Norms for hazardous waste were considered for design and environmental monitoring of the TMF and WRF. These guidelines recommend the installation of monitoring wells in sufficient number to monitor the water surrounding the structure.

Surface water and groundwater quality monitoring will be implemented for receiving water bodies to identify potential water contamination and implement corrective actions if needed. Compliance with water quality standards will be carried out according to CONAMA Resolution No. 357/2005 for surface water and CONAMA Resolution No. 396/2008 for groundwater. Environmental water quality compliance for the receiving environment will be tracked during the stages of construction, operation, and closure of the Project. The program proposed quarterly sampling at eleven surface water quality sampling locations, and six groundwater quality sampling locations. Quarterly and annual reports will be prepared documenting the results of the monitoring campaigns. The quarterly frequency and the suite of water quality parameters sampled will be reviewed after the initial year of monitoring (GeoMinAs, 2017).

Monitoring will allow the identification of possible deviations or lack of performance of the proposed treatment systems for operation and the implementation of adaptive management in order to correct potential issues identified and maintain environmental water quality compliance.

According to the Project Description in the EIA (GeoMinAs, 2017), there are no natural sources of water used for collection of water for human consumption in the surroundings of the Project area.

17.7 Project Permitting

Nexa maintains a list of permits for the Project along with any relevant expiry dates which was provided to SLR. These include installation and operating licences. Examples include installation of electricity distribution infrastructure and the mineral beneficiation plant, implementing a malaria control plan and roadworks. Nexa reports regularly to the environmental regulatory agency (SEMA) on compliance with conditions of Installation Licence No. 69614/2018 for the Project.

Nexa indicated that required permits are in place. The permitting list can be used to track the Projects legal obligations.

17.8 Social or Community Requirements

This section is guided by the S-K 1300 content requirements as well as the following IFC PS:

- **PS1: Social and Environmental Assessment and Management Systems** requires that companies identify, assess, and mitigate the social impacts and risks they generate throughout the lifecycle of their projects and operations. From a social perspective, the requirement includes: a comprehensive social assessment; identification of critical social impacts and risks; community consultation and engagement; information disclosure; mitigation plans to address impacts and risks; and development of an organizational structure with qualified staff and budgets to manage the overall social management system.
- **PS2: Labor and Working Conditions** incorporates the International Labor Organization conventions that seek to protect basic worker rights and promote effective worker/management relations.





- **PS4: Community Health and Safety** declares the project's duty to avoid or minimize risks and impacts to community health and safety and addresses priorities and measures to avoid and mitigate project related impacts and risks that might generate community exposure to risks of accidents and diseases.
- **PS5: Land Acquisition & Involuntary Resettlement** considers the need for land acquisition or involuntary resettlement of any individual, family, or group; including the potential for economic displacement.
- **PS7: Indigenous Peoples** considers the presence of Indigenous groups, communities or lands in the area that may be directly or indirectly affected by projects or operations.
- **PS8: Cultural Heritage.** This standard is based on the Convention on the Protection of the World Cultural and Natural Heritage. The objectives are to preserve and protect irreplaceable cultural heritage during a project's operations, whether or not it is legally protected or previously disturbed and promote the equitable sharing of benefits from the use of cultural heritage in business activities.

17.8.1 Social Setting

The developing mining Project is located approximately 20 km northwest from Aripuanã in the municipality of Aripuanã. This municipality was founded in 1943 and has a total area of approximately 25,048,965 km² with a population of 18,656 people and a population density of 0.74 inhabitants per square kilometre, according to the 2010 Census (Contexto Consultoria, 2018). The Brazilian Institute of Geography and Statistics (IBGE) website currently indicates that the population is approximately 22,714 people. The population is distributed in a greater proportion in the urban areas (62.6%). Within the municipal territory lies the Aripuanã and Arara Indigenous Lands of Rio Branco. The municipality includes the urban district of Conselvan, and four rural areas. The municipality is away from the main economical centres of the state (i.e., Cuiaba, Sinop, and Lucas do Rio Verde). Until 1995, there were gold and diamond artisanal mining activities in the area (RPA, 2017). Nexa has progressed with the development of infrastructure at the developing mine, with the completion of the surface ramp to underground workings completed in 2019.

Illegal mining or artisanal mining activities were detected by Nexa in October 2018 close to some of the mining rights and in the surrounding areas of the Project. According to a legal opinion dated July 17, 2020 provided by Nexa, the Company reported these activities promptly to the relevant authorities. In 2019 one of these artisanal mining activities persisted in the areas surrounding the Project and Nexa again reported it to the relevant authorities. In October 2019, a joint operation was carried out between state agencies to curb such illegal mining activities. Arrests, searches, and seizures were carried out and the artisanal miners were temporarily removed, with the destruction of part of the equipment used for illegal mining. However, once the police authorities left the area, illegal mining activities resumed again. In January 2020, Nexa was invited by the ANM's Conflict Resolution Advisory to participate in a meeting with representatives of the artisanal miners organized in a cooperative.

As a result of these negotiations an agreement with the artisanal miners cooperative was signed under the coordination of the ANM and establishes a consent from Nexa to the cooperative for them to use an area of 517 ha assigned by Nexa for artisanal mining activities, and be granted a specific permit called "Permissão de Lavra Garimpeira - PLG", for a period of two and a half years, which may be renewed for an equal period. The cooperative assumed the commitment to withdraw from all other areas where there were illegal mining activities surrounding the Project and to carry out their activity only in the assigned area upon the PLG and the applicable environmental permit. The agreement also establishes that all environmental damages arising from the artisanal mining activity in the assigned area will be the cooperative's responsibility, and Nexa is exempt from any environmental liabilities arising from their activities. The agreement was signed with the participation of the Mato Grosso's State Mining Company (Companhia Matogrossense de Mineração, METAMAT), as a representative of the State of Mato Grosso. The 517 ha area is a polygonal between the mining rights registered in ANM under numbers 867.381/1991, 866.565/1992, 866.051/2015 and 866.386/2003. The PLG granted to the artisanal miners is registered in the ANM under the number 866.390/2020. The assigned area has no interference with the mining concession area related to the Project, which is located in another mining right owned by Nexa. At the end of the PLG term, the area must be returned to Nexa. The agreement and PLG granted are exclusively for gold exploitation, no other mineral substance can be exploited by the cooperative.

The validity of this agreement is currently being discussed in a public civil action filed by the Federal Prosecutor. Nexa is taking all legal measures to ensure no impacts on Project implementation due to illegal mining activities.





17.8.2 Social and Environmental Assessment and Management Systems

17.8.2.1 Corporate Guidelines and Standards

At a corporate level, Nexa has adopted the guidelines of the International Integrated Reporting Council (IIRC) and the standards for the Global Reporting Index (GRI). The IIRC guidelines promote a cohesive and integrated approach to reporting on organizational activities. The GRI standards provide best practices for public reporting on economic, environmental, and social impacts in order to help Nexa and its shareholders and stakeholders understand their corporate contribution to sustainable development. These standards were reported on in the most recent Nexa Resources Annual Report (Nexa, 2020). With respect to social issues, the Annual Report for 2019 provided details of corporate activities aligning with the following GRI Standards:

- Employment
- Occupational Health and Safety
- Non-discrimination
- Training and education
- Diversity and equal opportunities
- Freedom of association and collective bargaining
- Child labor
- Forced or compulsory labor
- Human rights assessment
- Local communities
- Social assessment of suppliers
- Socio-economic compliance

Nexa's 2019 Annual Report also includes reporting on corporate progress towards several sustainable development goals. With respect to social environment issues, these include:

- Gender equality
- Decent work and economic growth
- Good health and well-being
- Peace, justice, and strong institutions
- Quality education
- Reduced Inequalities
- Sustainable cities and communities
- Responsible consumption and production

Nexa has a corporate compliance policy (PC-RCC-CCI-005-EN) meant to guide Nexa representatives and third parties. The compliance policy includes the following policies and procedures:

- Code of Conduct
- Anti-Corruption Policy
- Money Laundering and Financing Terrorism Prevention Policy
- Antitrust/Competition Policy
- Insider Trading Policy
- Disclosure Policy
- Compliance Program Manual
- Money Laundering and Financing Terrorism Prevention Manual





- Gifts and Hospitality Procedure
- Relationships with Government Representatives Procedure
- Travel and Entertainment Procedure
- Integrity Due Diligence Procedure
- Conflict of Interests Procedure

17.8.2.2 Identification of Project-Specific Social Baseline Conditions, Risks, and Impacts

The most recent EIA for the Project is the 2017 EIA compiled by GeoMinAs. This EIA includes a social baseline description, assessment of socio-economic impacts, and management plans detailing measures to prevent, minimize, or mitigate the identified socio-economic impacts. These components are generally consistent with social impact assessment practices.

The socio-economic baseline description includes:

- The social areas of influence
- The social, economic, and cultural characteristics of the population of the areas of influence of the project including:
 - o Information on the Indigenous Peoples within the area of influence
 - o Information on historical, cultural, and archeological resources
- Socio-economic variables that might be affected by the project
- Potential indicators to assess impacts of the project
- Identification of the main socio-economic and environmental issues of relevance to the population
- The foundation for a social impact management plan to mitigate potential negative impacts and maximize potential positive benefits

The baseline characterization was developed using a variety of methods including both primary and secondary data collection. Primary data collection included field investigations such as surveys and interviews, which were conducted prior to the EIA. Secondary data collection included reviews of available data from the Brazilian Institute of Geography and Statistics, as well as other government departments.

The analysis of the Areas of Indirect and Direct Influence was based on the Technical "Socioeconomic Diagnosis of Aripuanã, Mato Grosso, August 2016", developed by the consulting firm Diagonal for the Project.

The potential socio-economic impacts were assessed for the various stages of the Project and included an assessment of potential negative and positive impacts of the mine on the social environment. The social impacts assessed in the 2017 EIA are summarized in Table 17-2.





Table 17-2: Socio-Economic Impacts and Management Measures (GeoMinAs, 2017)
Nexa Resources S.A. - Aripuanã Zinc Project

Impact Identified

Potential increase in prostitution indexes, violence and drugs consumption and social cultural conflicts due to outside workers arrival in Aripuanã Municipality

Increase in the demand for housing and basic services

Potential positive impacts such as employment and wage generation, new business opportunities generation, increase in tax collection.

Potential increase in endemic diseases due to the arrival of immigrants

An increase in traffic impacts with associated safety risks

Negative impacts at the end of the life of the project such as a decrease in employment opportunities, decrease in tax collection.
Community expectations and worries regarding potential environmental and social impacts

Management Measures/Programs

- Labor Training and Qualification Program
- Health Support and Epidemiological Surveillance Program
- Social Communications Program
- Environmental Education Program
- Program for Monitoring Socioeconomic Indicators
- Migrant Support Program.
- Program of Actions with the Community and the Local Government
- Health Support and Epidemiological Surveillance Program
- Migrant Support Program.
- Labor Training and Qualification Program
- Development Program for Entrepreneurs and Local Rural Producers.
- Health Support and Epidemiological Surveillance Program
- Environmental Education Program
- Program for Monitoring Socioeconomic Indicators
- Entomofauna Monitoring Subprogram - Vectors.
- Road Signaling and Standardization Program
- Social Communications Program
- Migrant Support Program.

None identified.

- Social Communication Program.

17.8.2.3 Management of Identified Social Risks and Impacts

In 2019, Nexa created a General Social Management Department, which is responsible for evaluating all social programs developed in Brazil and Peru, delving more broadly into these activities within the sustainability pillar.

The Project has developed and utilizes a number of social management programs and tools aimed at managing identified risks and impacts. These include:

- Identification of social and economic risks
- Integrated Socio-economic Plan
- Indigenous Population management plan
- Stakeholder tracking and stakeholder issues and concerns matrix
- Tracking social initiative implementation

The Project's Integrated Socio-economic Plan is aligned with the Company sustainable development goals (January 2019). Key objectives of this plan include:

- Development of local suppliers and entrepreneurs.
- Personal development of local workforce.
- Implementing strategies to promote the hiring and strengthening the employability of women and people with disabilities.





- Strengthening of the health care system through strategies such as raising funds, upgrading existing basic health units to meet the standards of the Ministry of Health etc.
- Assisting with improving solid waste management in urban and rural areas through strategies such as the establishment of partnerships to support public management in training for project development and fundraising aimed at the regularization of landfill and the implementation of an incinerator for the proper disposal of hospital and health waste, etc.
- Supporting projects for the proper management of sewage.
- Providing health, safety, and environmental education for different audiences (community, school, etc.).
- Assisting with management of an influx of people to the area through actions such as managing employment expectations, mapping potentially vulnerable locations in advance for conflicts, holding workshops with children, adolescents and young people on conflict mediation and nonviolent communication etc.
- Assisting with managing access routes used by Nexa for the flow of traffic and standardization of the movement of light and heavy vehicles.
- Ensuring better teaching conditions for the population of Aripuanã, through the training of human resources and improvement of teaching equipment and methods.
- Reducing and preventing the occurrence of human rights violations with respect to children, adolescents, women, the elderly, and people with disabilities.

This plan includes a description of each action, along with strategies, objectives, relevant stakeholders and expected results, including indicators. There is, however, no mention of revising or updating this plan based on the monitoring data collected or any other relevant feedback. In the SLR QP's opinion the social management programs and tools for Aripuanã are adequate to address potential issues related to local communities and Indigenous Peoples.

Since the EIA (2017), Nexa has continued to monitor socio-economic indicators. This monitoring program is focused on the potential impacts for the various phases of the Project. Specific information was not provided on the methods used to collect this monitoring data, however, Nexa has reported some key results of this monitoring:

- **Schooling:** an increased demand for school enrollment and an increase in the average class size at all stages of education (except high school).
- **Health care:** increased outpatient care, a reduction in hospitalizations, an increase in the number of physicians, increased care of women victims of intrafamily violence, relative increase of adolescent women (up to 19 years) in hospitalizations for pregnancy and childbirth.
- **Crime:** an increase in crime, notably an increase in the homicide rate.
- **Basic services:** an extension of the water supply and sanitation networks, increase in household waste collected.
- **Income levels:** an increase in the assets of formal workers, increase in the average salary of workers.
- **Municipal income and taxes:** projected increase in municipal GDP, projected increase in the number of formal establishments and increase in tax revenues.

17.8.2.4 Stakeholder Engagement and Participation

Stakeholder engagement was conducted during and prior to the preparation of the EIA. Most recently, in 2019, Nexa contracted a specialized service for the management and execution of environmental programs related to "Economic Development and Social Participation" in compliance with the Environmental Control Plan commitments to develop:

- A program for the development of entrepreneurs and local suppliers, including rural producers.
- A socio-economic indicator monitoring program.
- An environmental education program.
- A program to strengthen municipal health management.





Nexa is also developing a Workforce Qualification Program among others that involve external stakeholders. The programs conducted with the community and local government are related to Nexa’s four strategic areas: Economic Development, Public Management and Social Participation, Childhood and Youth, and Socio-Environmental.

The specialized service was additionally tasked with actions defined in the strategic planning of the area and social projects, such as the development of a social agenda through a community participation group. This included participatory workshops and one-on-one interviews.

Nexa informed SLR that the social team maintains documentation related to the meetings held with stakeholders. No specific information was reviewed by SLR on stakeholder engagement planning going forward at the time of writing this Technical Report Summary.

17.8.2.5 Community Issues and Concerns System

In order to better understand community-specific issues and address concerns that arise at Aripuanã, Nexa implements a complaint register guided by Nexa’s Order and Complaint Procedure, which details roles, responsibilities, and commitments to gather and respond to complaints from the public in a fair and equitable way. All communications and complaints are recorded, investigated, evaluated, and resolved according to the Order and Complaint Procedure. The process is meant to provide Nexa with a better understanding of the local population and related issues. Nexa also maintains a compliance matrix, which is a database of relevant stakeholders and a matrix/listing of interactions with each stakeholder.

Nexa provided a matrix of recent stakeholder issues and concerns. The majority of issues focused on requests for assistance in dealing with the COVID-19 pandemic and the Project responded as follows:

- Donations of personal protective equipment to the civil defense and health organizations, such as police and health departments and a hospital in the local area.
- The Project loaned a truck used for disinfecting the city centre.
- Donations of rapid test kits and thermometers.
- Donations of 1,680 basic food baskets for vulnerable and Indigenous communities.
- Donations of uniforms to volunteer organizations carrying out prevention actions for COVID-19.

17.8.3 Labour and Working Conditions

17.8.3.1 Collective Bargaining and Freedom of Association

Corporately, Nexa reports that 100% of its workers in Brazil are covered by collective bargaining units. Nexa also reports corporately on the freedom of association and collective bargaining. At Aripuanã, Nexa employees are covered by a collective bargaining agreement for 2019/2021 (registration number MT000081/2020).

17.8.3.2 Working Conditions

According to the 2020 shift rotation schedule provided by Nexa, workers involved in the current development activities are on shift for six days, then off for one day for one week, then six days on shift followed by three days off the following week. This provides staff with sufficient opportunity to rest in between scheduled work activities. Once operational, the mine plans to operate 360 days per year with three 8-hour shifts per day for a total of 18 operating hours per day (RPA, 2017).

Employees have access to a number of benefits including life insurance, health and dental plans, private pensions, paid vacations and holidays, financial bonuses, living allowance, paid vacation flights for five years, and assistance for moving or buying real estate. These benefits vary according to the position of the employee.

Services to the Project property are provided by the town of Aripuanã, which includes accommodation, restaurants, and other retail services (RPA, 2017).





17.8.3.3 Local Hiring, Disability, and Diversity Considerations

Corporately, some of the Sustainable Development Targets Nexa has identified include (but are not limited to):

- By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value.
- Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular migrant women, and persons in precarious employment.

The 2019 Nexa annual report indicates that at the Project, the Company followed the strategic plan for hiring employees, seeking, and qualifying local labor, with short and medium-term courses, offered in partnership with Senai/MT. Nexa reported that there were 515 vacancies in 2019 and that 54% of these jobs were filled by women. Nexa intends to fill the staff contingent with 65% of local employees, primarily students graduated from the Senai-MT Professional Qualification Program, with the remaining 35% from other parts of the country, filling positions that require specific technical knowledge (Nexa, 2019). Nexa provided a planned employment graph for the various phases of the Project from construction, commissioning, ramp-up of operations, and then stabilized operations. This graph confirms plans to employ mostly local people, averaging at approximately 65% local employees.

The annual report further indicates that Nexa is working on identifying local infrastructure needs, such as building homes, expanding hospitals, improving, or building schools, in order to attract employees hired from outside the region and contribute to local development.

A key objective of Integrated Socio-economic Plan is to implement strategies to promote the hiring and strengthening the employability of women and people with disabilities.

As described under the PS1 section above, Nexa reports corporate activities aligned with the GRI Standards regarding non-discrimination, diversity, and equal opportunities.

17.8.3.4 Health and Safety

Nexa has adopted occupational health and safety (OHS) policies to ensure the protection and promotion of the safety, human health, and welfare of employees. Nexa implements 12 “Golden Rules”, to ensure the safety of company and outsourced employees. These are based on critical risk standards and other safety management tools Nexa has implemented, such as the use of seat belts, restrictions on the use of cell phones and a ban on working under the influence of alcohol or drugs. Failure to comply with any rule may lead to a warning, suspension, or even termination. The identification of non-compliance with a rule goes through a structured process, with evidence gathering, evaluation and, if deemed applicable, a penalty (Nexa, 2019).

Nexa has a Health and Safety Master Plan which is used to identify occupational risks and apply early diagnosis protocol for occupational diseases. This is part of the shared management model for Occupational Hygiene and Health, a program that aims to mitigate risks, share knowledge and responsibilities with preventive methods and practices with all employees. The program is managed by the Corporate Quality of Life Committee, composed of representatives of Health and Safety, Head of Department and Corporate Communication, as well as representatives of the units, defined by each local committee. The corporate committee defines the guidelines and actions that must be implemented in all units while the local Quality of Life Committees are responsible for implementing corporate and local actions pursuant to the demands of each unit (Nexa, 2019).

Corporately, Nexa reports on its health and safety performance and safety is a prioritized topic on the agenda in weekly Board of Executive Officers meetings and in the scheduled meetings of managers with their teams. Safety is also part of the Board of Directors’ meetings, with quarterly assessment of the indicators and planning for the following quarter (Nexa, 2019). For 2020, Nexa’s Sustainability Master Plan foresees health and safety initiatives for the transformation of culture and behavior, to improve company infrastructure for routine activities and for the management of the area. These are divided into Crucially Important Goals, for which 18 projects will be developed over the next five years (Nexa, 2019). According to the 2019 annual report, Nexa maintains Daily Safety Dialogues to assist employees in their perception of the risks in their workplace environment, as well as managerial inspections in operational areas, along with other safety management tools. The risks of the activities are surveyed, and control measures are implemented. These may include engineering (such as the need to install physical barriers), procedures (written





standards, work rules that guarantee safety) or be related to personal or collective protection equipment. For outsourced employees, the survey is conducted in conjunction with the leadership and the outsourced company's safety team (Nexa, 2019).

Site-specific information for occupational health and safety plans were unavailable for review at the time of writing this Technical Report Summary. The annual report indicates that the total recorded injuries 2017 was 200, 174 in 2018 and 161 in 2019. There were seven fatalities in 2017, none in 2018 and one in 2019 (Nexa, 2019). Nexa established an internal indicator in 2017 called the "Nexa Internal Rate" to measure safety effectiveness (Nexa, 2019). In the case of fatalities, sanctions are applied to the executives (Nexa, 2019). Nexa provided data on health and safety incidents at Aripuanã in a presentation dated July 2020. There were nine recorded near-misses, no fatalities, six personal injuries and nine incidents where assets were damaged reported for 2020 until the end of July.

In 2019, Nexa implemented a health and well-being challenge to encourage behavioral change and the practice of physical activities, called "Go Nexa". Some 1,900 people enrolled in the program. At the end of the year, during the awards event, the three winning teams were recognized for their efforts. Nexa's overall health index rose by 14% in three months, from 6.4 to 7.4 (Nexa, 2019). In 2019 Nexa also continued the Live Better Program that had been established in 2017, which 100% of Nexa's units, with corporate actions and initiatives from each unit, according to the local situation and the risks related to the lifestyles of employees and their families. In 2019, 88% of Nexa units implemented actions related to health and well-being in local communities (Nexa, 2019).

At a Project level, construction activities had not yet been affected by the COVID-19 pandemic at the time the 2019 annual report was published. Nexa reported that additional safety measures and procedures were being discussed with contractors to mitigate any potential impact of the global COVID-19 outbreak, including a revision to the construction schedule.

17.8.3.5 Human Rights Compliance and Monitoring

Nexa is signatory to the Global Compact United Nations Initiative since 2017, which aims to mobilize the business community around the world to adopt ten principles that represent fundamental values of human rights, labor relations, the environment, and the fight against corruption. Corporately, Nexa has stated its commitment to internationally recognized human rights and prohibits any violation of human rights in its operations and suppliers. Suppliers are asked to provide information regarding both social responsibility and human rights preservation. The 2019 annual report states a target of maintaining the evaluation cycles of suppliers in Brazil and Peru and inclusion of new categories in the supplier monitoring process (Nexa, 2019). Nexa reported that in 2019, there were no complaints of non-compliance with any requirements related to human rights impacts, across its operations. Furthermore, Nexa is also seeking to review all outside suppliers for their conformity with human rights ethics. As of 2019, approximately half of its suppliers had been reviewed, with no known records of any human rights violations.

17.8.3.6 Grievance System

There are procedures in place for employees and contractors to report grievances and ethical violations, including directly to management, via telephone and online. At the time of writing this Technical Report Summary, there were no specific reports on the number of grievances or ethical violations relevant to Aripuanã.

The 2019 annual report states that Nexa did not register any strikes that lasted for more than seven days during the year, which the Company believes demonstrates their ability to establish an open dialogue with employees and labor unions (Nexa, 2019).

17.8.4 Community Health and Safety

17.8.4.1 Corporate Commitments and Progress

Corporately, Nexa has made several commitments to improve community health and safety, as well as the overall well-being of community members. The Nexa 2019 annual report indicates that during 2019, the Company made progress with regard to community health and safety as described below (Nexa, 2019):





- **Health support and epidemiological surveillance** - through training for the management of health services; expansion of health coverage in the Conselvan district; budgets and partnerships under negotiation for the renovation and acquisition of equipment in the Basic Health Units and emergency rooms; accreditation and training of local medical teams; improvement in specialized care; preparation of the epidemiological surveillance plan; and donation of vehicles for use by the teams (one panel truck, one pickup, eight motorcycles, six bicycles, and two boats). The Company made a voluntary transfer of R\$1,149 million to municipality through a cooperation agreement. The amount is intended for the maintenance of four doctors and the purchase of supplies, such as medicines and items for hospital use.
- **Strengthening the health and prevention system** - Nexa is involved in the diagnosis of the current situation and monitoring of long-term improvements, strengthening of public health policies and the search for shared solutions, in addition to improving primary care quality.
- **Housing** - Nexa is building 200 new houses for employees hired outside Aripuanã, as an item in the worker benefits package offered. The construction of new residences aims to mitigate local real estate speculation.
- **Migrants, vulnerable communities, and public management** -the Company continued to implement a program to strengthen the network for the protection of the rights of children and adolescents and to train community agents to act in the prevention of violations of the rights of youths and women. The Company reports that it promoted a project in Conselvan, one of the districts with the greatest social vulnerability, to disseminate restorative practices in education, in which the Company certified 32 education professionals (72% of the program's target audience). The Company also inaugurated two Migrants Support Centers which will offer guidance and assistance to migrants, in addition to serving as a channel for dialogue with the social assistance network and other public policies in the municipality.
- **Entrepreneurship and local suppliers** - The Company now requires that suppliers for social projects must commit to conduct their activities in accordance with the Nexa social responsibility requirements. These include guarantees about human rights, support for local development, promotion of safety and a healthy workplace, compliance with the Social Golden Rules and the 15 Community Relationship Protocol rules. In 2019, the second edition of the Opportunities Meeting was held in Cuiabá (the state capital city located approximately 938 km from the Project), which brought together 70 entrepreneurs, public managers, consultants, self-employed professionals, and commercial representatives to learn about the project, the future demands for goods and services and our supplier management policy. Nexa initiated the Local Entrepreneurs and Suppliers Development Program, designed to support the sustainable and integrated growth of existing production activities and new businesses.
- **Indigenous Peoples** - The Company aims to develop local production chains, expand the opportunities for coexistence and participation of the Indigenous community and safeguard their territories and culture, avoiding the emptying of villages and loss of identity.

17.8.4.2 Project Level Commitments and Social Initiatives

At the Project level, the EIA identified several positive and negative impacts on the community as described in the PS1 section above. The Project has developed an Integrated Socio-economic Plan and an Indigenous Population management plan. These two plans are aimed at managing and mitigating the social risks and impacts identified in the EIA.

Key objectives of Integrated Socio-economic Plan which are aimed at managing potential community health impacts include:

- Strengthening of the health care system.
- Assisting with improving solid waste management in urban and rural areas.
- Supporting projects for the proper management of sewage.
- Providing health, safety, and environmental education for different audiences (community, school, etc.).
- Assisting with management of an influx of people to the area.





- Assisting with managing the access routes used by Nexa for the flow of traffic and manage the movement of light and heavy vehicles.
- Contributing towards better teaching conditions for the population of Aripuanã.
- Reducing and preventing the occurrence of human rights violations with respect to children, adolescents, women, the elderly, and people with disabilities.

The proponent has provided a lengthy list of social initiatives implemented for the Project during 2019 and 2020. These focus on the following areas:

- Community awareness training on prevention of sexually transmitted disease, teenage pregnancy, women's health.
- Upgrades to the emergency room of the municipal hospital.
- Training of teachers.
- Promotion of leisure, culture and sport activities aimed at the care of children, adolescents, and young people.
- Implementation of two Migrant Care Centers (CAM) and Database. This includes monitoring the influx of migrants.
- Supporting the economic development of the municipality of Aripuanã, with the creation of incentives for the expansion, diversification, and training of local productive activities.
- Installation and maintenance of information and warning signs on roads.
- Promotion and expansion of the culture of road safety throughout the municipality of Aripuanã.
- Identification and empowering of the main community and project leaders, in topics related to citizenship, human rights, social participation, among others.
- Promotion of a campaign on sexual rights violations.
- Contributing to improved performance of the municipality of Aripuanã regarding safety of the community, through training in public security and the developing an integrated action plan that community safety with relevant stakeholders.
- Preparation of training courses in planning and management for public servants.
- Response to sponsorship requests, donations, and related demands.
- Integration workshops, dissemination of information in newspapers and magazines and in programs or spots on radios of local and regional scope.

Specific initiatives or programs directed at Indigenous Communities and are discussed below.

17.8.5 Land Acquisition and Involuntary Resettlement

No resettlement will be required to implement the Project.

17.8.6 Indigenous Peoples

17.8.6.1 General Context

According to the 2019 annual report, Nexa operations are not located on Indigenous or immediately adjacent lands. This developing Project is also not located on Indigenous lands, but it is located adjacent to such lands as described below. The annual report also states that Nexa aims to develop local production chains, expand the opportunities for coexistence and participation of the Indigenous community, and safeguard their territories and culture, avoiding the emptying of villages and loss of identity (Nexa, 2019).

The 2017 EIA described two Indigenous villages located approximately 10 km to 12 km from the Project: Arara do Rio Branco with an area of approximately 114,842 ha and Povo Cinta Larga with an area or approximately 750,649 ha. The total population was stated as being 512, 74 of whom live in areas outside of the villages.





17.8.6.2 Engagement with Indigenous Communities

Consultation with Indigenous Peoples regarding Project impacts and mitigation were undertaken under the tutelage and consent of National Historical and Artistic Heritage Institute (IPHAN) with National Indian Foundation (FUNAI) during the preparation of the 2017 EIA.

In 2018, Nexa commissioned a study on the Indigenous Component of the Indigenous Lands Aripuanã and Arara do Rio Branco, within the framework of the Environmental Licensing Process of the Aripuanã Mining Project (Comtexto, September 2018). The study methods were developed based on a ToR issued by FUNAI and through consultation with the Indigenous Communities of Arara and Cinta Larga. Indigenous researchers were trained and conducted surveys in the villages of the Aripuanã and Arara Indigenous Lands of Rio Branco. A series of participatory workshops were also held to gather information, for example Ethno-mapping workshops. The study findings were shared through workshops with Indigenous Communities before the report was finalized.

As previously mentioned, Nexa implements a complaint register guided by Nexa’s Order and Complaint Procedure. When asked if there were any complaints, issues or concerns raised specifically by Indigenous Peoples or Communities, Nexa responded that at the time of writing this report, there were no records of such complaints.

No specific information was available on recent engagement in 2019 or 2020 with Indigenous Communities at the time of writing this report, however, Nexa has indicated that progress has been made with regard to agreements with Indigenous Peoples and the mitigation of environmental impacts on these communities.

17.8.6.3 Impact Avoidance and Minimization

The Project made efforts to reduce potential environmental and social impacts. Various adjustments were made to the Project such as the use of underground mining methods as opposed to open pit mining which was initially considered and using some of the tailings for backfill underground instead of depositing all of the tailings on surface. The overall footprint was optimized and efforts were made to place infrastructure in areas already affected by anthropogenic activities.

17.8.6.4 Identification and Assessment of Potential Impacts on Indigenous Lands and Communities

As mentioned above, in 2018 Nexa commissioned a study on the Indigenous Component of the Indigenous Lands Aripuanã and Arara do Rio Branco, within the framework of the Environmental Licensing Process of the Aripuanã Mining Project (Comtexto, September 2018). The objective of the study was to assess the environmental and socio-cultural impacts arising from the Project on the communities of the Arara and Cinta Larga Indigenous Peoples who inhabit the Arara Indigenous Lands of Rio Branco and Aripuanã. The resultant report describes:

- Study methodology and activities.
- Environmental characterization of Indigenous Lands and Communities.
- Socio-cultural characterization of Indigenous Lands and Communities.
- Social, political, and economic organization of the Indigenous Communities.
- Characterization of the environmental and social impacts.
- Alternatives assessment.
- Monitoring, control, mitigation, and compensation measures.

The study methods were developed based on a ToR issued by National Indian Foundation (FUNAI) and through consultation with the Indigenous Communities of Arara and Cinta Larga. Desktop research was followed with primary data collection in the field. Indigenous researchers were trained and conducted surveys in the villages of the Aripuanã and Arara Indigenous Lands of Rio Branco. A series of participatory workshops were also held to gather information, for example Ethno-mapping workshops. The study findings were shared through workshops with Indigenous Communities before the report was finalized. The perceptions of the Indigenous Communities on the potential impacts were specifically investigated through personal interviews, questionnaire, Ethno-mapping workshops and collective conversations.





The potential impacts were identified taking into account the location of Indigenous Communities, territories and how these communities use the land for fishing, hunting, harvesting and feedback from Indigenous communities. For example, potential surface water impacts included a change in the availability of quality of water available to Indigenous Communities. The Aripuanã River is very important for the Arara because its banks are areas of traditional use for collection, fishing and harvesting. There was therefore concern among the Arara People regarding these potential impacts. The report described the river systems and concluded that the Project is situated a significant distance upstream of these communities that no surface water impacts should occur upon Ingenious territories, especially when implementing the management measures outlined in the EIA. However, management measures over and above the measures stated in the 2017 EIA were still developed. For example, a “sub-program” was developed for Environmental Monitoring Control, with emphasis on water resources. There is a range of “subprograms” developed to specifically address potential impacts on Indigenous Communities and their territories as described in Table 17-3. Detailed workplans were developed for each of the subprograms identified.

Impacts on Indigenous Communities, as well as the management plans, are identified in Table 17-3. In the SLR QP’s opinion the Indigenous study and management plans for Aripuanã are adequate to address potential issues related to Indigenous Peoples.

Table 17-3: Impacts on Indigenous Communities and Identified Management Measures (Comtexto Consulting, 2018)
Nexa Resources S.A. - Aripuanã Zinc Project

Impact Identified	Management Measures
Change in the availability and quality of surface water resources	· Indigenous Subprogram for Environmental Monitoring and Control, focusing on surface water. · Water Effluent Management Plan · Recovery Degraded Area Recovery Plan.
Vibration generated by blasting activities	· Indigenous Subprogram for Environmental Monitoring and Control · Indigenous Subprogram for Communication · Vibration Control and Monitoring.
Increased pressure on indigenous fauna due to hunting and harvesting.	· Indigenous Subprogram of Environmental Monitoring and Control, focusing on wildlife. · Indigenous Subprogram of Management and Territorial Protection. · Indigenous Subprogram to Support Productive Activities and Indigenous Ethnic development. · Fauna Connectivity Program: Creation of Conservation Units, Environmental Education, Vibration Control and Monitoring Program.
Impacts on the quality of fish in Indigenous Lands due to the potential pollution of surface water.	· Indigenous Subprogram of Environmental Monitoring and Control, including actions for evaluation of heavy metals in fish tissues in the Branco River · Indigenous Subprogram to Support Productive Activities and Indigenous Ethno-development · Indigenous Subprogram of Management and Territorial Protection · Water Effluent Management Plan.





An increase in traffic on local roads generating nuisance and safety risks.

Social ills such as an increase in prostitution, drug abuse, unwanted pregnancies, sexually transmitted disease etc.

Increased pressure on public services used by Indigenous Communities

Generation of expectations in Indigenous families and communities regarding jobs, and concerns regarding environmental impacts.
Intensifying pressure on cultural heritage

Pressure on the organization and socio-political representativeness of Indigenous Peoples
Economic “slowdown” of Indigenous families and communities upon mine closure

Intensification of territorial pressure on Indigenous Lands and their natural resources

Concern regarding the fate of archeological resources in the Project area.

There are general programs for training and development of entrepreneurs which the 2018 report indicates will apply to Indigenous Communities, however, there does not seem to be preferential hiring, training, and development of Indigenous Peoples specifically.

As previously mentioned, Nexa has provided a lengthy list of social initiatives implemented for the Project during 2019 and 2020. Specific initiatives or programs directed at Indigenous Communities follow on from the 2018 study which identified management actions. This shows progress in implementing the management measures identified. The relevant social initiatives include:

- Supporting productive activities and Indigenous Ethno-development.
- Institutional strengthening program.



- Indigenous Subprogram for Communication.
- Road signaling and standardization for Project vehicles.
- Indigenous Subprogram for Communication
- Indigenous Subprogram for Complementary Support to Indigenous Schools
- Socio-economic indicator monitoring
- Provide health support and epidemiological surveillance.
- Indigenous Subprogram for Institutional Strengthening
- Indigenous Subprogram for Complementary Support to Indigenous Schools
- Socio-economic indicator monitoring
- Provide health support and epidemiological surveillance.
- Indigenous Subprogram for Communication.
- Indigenous Subprogram for Institutional Strengthening
- Indigenous Subprogram for Complementary Support to Indigenous Schools
- Indigenous Subprogram for the protection of Indigenous Cultural Resources.
- Indigenous Subprogram for Institutional Strengthening.
- Indigenous Subprogram for Communication
- Indigenous Subprogram for the protection of Indigenous Cultural Resources.
- Indigenous Subprogram for Communication
- Indigenous Subprogram for Institutional Strengthening
- Indigenous Subprogram for Territorial Protection and Management.
- Program of Management of Archaeological, Historical, Cultural and Ethno-archaeological Heritage.
- Indigenous Subprogram for the monitoring of archaeological prospecting.



- Indigenous cultural protection program.
- Indigenous school education program.
- Indigenous health program.
- Protection of cultural resources.
- Management and territorial protection.
- Indigenous communications program.

When considering the United Nations Declaration of the Rights of Indigenous Peoples, the Project is not expected to infringe on these rights according to the documentation reviewed. It should, however, be noted that SLR does not have information on potential historical claims on the Project area by Indigenous Peoples.

17.8.7 Cultural Heritage

Archaeological studies performed in the direct and indirect area of influence of the Project showed no archaeological remains. This included site surveys in the direct and indirect areas of influence as reported in the 2017 EIA. It was noted that, additional studies would be performed to confirm these findings. In February 2019 Nexa documented the steps taken to obtain the First Installation Licence with respect to archeological, historical, and cultural heritage.

When asked specifically about heritage resources, Nexa responded that all the existing archaeological sites in the Project area have been mapped, demarcated for protection, and registered under guardianship with the responsible national agency (IPHAN). It is noted, however, that there is no record of a Chance Find Procedure developed or implemented on site.

The Project is not expected to make use of cultural resources.

17.9 Mine Closure Requirements

A Conceptual Mine Closure Plan was developed in October 2018. The main objective of the plan is to present proposals and solutions to be implemented before, during and after mine closure in order to avoid, eliminate or minimize long-term environmental liabilities and possible future obligations. The plan was submitted to SEMA for approval both in the EIA phase and in the application for the Implementation Licence. Update plans with greater level of detail will have to be prepared in the future to meet requirements of the Operation Licence and environmental licences. No specific frequency for submission and review of updated plans is defined in the Brazilian legislation. However, Nexa has developed an internal standard for mine closure that defines stages for preparation of the Mine Closure Plan updates (standard PG-SUS-GMA-003-PT).

The current plan provides the minimum requirements for the effective planning of mine closure activities, including the necessary provisioning of resources. The plan identifies three key phases:

- **Pre-closure Phase:** period of two years before the start of decommissioning and execution of works and rehabilitation work, when execution plans should be prepared.
- **Closure Phase:** decommissioning period and execution of works.
- **Post-closure Phase:** period of environmental stabilization, monitoring and verification of physical, biological, and socioeconomic stability, including continuous maintenance activities. For this phase, an initial period of five years after the end of the previous phase is adopted for the structures to be decommissioned, and this period may be prolonged if necessary. It is emphasized that the water dam will have a longer monitoring period, estimated at 10 years after closure.

The plan provides a detailed outline of the legal framework for closure planning within mining law and environmental law. Municipal legislation was also considered.

The plan includes:

- Closure objectives.
- Applicable legal requirements.





- Socio-economic aspects.
- Alternatives considered and the selection of future land use.
- Current environmental and social conditions.
- Identification of environmental and social impacts at closure.
- Conceptual plan for closure.
- Actions and monitoring programs for post closure.
- Closure cost estimate.

Some of these aspects are discussed in more detail below.

17.9.1 Closure Alternatives Considered

Four alternatives of future use of the area were evaluated (SETE, 2018):

- **Alternative A - Integral Protection Conservation Unit:** Most infrastructure will be removed; contaminated soils will be treated where required and the area will be rehabilitated and re-vegetated with native plant species. Minimal infrastructure remaining for use of safety and maintenance personnel for the required post-closure activities. The area will become a Conservation Unit and an agreement will be put in place with a public institution for the management of the Conservation Unit.
- **Alternative B - Sustainable Use Conservation Unit + Technical School for Biodiversity Conservation and Development of Amazonian Communities:** As with alternative A, most infrastructure will be removed; contaminated soils will be treated where required and the area will be rehabilitated and re-vegetated with native plant species and a Conservation Unit established and maintained by a public institution. However, some infrastructure will be retained for the development of a technical school for the local communities. This includes the administrative offices and some electrical infrastructure.
- **Alternative C - Industrial District + Industrial Technical School:** Most infrastructure will be removed and rehabilitated, but some infrastructure will be retained for the development of an industrial technical school and an industrial district. The administrative offices and some electrical infrastructure will remain, part of the processing plant (without crushers and equipment), support sheds and workshops as well as the sewage treatment plant and water supply dam will continue to operate to support these activities.
- **Alternative D - Agro-industrial District + Agricultural Technical:** Similar to alternative C but the infrastructure will be used for developing an agricultural technical school and an agro-industrial district. The administrative offices and some electrical infrastructure will remain, part of the processing plant (without crushers and equipment), support sheds, and workshops as well as the sewage treatment plant and water supply dam will continue to operate to support these activities.

These alternatives are being evaluated by Nexa, however, for the time being, all of the alternatives are being considered and have been costed for in the financial closure costing. The costing is provided later in this section.

17.9.2 Conceptual Plan for Closure

A summary of pre-closure, closure, and post-closure activities for all of the closure alternatives is provided in Table 17-4.





Table 17-4: Summary of Pre-Closure, Closure, and Post-Closure Activities (SETE, 2018)
Nexa Resources S.A. - Aripuanã Zinc Project

Infrastructure/Component	Pre-Closure (Preparation for Decommissioning)	Closure	Post-Closure
Underground mine (planned to stop production in 2044)	- Reassessment of specific environmental impacts resulting from the closure of the underground mine. - Plan for removal of ventilation structures, pumping and recirculation/ treatment of water and electrical system.	- Securing the access openings and the ventilation wells. - Disassembly of surface support structures - Removal of ventilation structures, pumping and recirculation/ treatment of water and electrical system. - Execution of electrical, hydraulic, and mechanical disassembly and pipe networks - Transport and storage of materials and equipment - Partial demolition of concrete structures - Soil decontamination, if necessary - Topographic regularization of the area i.e. sloping of the area	- Geochemical monitoring - Hydrogeological monitoring - Solid waste management.
Support facilities on surface e.g. offices, maintenance workshops, fuel station etc.	- Investigate soil contamination in the workshop and fuel station areas. - Plan for disassembly, demolition, and disposal of structures.		- Geochemical monitoring - Monitoring of revegetation - Monitoring of air quality - Monitoring of soil erosion - Solid waste management.



Water dam
Two alternatives for future uses for water dam were evaluated:
Maintenance of the dam for use of the Agro-industrial District
Removal and recovery of the reservoir area.

- Study for the rehabilitation and revegetation of the area.

- Investigate soil contamination
- Plan for the disassembly, demolition, and disposal of structures, with quantitative survey of structures and equipment for the establishment of reuse and commercialization actions.

Processing plant
Administrative facilities, consisting of offices, restaurant, medical service and warehouse, sanitary effluent treatment plant.
Planned for use after closure by the district.

- None.

- For alternative 2:
- Emptying of the reservoir and removal of retaining structures
- Removal of hydraulic system and spillway
- Surface sloping and rehabilitation and revegetation of the area with grass species and native tree and shrub.

- Execution of electrical, hydraulic, and mechanical disassembly and pipe networks
- Transportation and storage of materials and equipment
- Partial demolition of the concrete structures of the plant
- Soil decontamination if necessary.

- Maintenance of facilities for use of the industrial district.

- Monitoring of revegetation
- Monitoring of soil erosion
- Solid waste management.
- Floors, drainage systems and building facilities and some sheds for use in the industrial district should be maintained.
- The water treatment plant, the power substation, the solid waste storage shed, and the laboratory should also be maintained for use in the industrial district.
- Geochemical monitoring
- Monitoring of soil erosion
- Solid waste management.





Topsoil stockpile	· Evaluate the topsoil conditions for its use in rehabilitation.	· The stored material will be removed for the rehabilitation of other areas · After the removal of the material, the area will be rehabilitated and revegetated with the implantation of grasses and native tree and shrub species	· Monitoring of revegetation
	· Studies and geotechnical evaluation considering the potential for acid drainage generation. · Surface drainage and sediment containment design for final dump configuration	· Cover with a layer of waterproof compacted clay with a thickness of 0.4 meters. · Implement surface drainage devices · Implement a sediment containment system, if necessary · Implement a passive water treatment system, if necessary · Revegetation. · Cover with a layer of waterproof compacted clay with a thickness of 0.9 meters. · Implement surface drainage devices · Implement a sediment containment system, if necessary · Implement a passive water treatment system, if necessary · Revegetation. · The main access routes should be maintained for the activities of the district · Unused roads must be cleared and rehabilitated.	· Geochemical monitoring · Geotechnical monitoring · Monitoring of revegetation · Monitoring of erosion.
Waste rock dump or pile	· Studies and geotechnical evaluation considering the potential for acid drainage generation. · Surface drainage and sediment containment design for final dump configuration	· Cover with a layer of waterproof compacted clay with a thickness of 0.9 meters. · Implement surface drainage devices · Implement a sediment containment system, if necessary · Implement a passive water treatment system, if necessary · Revegetation. · The main access routes should be maintained for the activities of the district · Unused roads must be cleared and rehabilitated.	· Geochemical monitoring · Geotechnical monitoring · Monitoring of revegetation · Monitoring of erosion.
Tailings dam	· Studies and geotechnical evaluation considering the potential for acid drainage generation. · Surface drainage and sediment containment design for final dump configuration	· Cover with a layer of waterproof compacted clay with a thickness of 0.9 meters. · Implement surface drainage devices · Implement a sediment containment system, if necessary · Implement a passive water treatment system, if necessary · Revegetation. · The main access routes should be maintained for the activities of the district · Unused roads must be cleared and rehabilitated.	· Geochemical monitoring · Geotechnical monitoring · Monitoring of revegetation · Monitoring of erosion.
Access roads Planned for use after closure by the district.	· Assess the adequacy of surface drainage and sediment containment systems.	· The main access routes should be maintained for the activities of the district · Unused roads must be cleared and rehabilitated.	· Monitoring of revegetation.





- A confirmatory research program will be drawn up on the potential for soil and water contamination.
- If contamination of the mined areas is confirmed, a project to rehabilitate the area should be prepared.

Previously mined areas on the banks of the Maranhão stream in the Area of the Aripuanã Project (legacy liability)

· To be determined

· To be determined





17.9.2.1 Actions and Monitoring Programs

The identified management actions and programs are as follows (SETE, 2018):

- Geochemical Monitoring Actions and Programs.
- Geotechnical Monitoring Program.
- Monitoring of Water and Liquid Effluent Quality.
- Program for the Control of Atmospheric Emissions and Environmental Noise (during decommissioning).
- Solid Waste and Hazardous Products Management (during decommissioning).
- Erosive Processes and Silting Process Control Program.
- Degraded Areas Recovery Plan.
- Program of Monitoring of Flora and Fauna in Areas under Rehabilitation.
- Stakeholder engagement program.
- Socio-economics Monitoring Program.
- Local Manpower Qualification Program.
- Involvement Program for Interested Communities (Community Strengthening).
- Stakeholder Engagement Programme including Indigenous Programs.
- Closure Socio-Environmental Performance Monitoring Program.
- Monitoring aspects relevant to the decommissioning of the water supply dam.

17.9.2.2 Closure Cost Estimate

Detailed cost sheets are provided in the Conceptual Closure Report which assumes that the mine will operate from 2020 to 2044 and that some post-closure activities will be carried out by the year 2054. The costs were estimated for the various future land use alternatives evaluated as follows (SETE, 2018):

- Alternative A - Integral Protection Conservation Unit: US\$123,793.52.
- Alternative B - Sustainable Use Conservation Unit + Technical School for Biodiversity Conservation and Development of Amazonian Communities: US\$109,141.27.
- Alternatives C and D Industrial District + Industrial Technical School / Agro-industrial District + Agricultural Technical: US\$102,263.04.

A financial assurance was provided by Nexa consistent with the internal Corporate Policy PC-COP-GCT-022-EN that establishes general guidelines for decommissioning considering the Asset Retirement Obligation (ARO) procedure and Environmental Liabilities. The ARO is an accounting procedure that requires companies to recognize the fair value of future obligations for the dismantling and removal of long-lived assets, in order to ensure their balance sheets are more accurate. From an environmental perspective, they refer to future obligations to restore/recover the environment to ecological conditions that are similar to those existing before the start of the project or activity. In cases where it is impossible to return to the pre-existing conditions, there is an obligation to carry out compensatory measures to be agreed with the relevant entities.





18.0 CAPITAL AND OPERATING COSTS

18.1 Capital Costs

18.1.1 Pre-Production Capital

Pre-production capital costs were estimated by Nexa using a combination of contracts already awarded (the greater part of the commitments), quotations, and factored estimates. A new baseline capital cost estimate was completed in August 2020, with an estimated accuracy of ±5% and a base date of July 2020.

The breakdown of sources for the cost estimate is:

- Project commitments – 75% of direct capital costs.
- Costs provided by Nexa – 17% of direct capital costs.
- Contingency – 3% of direct capital costs.
- Quotes provided by Nexa – 3% of direct capital costs.
- Allowances – 2% of direct capital costs.

Costs were estimated in Brazilian reais, with 96% of the estimate originating in this currency, and 4% of costs originating in US\$, a conversion rate of R\$5.16 : US\$1.00 was used. Upon completion of the capital cost re-baseline in Q3 2020, total capital costs in Brazilian reais were converted to US\$ for economic evaluation using exchange rates of R\$5.25: US\$1.00 in 2020, R\$5.05: US\$1.00 in 2021, R\$4.84: US\$1.00 in 2022, R\$4.85: US\$1.00 in 2023, and R\$4.80: US\$1.00 onwards.

Pre-production capital costs remaining at the start of 2021 are estimated to total US\$234 million. Prior to the end of 2020, Nexa had forecast pre-production capital costs of US\$228 million using actual costs incurred in the first half of 2020 and anticipated costs to be incurred during the remainder of 2020; these are summarized in Table 18-1. The main reasons for the difference between the 2020 forecast and the estimate at the start of 2021 are the postponement from 2020 to 2021 of certain infrastructure activities to allow for enhanced detailing without impacting the total Project capital cost, less horizontal development than planned in 2020, and better-than-planned mobilization of the operations team.

Table 18-1: Pre-Production Capital Costs Forecast Prior to the End of 2020
Nexa Resources S.A. - Aripuanã Zinc Project

Area	Category	Units	Initial Costs
Mine	Development	US\$ millions	25.2
	Mobile Equipment	US\$ millions	4.5
Plant & Infrastructure	Site Prep & Earthworks	US\$ millions	53.9
	Civil & Roadwork	US\$ millions	14.7
	Steelwork	US\$ millions	2.4
	Electrical	US\$ millions	12.6
	Instrumentation	US\$ millions	8.4
	Mechanical Equipment	US\$ millions	14.9
	Piping	US\$ millions	8.3
Subtotal Direct Costs		US\$ millions	144.9
Indirect Costs	EPCM	US\$ millions	7.2
	Temporary Services	US\$ millions	7.3





Area	Category	Units	Initial Costs
	Owner's Team	US\$ millions	10.2
	Other	US\$ millions	42.6
Subtotal Indirects		US\$ millions	67.3
Contingency		US\$ millions	16.0
Total Capital Cost		US\$ millions	228.2

Contingency comprises 7.6% of direct and indirect capital costs, which SLR considers to be reasonable for the current stage of the Project. A total cost of \$312 million has been incurred up to the end of 2020.

Upon detailed review of the capital cost estimate and the supporting documents, SLR is of the opinion that the capital cost estimate is representative of the Project scope, the estimate accuracy falls in the range of -5% to +5%, and the estimate can be considered a Class 2 estimate as defined by the Association for the Advancement of Cost Engineering International (AACE).

The capital cost estimate is based on detailed engineering material take-offs, bids from vendors and contractors as received during the study, as well as some historical project data. In addition, parts of the estimate are based on the advanced detailed engineering data, which at the time was 99% complete

18.1.2 Sustaining Capital

Sustaining capital was estimated by Nexa, with the majority of the costs consisting of mine development and mobile equipment. Sustaining capital is summarized in Table 18-2.

Table 18-2: Sustaining Capital Cost Estimate
Nexa Resources S.A. - Aripuanã Zinc Project

Area	Category	Units	Sustaining Costs
Mine	Development	US\$ millions	65.8
	Mobile Equipment	US\$ millions	56.4
Plant & Infrastructure	Dry Stack Tailings	US\$ millions	20.4
	Other	US\$ millions	38.9
Total Sustaining Cost		US\$ millions	181.5

Closure costs are estimated at an additional US\$19.94 million.

18.1.3 Construction Progress

The Project schedule has been impacted by internal and external factors leading to the estimated capital costs of the Project increasing to US\$547 million compared to US\$392 million estimated in the feasibility study. Cost increases and schedule delays resulted primarily from, among other factors:

- Delays in detailed engineering and outcomes of detailed engineering resulting in increases in quantities including earthworks and construction materials, investment in mine development, consumables, and spare parts, among others.
- Additional infrastructure services due to issues experienced during earthworks activities.
- Additional scope such as new equipment and infrastructure items in the process plant and in the tailings dry stack piles.
- Increase in third-party services.



- Upgrades at the Dardanelos electrical substation.
- Logistics constraints on the upgrade of the Aripuanã river bridge.
- The COVID-19 pandemic.

Capital costs to the end of 2020 amounted to US\$312 million. Nexa forecasts that an additional US\$232 million will be incurred in 2021, and US\$2 million in 2022, totalling US\$547 million. An additional US\$201 million of sustaining capital is estimated over the LOM, which includes US\$66 million in mine development and US\$20 million in mine closure costs. The remaining capital will be provided by Nexa's current cash position, future cash generation, and a long-term loan agreement with BNDES of approximately US\$140 million that matures in 2040.

Actions undertaken by Nexa to address capital cost and schedule issues and mitigate further risk include:

- Reorganization of the project management team and added resources.
- Revisions to the scope of key contractors.
- Replacement of the Engineering, Procurement and Construction Management (EPCM) team by an Integrated Owners Team (IOT) to improve communication with all stakeholders and ensure better control of the Project.

Current status:

- The scope definition has been revised and fixed.
- 99% of detailed engineering has been completed.
- All of the long-lead items and critical packages were awarded in 2019/2020 (80% of procurement has been completed).
- 70% of long-lead equipment has been delivered to site (including the SAG mill, vertical mills and ball mill, crushers, flotation columns, flotation cells, and thickeners).
- 100% of construction packages have been awarded and renegotiated, taking into consideration new quantities and scope changes.
- All permits have been obtained and all the environmental programs are in place.

Overall Project physical progress reached 55.37% at the end of December 2020 and is advancing according to the updated plan. The Project schedule and capital costs are subject to the successful execution of the updated project plan. COVID-19 impacts have been incorporated into the updated schedule and the revised capital cost estimate based on current conditions. Potential additional impact on the Project's current schedule and estimated capital costs will continue to be evaluated.

18.2 Operating Costs

Operating costs, averaging US\$73 million per year at full production, were estimated for mining, processing, and G&A. Operating cost inputs such as labour rates, consumables, and supplies were based on Nexa operating data. The operating cost estimate is accurate to within +/- 10%. A summary of operating costs is shown in Table 18-3.

Table 18-3: Operating Cost Estimate Nexa Resources S.A. - Aripuanã Zinc Project			
Parameter	Total LOM (US\$ millions)	Average Year (US\$ millions/yr)	LOM Unit Cost (US\$/t)
Mining	361	32.8	15.34
Processing	313	28.5	13.31
G&A	134	12.2	5.69
Total	886	73.5	34.35



19.0 ECONOMIC ANALYSIS

The economic analysis contained in this Technical Report Summary is based on Aripuanã’s Mineral Reserves, economic assumptions provided by Nexa, and capital and operating costs as presented in Section 18 of this Technical Report Summary. A summary of the key criteria is provided below.

19.1 Economic Criteria

19.1.1 Revenue

- LOM processing of 23.5 Mt, grading 3.7% Zn, 1.4% Pb, 0.3% Cu, 34 g/t Ag, and 0.3 g/t Au
- Metallurgical recoveries at the LOM average head grades (recoveries vary as a function of head grade) of 89.4% Zn, 83.4% Pb, 67.5% Cu, 70.0% Ag, and 70.0% Au for stratabound material, and 88.8% Cu, 50.0% Ag, and 63.0% Au for stringer material.
- LOM average metal payable of 85% Zn, 95% Pb, 96% Cu, 83% Ag, and 83% Au.
- LOM payable metal of 713,000 t Zn, 251,000t Pb, 41,000 t Cu, 16.654 Moz Ag, and 131,000 oz Au.
- LOM metal prices derived from Nexa’s Internal Projection forecasts converging on long-term prices of US\$1.11/lb Zn, US\$0.87/lb Pb, US\$3.01/lb Cu, US\$16.87/oz Ag, and US\$1,500/oz Au from 2026 onwards.
- All revenues are received in US\$.
- Total gross revenue of US\$2,654 million.
- Total offsite treatment and refining charges of US\$422 million.
- Total transport costs of US\$331 million.
- Total royalties of US\$113 million.
- Net revenue of US\$2,541 million.
- Average net smelter return of US\$94/t processed.
- Revenue is recognized at the time of production.

19.1.2 Costs

- Mine life: 11 years.
- LOM production plan as summarized in Table 19-1.
- Pre-production capital remaining totals US\$234 million from 2021 onward.
- Pre-production capital incurred by the end of 2020 (since 2018) totals US\$312 million.
- Sustaining capital over the LOM totals US\$201 million.
- Average operating cost over the mine life is US\$34.35/t processed.

19.1.3 Taxation and Royalties

SLR has relied on a Nexa taxation model for calculation of income taxes applicable to the cash flow (Table 19-1).

19.2 Cash Flow Analysis

An after-tax Cash Flow Projection has been generated and a summary of the cash flow is presented in Table 19-1. The Net Present Value (NPV) at a 9% discount rate is \$356 million, and the Internal Rate of Return (IRR) is 31.9%, not considering capital expenditures prior to 2021.





Table 19-1: After-Tax Cash Flow Summary
Nexa Resources S.A. - Aripuanã Zinc Project

Aripuanã Project - FEL3	Cash Flow Summary			Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16
	Inputs	UNITS	TOTAL	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
MINING																				
Underground																				
Operating Days	365	days				30	100	365	365	365	365	365	365	365	365	365	365	365	365	365
Tonnes mined per day		tonnes / day	5,241.7		-	1,325	3,478	3,589	5,891	6,050	5,908	5,931	6,073	6,260	6,250	6,062	6,155	5,170	-	-
Production		'000 tonnes	23,507	-	-	40	348	1,310	2,150	2,208	2,157	2,165	2,217	2,285	2,281	2,213	2,247	1,887	-	-
Zn Grade		%	3.7%	0.0%	0.0%	1.6%	2.9%	3.2%	3.8%	3.9%	3.5%	3.6%	3.6%	4.0%	3.9%	3.3%	3.7%	3.8%	0.0%	0.0%
Pb Grade		%	1.4%	0.0%	0.0%	0.4%	1.1%	1.2%	1.3%	1.4%	1.3%	1.3%	1.3%	1.6%	1.4%	1.3%	1.4%	1.4%	0.0%	0.0%
Cu Grade		%	0.3%	0.0%	0.0%	0.9%	0.5%	0.7%	0.4%	0.3%	0.3%	0.3%	0.3%	0.1%	0.1%	0.2%	0.1%	0.1%	0.0%	0.0%
Ag Grade		oz/t	1.10	-	-	0.49	0.85	1.04	1.04	1.17	1.17	1.11	1.21	1.28	1.01	0.95	1.04	1.11	-	-
Au Grade		oz/t	0.010	-	-	0.016	0.014	0.020	0.014	0.009	0.013	0.011	0.010	0.006	0.005	0.011	0.007	0.008	-	-
Contained Metal in ROM																				
Zn		'000 tonnes	860	-	-	0.6	10.1	42.5	81.5	85.6	75.5	77.1	79.6	91.6	88.2	73.0	82.5	71.9	-	-
Pb		'000 tonnes	319	-	-	0.2	3.8	15.3	28.8	30.4	28.3	28.5	28.7	36.6	31.3	28.4	32.4	26.3	-	-
Cu		'000 tonnes	60	-	-	0.4	1.9	9.5	9.7	6.1	7.4	6.2	7.1	2.2	1.6	3.4	2.3	2.0	-	-
Ag		koz	25,887	-	-	19.4	296.41	364.1	2,233.5	2,575.92	528.82	407.42	689.82	925.9	2,314.3	2,102.1	2,335.1	2,094.1	-	-
Au		koz	236	-	-	0.6	4.8	25.6	30.0	20.4	28.5	24.3	21.3	14.2	10.8	24.7	16.1	14.7	-	-
PROCESSING																				
Mill Feed																				
		'000 tonnes	23,507	-	-	-	- 1,698	2,150		2,208	2,157	2,165	2,217	2,285	2,281	2,213	2,247	1,887	-	-
Head grade																				
Zn Grade		%	3.7%					3.1%	3.8%	3.9%	3.5%	3.6%	3.6%	4.0%	3.9%	3.3%	3.7%	3.8%	0.0%	0.0%
Pb Grade		%	1.4%					1.1%	1.3%	1.4%	1.3%	1.3%	1.3%	1.6%	1.4%	1.3%	1.4%	1.4%	0.0%	0.0%
Cu Grade		%	0.3%					0.7%	0.4%	0.3%	0.3%	0.3%	0.3%	0.1%	0.1%	0.2%	0.1%	0.1%	0.0%	0.0%
Ag Grade		oz/t	1.10					0.99	1.04	1.17	1.17	1.11	1.21	1.28	1.01	0.95	1.04	1.11	-	-
Au Grade		oz/t	0.01					0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	-	-
Contained Zn		'000 tonnes	860					53.3	81.5	85.6	75.5	77.1	79.6	91.6	88.2	73.0	82.5	71.9	-	-
Contained Pb		'000 tonnes	319					19.3	28.8	30.4	28.3	28.5	28.7	36.6	31.3	28.4	32.4	26.3	-	-
Contained Cu		'000 tonnes	60					11.7	9.7	6.1	7.4	6.2	7.1	2.2	1.6	3.4	2.3	2.0	-	-
Contained Ag		koz	25,887					1,679.8	2,233.5	2,575.92	528.82	407.42	689.82	925.9	2,314.3	2,102.1	2,335.1	2,094.1	-	-
Contained Au		koz	236					31.1	30.0	20.4	28.5	24.3	21.3	14.2	10.8	24.7	16.1	14.7	-	-
Net Recovery																				
Zn Recovery		%	89.1%					88.4%	89.2%	89.3%	88.9%	89.1%	88.4%	89.3%	89.4%	89.3%	89.2%	89.3%	0.0%	0.0%
Pb Recovery		%	83.0%					82.0%	83.5%	82.5%	83.5%	84.1%	80.7%	84.6%	81.9%	83.2%	83.5%	83.1%	0.0%	0.0%
Cu Recovery		%	71.0%					77.9%	75.7%	70.3%	77.8%	78.0%	75.5%	47.8%	29.3%	62.1%	47.8%	48.5%	0.0%	0.0%
Ag Recovery		%	75.2%					74.0%	75.0%	75.6%	74.7%	74.9%	74.9%	75.9%	75.9%	75.1%	75.6%	75.7%	0.0%	0.0%
Au Recovery		%	67.4%					66.5%	67.5%	68.4%	66.2%	66.6%	67.6%	69.4%	69.4%	66.3%	68.5%	68.0%	0.0%	0.0%
Concentrate Production																				
Zn Concentrate		'000 tonnes	1,380					84.8	131.0	137.6	121.0	123.7	126.8	147.5	142.0	117.5	132.6	115.8	-	-
Zn		%	55.50%					55.5%	55.5%	55.5%	55.5%	55.5%	55.5%	55.5%	55.5%	55.5%	55.5%	55.5%	55.5%	55.5%
Ag		oz/t	1.09					1.10	0.98	1.10	1.19	1.12	1.22	1.19	0.98	1.04	1.04	1.07	-	-
Pb Concentrate		'000 tonnes	461					27.6	41.8	43.6	41.1	41.6	40.3	53.9	44.5	41.1	47.1	38.1	-	-
Pb		%	57.50%					57.5%	57.5%	57.5%	57.5%	57.5%	57.5%	57.5%	57.5%	57.5%	57.5%	57.5%	57.5%	57.5%
Ag		oz/t	27.3					28.2	25.7	29.1	29.2	27.7	31.9	27.0	25.9	24.7	24.4	27.2	-	-
Au		oz/t	0.06					0.11	0.09	0.07	0.06	0.06	0.07	0.05	0.04	0.06	0.05	0.06	-	-
Cu Concentrate I		'000 tonnes	72					16.5	10.7	2.7	11.2	9.9	7.7	1.0	0.5	6.8	2.4	2.1	-	-
Cu		%	30.00%					30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Ag		oz/t	5.30					3.9	4.0	8.2	5.8	5.1	7.7	6.3	5.7	5.2	7.9	5.6	-	-
Au		oz/t	0.78					0.59	0.62	1.07	0.86	0.76	0.61	0.75	1.12	1.21	0.91	1.29	-	-
Cu Concentrate II		'000 tonnes	70					13.9	13.6	11.6	8.1	6.2	10.2	2.5	1.1	0.2	1.2	1.1	-	-
Cu		%	30.00%					30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Ag		oz/t	72.04					22.26	31.48	43.81	59.44	74.73	50.44	229.54	437.64	1,755.64	368.61	378.43	-	-
Au		oz/t	1.06					0.56	0.71	0.69	0.81	1.00	0.68	2.56	4.66	25.09	5.06	4.79	-	-
TOTAL Recovered																				
Zn		'000 tonnes	766.0					47.1	72.7	76.4	67.2	68.6	70.4	81.8	78.8	65.2	73.6	64.2	-	-
Pb		'000 tonnes	264.9					15.8	24.0	25.1	23.6	23.9	23.2	31.0	25.6	23.6	27.1	21.9	-	-
Cu		'000 tonnes	42.4					9.1	7.3	4.3	5.8	4.8	5.4	1.1	0.5	1.1	1.1	1.0	-	-
Ag		koz	19,476.8					1,243.5	1,675.3	1,946.31	888.01	803.32	013.52	220.4	1,757.3	1,578.9	1,764.8	1,585.4	-	-
Au		koz	159.1					20.7	20.3	14.0	18.9	16.1	14.4	9.8	7.5	16.4	11.0	10.0	-	-
Zn equivalent		kt /year	1,307					108.3	132.8	124.4	118.5	122.6	125.6	130.2	116.8	110.3	116.6	100.9	-	-





Aripuanã Project - FEL3				Cash Flow Summary																			
				Inputs	UNITS	TOTAL	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 20
REVENUES																							
Metal Prices	Zn price	US\$/t	\$2,474.52								\$ 2,298.00	\$2,539.00	\$ 2,720.00	\$ 2,928.00	\$ 2,449.00	\$ 2,449.00	\$ 2,449.00	\$2,449.00	\$2,449.00	\$2,449.00	\$2,449.00	\$2,449.00	\$2,449.00
	Pb price	US\$/t	\$1,928.56								\$ 1,898.00	\$1,957.00	\$ 2,039.00	\$ 2,247.00	\$ 1,910.00	\$ 1,910.00	\$ 1,910.00	\$1,910.00	\$1,910.00	\$1,910.00	\$1,910.00	\$1,910.00	\$1,910.00
	Cu price	US\$/t	\$6,586.11								\$ 6,137.00	\$6,277.00	\$ 6,351.00	\$ 6,639.00	\$ 6,627.00	\$ 6,627.00	\$ 6,627.00	\$6,627.00	\$6,627.00	\$6,627.00	\$6,627.00	\$6,627.00	\$6,627.00
	Ag price	US\$/oz	\$ 16.85								\$17.11	\$ 16.95	\$16.40	\$16.40	\$16.87	\$16.87	\$16.87	\$ 16.87	\$ 16.87	\$ 16.87	\$ 16.87	\$ 16.87	\$ 16.87
	Au price	US\$/oz	\$1,503.63								\$ 1,613.00	\$1,553.00	\$ 1,466.00	\$ 1,466.00	\$ 1,500.00	\$ 1,500.00	\$ 1,500.00	\$1,500.00	\$1,500.00	\$1,500.00	\$1,500.00	\$1,500.00	\$1,500.00
	FX Rate	BRL/USD	\$ 4.77				\$ 3.85	\$3.91	\$5.25	\$5.05	\$ 4.84	\$4.85	\$ 4.80	\$ 4.80	\$ 4.80	\$ 4.80	\$ 4.80	\$ 4.80	\$ 4.80	\$ 4.80	\$ 4.80	\$ 4.80	\$ 4.80
Payable Metal																							
	Zn	tonnes '000	713								43.8	67.7	71.1	62.5	63.9	65.5	76.2	73.4	60.7	68.5	59.8	-	-
	Pb	tonnes '000	251								15.0	22.8	23.8	22.4	22.7	22.0	29.4	24.3	22.4	25.7	20.7	-	-
	Cu	tonnes '000	41								8.8	7.1	4.1	5.6	4.7	5.2	1.0	0.5	2.1	1.1	0.9	-	-
	Ag	kozs	16,654								1,058.5	1,425.6	1,671.0	1,618.8	1,542.0	1,735.3	1,899.6	1,500.5	1,343.7	1,502.9	1,356.5	-	-
	Au	kozs	131								18.0	17.3	11.5	15.9	13.4	11.9	7.4	5.5	13.7	8.7	8.0	-	-
Zn Concentrate																							
	Selling Price	US\$/t conc '000	\$1,097.73								\$ 971.43	\$1,099.02	\$ 1,196.20	\$ 1,306.01	\$ 1,065.12	\$ 1,064.97	\$ 1,064.20	\$1,064.26	\$1,066.14	\$1,070.07	\$1,072.21	\$ -	\$ -
	Concentrate Revenues	tonnes '000 US\$ '000	1,380 \$ 1,515,113								84.8 \$ 82,386	131.0 \$ 143,933	137.6 \$ 164,611	121.0 \$ 158,067	123.7 \$ 131,721	126.8 \$ 135,042	147.5 \$ 156,939	142.0 \$ 151,166	117.5 \$ 125,254	132.6 \$ 141,886	115.8 \$ 124,109	-	\$ -
Pb Concentrate																							
	Selling Price	US\$/t conc '000	\$1,386.20								\$ 1,449.74	\$1,408.01	\$ 1,456.08	\$ 1,563.16	\$ 1,363.91	\$ 1,444.10	\$ 1,335.82	\$1,312.59	\$1,312.24	\$1,302.28	\$1,349.31	\$ -	\$ -
	Concentrate Revenues	tonnes '000 US\$ '000	461 \$ 638,548								27.6 \$ 39,949	41.8 \$ 58,804	43.6 \$ 63,456	41.1 \$ 64,284	41.6 \$ 56,780	40.3 \$ 58,200	53.9 \$ 72,042	44.5 \$ 58,461	41.1 \$ 53,868	47.1 \$ 61,347	38.1 \$ 51,356	-	\$ -
Cu Concentrate I																							
	Selling Price	US\$/t conc '000	\$2,870.78								\$ 2,555.52	\$2,612.94	\$ 3,231.42	\$ 3,007.09	\$ 2,874.22	\$ 2,720.83	\$ 2,883.01	\$3,366.76	\$3,486.20	\$3,122.17	\$3,593.96	\$ -	\$ -
	Concentrate Revenues	tonnes '000 US\$ '000	72 \$ 205,528								16.5 \$ 42,238	10.7 \$ 28,002	2.7 \$ 8,625	11.2 \$ 33,742	9.9 \$ 28,404	7.7 \$ 20,893	1.0 \$ 2,947	0.5 \$ 1,819	6.8 \$ 23,857	2.4 \$ 7,551	2.1 \$ 7,452	-	\$ -
Cu Concentrate II																							
	Selling Price	US\$/t conc '000	\$4,225.31								\$ 2,802.54	\$3,152.25	\$ 3,237.62	\$ 3,715.23	\$ 4,243.22	\$ 3,446.38	\$ 8,605.47	\$ 14,502.56	\$ 61,347.06	\$ 14,021.56	\$ 13,798.43	\$ -	\$ -
	Concentrate Revenues	tonnes '000 US\$ '000	70 \$ 294,757								13.9 \$ 39,090	13.6 \$ 43,023	11.6 \$ 37,428	8.1 \$ 29,980	6.2 \$ 26,188	10.2 \$ 35,143	2.5 \$ 21,843	1.1 \$ 15,298	0.2 \$ 14,189	1.2 \$ 17,475	1.1 \$ 15,101	-	\$ -
(=) TOTAL Gross Revenues																							
	Zn Concentrate	%	57%								40%	53%	60%	55%	54%	54%	62%	67%	58%	62%	63%	0%	0%
	Pb Concentrate	%	24%								20%	21%	23%	22%	23%	23%	28%	26%	25%	27%	26%	0%	0%
	Cu Concentrate	%	19%								40%	26%	17%	22%	22%	22%	10%	8%	18%	11%	11%	0%	0%
(-) Royalties																							
	Luiz Almeida	US\$ '000	\$112,641								\$8,526	\$11,278	\$11,303	\$12,081	\$10,197	\$10,442	\$10,859	\$ 9,709	\$ 9,641	\$ 9,969	\$ 8,636	\$ -	\$ -
	Anglo	US\$ '000	\$16,913								\$2,439	\$ 3,122	\$2,928	\$3,152	\$2,065	\$2,184	\$748	\$ 276	\$ -	\$ -	\$ -	\$ -	\$ -
	America	US\$ '000	\$28,617								\$2,276	\$ 2,992	\$2,981	\$3,218	\$2,635	\$2,705	\$2,667	\$ 2,345	\$ 2,328	\$ 2,394	\$ 2,076	\$ -	\$ -
	Garimpeiros	US\$ '000	\$18,331								\$ -	\$ 111	\$355	\$393	\$1,011	\$952	\$2,814	\$ 2,983	\$ 3,326	\$ 3,420	\$ 2,965	\$ -	\$ -
	CFEM	US\$ '000	\$48,782								\$3,811	\$ 5,053	\$5,039	\$5,318	\$4,486	\$4,601	\$4,630	\$ 4,106	\$ 3,987	\$ 4,154	\$ 3,595	\$ -	\$ -
(=) TOTAL Net Revenues																							
		US\$ '000	\$ 2,541,305								\$ 195,137	\$ 262,484	\$ 262,816	\$ 273,991	\$ 232,895	\$ 238,836	\$ 242,912	\$ 217,035	\$ 207,527	\$ 218,291	\$ 189,382	\$ -	\$ -
NSR																							
		US\$/t ROM	\$ 94.0								\$100.8	\$ 106.8	\$104.2	\$112.9	\$ 93.5	\$ 93.8	\$ 91.3	\$ 81.4	\$ 81.3	\$ 83.6	\$ 86.5	\$ -	\$ -
OPERATING COST																							
Mining (Underground) Processing + Tailings		US\$ '000	\$ 360,650								\$ 35,657	\$34,828	\$ 34,803	\$ 37,374	\$ 37,346	\$ 36,425	\$ 31,932	\$33,034	\$34,322	\$26,649	\$18,278	\$ -	\$ -
		US\$ '000	\$ 312,962								\$ 22,395	\$28,394	\$ 29,470	\$ 28,704	\$ 28,818	\$ 29,563	\$ 30,512	\$30,465	\$29,481	\$29,978	\$25,181	\$ -	\$ -
		US\$ '000	\$ 133,852								\$ 13,220	\$13,333	\$ 13,548	\$ 13,792	\$ 13,152	\$ 12,612	\$ 12,781	\$12,431	\$12,482	\$ 9,575	\$ 6,926	\$ -	\$ -
	Total Operating Cost	US\$ '000	\$ 807,464								\$ 71,271	\$76,555	\$ 77,820	\$ 79,871	\$ 79,317	\$ 78,600	\$ 75,226	\$75,931	\$76,285	\$66,202	\$50,386	\$ -	\$ -
		US\$ /t proc	\$ 15.3								\$ 21.0	\$16.2	\$ 15.8	\$ 17.3	\$ 17.3	\$ 16.4	\$ 14.0	\$ 14.5	\$ 15.5	\$ 11.9	\$9.7	\$ -	\$ -
		US\$ /t proc	\$ 13.3								\$ 13.2	\$13.2	\$ 13.3	\$ 13.3	\$ 13.3	\$ 13.3	\$ 13.4	\$ 13.4	\$ 13.3	\$ 13.3	\$ 13.3	\$ -	\$ -
G&A Total Operating Cost		US\$ /t proc	\$5.7								\$ 7.8	\$ 6.2	\$ 6.1	\$ 6.4	\$ 6.1	\$ 5.7	\$ 5.6	\$5.4	\$5.6	\$4.3	\$3.7	\$ -	\$ -
		US\$ /t proc	\$ 34.4								\$ 42.0	\$35.6	\$ 35.2	\$ 37.0	\$ 36.6	\$ 35.5	\$ 32.9	\$ 33.3	\$ 34.5	\$ 29.5	\$ 26.7	\$ -	\$ -
	Cost/Zn eq.	Zn eq.	\$ 617.7								\$657.9	\$ 576.3	\$625.6	\$674.1	\$646.7	\$625.7	\$577.6	\$ 650.1	\$ 691.8	\$ 567.8	\$ 499.2	\$ -	\$ -
		US\$ '000	\$ 331,368								\$ 24,088	\$32,901	\$ 32,671	\$ 30,486	\$ 30,409	\$ 31,003	\$ 34,195	\$31,244	\$27,667	\$30,577	\$26,126	\$ -	\$ -
	Zn Concentrate	US\$ '000	\$ 221,301								\$ 13,526	\$20,874	\$ 22,087	\$ 19,426	\$ 19,849	\$ 20,353	\$ 23,670	\$22,798	\$18,857	\$21,282	\$18,579	\$ -	\$ -
	Pb Concentrate	US\$ '000	\$84,251								\$5,015	\$ 7,596	\$7,978	\$7,529	\$7,621	\$7,378	\$9,873	\$ 8,154	\$ 7,515	\$ 8,624	\$ 6,968	\$ -	\$ -
(=) Operating Cash Flow - EBITDA		US\$ '000	\$ 1,402,473								\$ 99,777	\$ 153,027	\$ 152,326	\$ 163,634	\$ 123,169	\$ 129,232	\$ 133,491	\$ 109,860	\$ 103,575	\$ 121,511	\$ 112,870	\$ -	\$ -
	EBITDA Margin	%	53%								49%	56%	56%	57%	51%	52%	53%	48%	48%	53%	57%	0%	0%





Aripuanã Project - FEL3				Cash Flow Summary			Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15
				Inputs	UNITS	TOTAL	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
CAPITAL COST																						
Initial Capital Cost																						
	Mining Plant & Infrastructure		US\$ '000	\$92,264		\$ -	\$ 29,366	\$ 33,234	\$ 29,664	\$ 0												
	Total Direct Cost		US\$ '000	\$ 280,391		\$1,549	\$ 53,067	\$110,559	\$115,210	\$ 6												
			US\$ '000	\$ 372,655		\$1,549	\$ 82,433	\$143,793	\$144,874	\$ 6												
	EPCM / Owners / Indirect Cost		US\$ '000	\$ 157,818		\$542	\$ 41,267	\$ 48,723	\$ 66,154	\$1,134												
	Subtotal Costs		US\$ '000	\$ 530,473		\$2,090	\$123,700	\$192,516	\$211,027	\$1,140												
	Contingency		US\$ '000	\$16,040		\$ -	\$-	\$-	\$ 16,040	\$ -												
(=) TOTAL Initial Capital			US\$ '000	\$ 546,513		\$2,090	\$123,700	\$192,516	\$227,067	\$1,140												
Operating Capital Cost																						
	Mine Development		US\$ '000	\$65,772		\$ -	\$-	\$-	\$-	\$8,505	\$10,653	\$11,477	\$8,229	\$11,225	\$5,373	\$4,873	\$ 4,337	\$ 981	\$ 119	\$ -	\$	
	Sustaining infrastructure		US\$ '000	\$115,679		\$ -	\$-	\$-	\$-	\$23,793	\$13,259	\$22,742	\$3,747	\$11,676	\$12,882	\$4,354	\$11,440	\$ 8,955	\$ 2,309	\$ 523	\$	
	Closure and Other		US\$ '000	\$19,940		\$ -	\$-	\$-	\$-	\$ -	\$ -	\$-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,226	\$ 2,618	\$ 2,727	\$ 8,41
	Operational Working Capital		US\$ '000	\$ -		\$ -	\$-	\$-	\$-	\$9,606	\$ 3,681	\$1	\$592	\$ (2,199)	\$370	\$209	\$ (1,389)	\$ (525)	\$ 829	\$ (1,366)	\$ (9,80)	
(=) TOTAL Operating Capital Cost			US\$ '000	\$ 201,391		\$ -	\$-	\$-	\$-	\$ 41,903	\$27,592	\$ 34,219	\$ 12,568	\$ 20,701	\$ 18,626	\$9,436	\$14,388	\$12,636	\$ 5,875	\$ 1,883	\$ (1,39)	
CASH FLOW						NPV																
	(+) Revenues		US\$ '000	\$ 1,593,815		\$ -	\$-	\$-	\$-	\$ 203,663	\$273,762	\$ 274,119	\$ 286,072	\$ 243,093	\$ 249,277	\$ 253,771	\$ 226,744	\$ 217,168	\$ 228,260	\$ 198,018	\$	
	(-) Royalties		US\$ '000	\$67,301		\$ -	\$-	\$-	\$-	\$8,526	\$11,278	\$11,303	\$12,081	\$10,197	\$10,442	\$10,859	\$ 9,709	\$ 9,641	\$ 9,969	\$ 8,636	\$	
	(-) Mining Costs		US\$ '000	\$ 219,878		\$ -	\$-	\$-	\$-	\$ 35,657	\$34,828	\$ 34,803	\$37,374	\$37,346	\$36,425	\$31,932	\$33,034	\$34,322	\$26,649	\$18,278	\$	
	(-) Processing Costs		US\$ '000	\$183,777		\$ -	\$-	\$-	\$-	\$ 22,395	\$28,394	\$ 29,470	\$ 28,704	\$ 28,818	\$ 29,563	\$30,512	\$30,465	\$29,481	\$29,978	\$25,181	\$	
	(-) G&A		US\$ '000	\$81,756		\$ -	\$-	\$-	\$-	\$ 13,220	\$13,333	\$13,548	\$13,792	\$13,152	\$12,612	\$12,781	\$12,431	\$12,482	\$ 9,575	\$ 6,926	\$	
	(-) Selling Expenses		US\$ '000	\$196,385		\$ -	\$-	\$-	\$-	\$ 24,088	\$32,901	\$32,671	\$ 30,486	\$ 30,409	\$31,003	\$34,195	\$31,244	\$27,667	\$30,577	\$26,126	\$	
(=) EBITDA			US\$ '000	\$ 830,293		\$ -	\$-	\$-	\$- (14,586)	\$99,262	\$153,027	\$152,326	\$163,634	\$123,169	\$129,232	\$133,491	\$109,860	\$103,575	\$121,511	\$112,870	\$	
	(-) Initial Capital (net of taxes)		US\$ '000	\$ 205,602		\$ -	\$-	\$-	\$213,670	\$1,073	\$-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$	
	(-) Sustaining Capital (net of taxes)		US\$ '000	\$107,813		\$ -	\$-	\$-	\$-	\$ 28,138	\$20,832	\$ 29,811	\$10,433	\$19,951	\$15,905	\$8,039	\$13,745	\$ 8,656	\$ 2,115	\$ 456	\$	
	(-) Closure and Other		US\$ '000	\$ 7,283		\$ -	\$-	\$-	\$-	\$ -	\$-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,226	\$ 2,618	\$ 2,727	\$ 8,41	
	(+) Operational Working Capital		US\$ '000	\$ -6,352		\$ -	\$-	\$-	\$-	\$ (9,606)	\$ (3,681)	\$ (1)	\$ (592)	\$2,199	\$ (370)	\$ (209)	\$ 1,389	\$ 525	\$ (829)	\$ 1,366	\$ 9,80	
(=) Pre-Tax Cashflow			US\$ '000	\$ 503,244		\$ -	\$-	\$-	\$- (228,256)	\$ 60,446	\$128,515	\$122,514	\$152,609	\$105,418	\$112,958	\$125,243	\$97,504	\$92,218	\$115,949	\$111,054	\$ 1,39	
	(-) Income Tax		US\$ '000	\$79,452		\$ -	\$-	\$-	\$-	\$4,575	\$13,947	\$13,375	\$14,893	\$8,265	\$12,225	\$12,939	\$ 9,590	\$ 8,540	\$11,519	\$32,995	\$	
	(-) PIS/COFINS		US\$ '000	\$64,583		\$ 77	\$ 4,577	\$ 7,475	\$ 9,532	\$7,449	\$ 7,023	\$8,020	\$6,185	\$7,161	\$6,735	\$5,659	\$ 6,322	\$ 5,827	\$ 4,604	\$ 3,415	\$	
	(-) ICMS		US\$ '000	\$60,671		\$ 46	\$ 2,721	\$ 4,700	\$ 6,491	\$7,320	\$ 7,437	\$7,957	\$7,252	\$7,698	\$7,494	\$6,770	\$ 7,140	\$ 6,937	\$ 5,901	\$ 4,476	\$	
	(+) Tax Recovery		US\$ '000	\$57,010		\$ -	\$-	\$-	\$-	\$4,575	\$13,947	\$13,375	\$14,893	\$8,174	\$7,053	\$6,224	\$ 6,390	\$ 6,126	\$ 5,218	\$ 4,004	\$	
(=) After-Tax Cashflow			US\$ '000	\$ 355,548		\$ (123)	\$ (7,298)	\$ (12,175)	\$ (244,279)	\$ 45,676	\$114,055	\$106,538	\$139,172	\$ 90,467	\$ 93,557	\$106,099	\$80,843	\$77,040	\$99,143	\$74,173	\$ 1,39	
PROJECT ECONOMICS						period	-2.5	-1.5	-0.5	0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5
Pre-Tax																						
	Pre-tax IRR		%	45.0%																		
	Pre-tax NPV at 7.82% discounting	8.00%	US\$ '000	\$541,689		\$ -	\$-	\$-	\$ (219,640)	\$ 53,855	\$106,021	\$ 93,584	\$107,938	\$ 69,037	\$ 68,495	\$ 70,320	\$50,690	\$44,391	\$51,679	\$45,831	\$ 53	
	Pre-tax NPV at 9.00% discounting	9.00%	US\$ '000	\$503,244		\$ -	\$-	\$-	\$ (218,630)	\$53,116	\$103,606	\$ 90,614	\$103,552	\$ 65,625	\$ 64,513	\$ 65,623	\$46,870	\$40,669	\$46,912	\$41,222	\$ 47	
	Pre-tax NPV at 10.00% discounting	10.00%	US\$ '000	\$467,658		\$ -	\$-	\$-	\$ (217,634)	\$52,393	\$101,268	\$ 87,763	\$ 99,383	\$ 62,410	\$ 60,794	\$ 61,279	\$43,370	\$37,290	\$42,623	\$37,112	\$ 42	
After-Tax																						
	After-tax IRR		%	31.9%																		
	After-tax NPV at 7.82% discounting	8.00%	US\$ '000	\$387,499		\$ (149)	\$ (8,191)	\$ (12,653)	\$ (235,057)	\$ 40,696	\$94,092	\$ 81,381	\$ 98,434	\$ 59,246	\$ 56,731	\$ 59,571	\$42,028	\$37,084	\$44,189	\$30,611	\$ 53	
	After-tax NPV at 9.00% discounting	9.00%	US\$ '000	\$355,548		\$ (153)	\$ (8,305)	\$ (12,711)	\$ (233,977)	\$ 40,138	\$91,949	\$ 78,797	\$ 94,435	\$ 56,318	\$ 53,433	\$ 55,592	\$38,861	\$33,975	\$40,113	\$27,532	\$ 47	
	After-tax NPV at 10.00% discounting	10.00%	US\$ '000	\$325,933		\$ (156)	\$ (8,420)	\$ (12,769)	\$ (232,911)	\$ 39,592	\$89,874	\$ 76,318	\$ 90,633	\$ 53,559	\$ 50,353	\$ 51,912	\$35,959	\$31,152	\$36,445	\$24,787	\$ 42	
	Discount factor	9.00%				1.24	1.14	1.04	0.96	0.88	0.81	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.3	
Regular Payback (after start-up)				years	3.0	-	-	-	-	1.0	1.0	1.0	-	-	-	-	-	-	-	-	-	
	Cumulative After-Tax Cashflow		US\$ '000		(123)	(7,422)	(19,597)	(263,876)	(218,199)	(104,144)	2,394	141,566	232,032	325,590	431,689	512,532	589,572	688,714	762,887	764,28		
Discounted Payback (after start-up)				years	3.3	-	-	-	-	1.0	1.0	1.0	0.3	-	-	-	-	-	-	-	-	
	Discounted Casflow		US\$ '000		(153)	(8,305)	(12,711)	(233,977)	40,138	91,949	78,797	94,435	56,318	53,433	55,592	38,861	33,975	40,113	27,532	47		
	Cumulative discounted Cashflow		US\$ '000		(153)	(8,458)	(21,170)	(255,146)	(215,009)	(123,059)	(44,262)	50,173	106,490	159,923	215,515	254,376	288,351	328,464	355,996	356,47		





19.3 Sensitivity Analysis

Project risks can be identified in both economic and non-economic terms. Key economic risks were examined by running cash flow sensitivities:

- Metal price
- Head grade
- Metallurgical recovery
- Operating costs
- Capital costs

IRR sensitivity over the base case has been calculated for a variety of ranges depending on the variable. The sensitivities are shown in Figure 19-1 and Table 19-2.



Figure 19-1: Pre-Tax Sensitivity Analysis Example





Table 19-2: Sensitivity Analyses
Nexa Resources S.A. - Aripuanã Zinc Project

Description	Units	Low Case	Mid-Low Case	Base Case	Mid-High Case	High Case
Head Grade (Zn)	% Zn	2.9	3.3	3.7	4	4.4
Overall Recovery (Zn)	%	80.2	84.6	89.1	90.9	92.7
Metal Prices (Zn)	US\$/lb Zn	1.01	1.13	1.26	1.38	1.51
Exchange Rate	R\$/US\$	3.63	4.27	4.77	5.27	5.78
Operating Costs	US\$/t	32.63	33.49	34.35	36.93	39.5
Capital Cost	US\$ millions	332	341	349	376	402
Adjustment Factor						
Head Grade (ZnEq)	%	80	90	100	110	120
Overall Recovery	%	90	95	100	102	104
Metal Prices (Zn)	%	80	90	100	110	120
Exchange Rate	%	76	90	100	111	121
Operating Costs	%	95	97.5	100	107.5	115
Capital Cost	%	95	97.5	100	107.5	115
Post-Tax NPV @ 9%						
Head Grade (ZnEq)	US\$ millions	84	225	356	476	595
Overall Recovery	US\$ millions	240	299	356	378	400
Metal Prices (Zn)	US\$ millions	39	206	356	498	641
Exchange Rate	US\$ millions	8	236	356	447	524
Operating Costs	US\$ millions	376	366	356	324	293
Capital Cost	US\$ millions	375	365	356	325	291

For head grade, recovery, and metal prices, factors were applied to all metals in the various categories, however, in Table 19-2, values for zinc are shown because it provides the most revenue.

The Project is most sensitive to changes in metal prices, and least sensitive to capital and operating costs.





20.0 ADJACENT PROPERTIES

SLR is not aware of any significant deposits or properties adjacent to the Aripuanã Project.





21.0 OTHER RELEVANT DATA AND INFORMATION

No additional information or explanation is necessary to make this Technical Report Summary understandable and not misleading.





22.0 INTERPRETATION AND CONCLUSIONS

SLR offers the following conclusions for each area:

22.1 Geology and Mineral Resources

- The Aripuanã deposits are located within the central-southern portion of the Amazonian Craton, in which Paleoproterozoic and Mesoproterozoic lithostratigraphic units of the Rio Negro-Juruena province (1.80 Ga to 1.55 Ga) predominate.
- The Aripuanã polymetallic deposits are typical VMS deposits associated with felsic bimodal volcanism. Four main elongate mineralized zones, Arex, Link, Ambrex, and Babaçú, have been defined in the central portion of the Project.
- Two separate material types have been identified - massive sulphide stratabound Zn-Pb mineralization, and Cu-Au bearing stringer mineralization found in the footwall of the stratabound zones.
- The drilling, sampling, sample preparation, analysis, and data verification procedures meet or exceed industry standard, and are appropriate for the estimation of Mineral Resources.
- As prepared by Nexa and adopted by SLR, the Aripuanã Measured and Indicated Mineral Resources, effective as of September 30, 2020, comprise 8.1 Mt at 2.1% Zn, 0.7% Pb, 0.3% Cu, 0.4 g/t Au, and 22 g/t Ag for 169,000 t Zn, 60,000 t Pb, 25,000 t Cu, 98,000 oz Au, and 5.8 Moz Ag. Mineral Resources are reported on a 100% Nexa attributable ownership basis.
- Inferred Mineral Resources comprise 39.5 Mt at 3.3% Zn, 1.2% Pb, 0.3% Cu, 0.6 g/t Au, and 34 g/t Ag for 1.3 Mt Zn, 482,000 t Pb, 131,000 t Cu, 737,000 oz Au, and 43.0 Moz Ag.
- Based on additional drilling completed since 2018, the Babaçú deposit has been incorporated into the Project's Mineral Resource estimate. The deposit remains open and presents exploration potential beyond the current Mineral Resources. Limited exploration has identified additional mineralized bodies including Massaranduba to the south and Arpa to the north.

22.2 Mining and Mineral Reserves

- The deposits support a production rate of 2.2 Mtpa, producing an average of 70,000 tpa zinc (zinc equivalent of 119,000 tpa, after converting other metals based on net revenue).
- Deposit geometry and geomechanical properties are amenable to bulk longhole mining methods, in primary/secondary or longitudinal retreat sequencing, depending on thickness.
- As prepared by Nexa and adopted by SLR, the Aripuanã Proven and Probable Mineral Reserves, effective as of September 30, 2020, comprise 23.5 Mt at grades of 3.7% Zn, 1.4% Pb, 0.25% Cu, 0.31 g/t Au, and 34 g/t Ag, containing 859,800 t Zn, 319,000 t Pb, 59,700 t Cu, 236,100 oz Au, and 25.9 Moz Ag. Mineral Reserves are reported on a 100% Nexa attributable ownership basis.
- Dilution and extraction estimates include:
 - o Dilution - planned (captured within stope designs) and additional unplanned dilution applied as factors ranging from 5% to 15%, by mining method.
 - § SLR's preference is to apply dilution as a hanging wall/footwall distance, rather than a global percentage (as has been done in estimating Mineral Reserves). The percentage approach applies too much dilution to larger stopes and not enough to smaller stopes.
 - § SLR reviewed the impact of this methodology and found that using percentage dilution may introduce small inaccuracies to some individual stope estimates, however, it has little impact on the overall estimate.
 - o Extraction - initial selection of resources by stope optimization and design, plus additional factors of 85% to 100% (100% dilution only occurs during development), by mining method.





- The stope shapes are based on optimizer output, with some editing and manual redesign. There will be opportunities to reduce planned dilution and increase extraction after infill drilling and before mining as part of the short-term planning process.
- The Arex, Link, and Ambrex deposits are not directly connected underground, making it difficult to share slow-moving mobile equipment efficiently. Fleet unit numbers are adequate to achieve the proposed mine production with limited sharing.

22.3 Mineral Processing

- The results of the metallurgical test work form the basis for the current engineering design of the sequential talc, copper, lead, and zinc flotation circuit.
- Stringer and stratabound mineralization have been tested separately and in blends of various proportions. Different comminution results and recovery kinetics were observed during bench-scale test work for the different mineralization. The decision was initially made to process the two material types separately on a campaign basis, however, continued test work on blends indicated that acceptable recoveries and concentrate grades can be achieved when processing blended ore.
- Process performance is projected as:
 - o Stratabound Zinc – 89.5% recovery to Zn concentrate. Silver recovery to this concentrate will be 10%.
 - o Stratabound Lead – Variable recovery in the range of 80% to 90% with a LOM average of 84.5% to Pb concentrate. Gold and silver recoveries to this concentrate will be 20% and 55%, respectively.
 - o Stratabound Copper – 67.6% to Cu concentrate. Gold and silver recoveries to this concentrate will be 50% and 20%, respectively.
 - o Stringer Copper – Variable recovery in the range of 85% to 95% with a LOM average of 86.9% recovery to Cu concentrate. Gold and silver recoveries to this concentrate will be 63% and 50%, respectively.
 - o Regression models have been developed from the test work to relate recovery to head grade for each of the metals and have been used to estimate recovery in the cash flow model for the LOM.
- Test work in late 2019 and early 2020 by SGS GEOSOL on composites representing ore to be processed in the first nine quarters of operation (based on the FEL3 LOM plan) confirmed that acceptable recoveries and concentrate grades could be achieved. While zinc and copper recoveries were within expected ranges, lead recovery was below expectations. However, since many of the LCT using these composites did not reach equilibrium, recoveries and concentrate grades need to be verified.
- Pilot plant test work is being conducted by Nexa at its Vazante Mine using blended (stratabound and stringer) bulk ore samples drawn from the ROM stockpile at Aripuanã. Results from this test work were not available at the time of writing this Technical Report Summary.
- Grinding circuit simulations were conducted to evaluate the capacity of the grinding circuit when processing different ore types. The simulations indicated that throughput would be limited to 216 tph (4,730 tpd) for stringer ore and 289 tph (6,300 tpd) for stratabound ore, with throughput between these two cases for blends of stringer and stratabound ore. SLR estimated that throughput of stringer ore of up to 5,000 tpd could be achieved for ore corresponding to the 75th percentile of hardness values determined during test work, rather than the higher hardness values used in the grinding circuit simulations.
- Talc (non-sulphide fines) removal by flotation is sometimes required prior to sequential flotation of Cu, Pb, and Zn. Copper losses to the talc concentrate can be recovered by reverse copper flotation from the talc concentrate, which will be implemented in the processing plant if required.
- Concentrates are expected to be generally clean without penalizable levels of deleterious elements.

22.4 Environment

- No environmental issues were identified from the documentation available for review that could materially impact the ability to extract the Mineral Resources and Mineral Reserves.





- Nexa maintains a list of permits for the Project along with any relevant expiry dates, which was provided to SLR. These include installation and operating licenses. Nexa reports regularly to the Mato Grosso environmental regulatory agency (SEMA) on compliance with conditions of Installation License No. 69614/2018 for the Project.
- Nexa has assessed the environmental impacts of the Project in the 2017 EIA for all Project phases, taking into account the baseline conditions. Management programs and monitoring plans were included in the EIA to mitigate the identified impacts, and further detail on these programs and plans were provided in a stand-alone Environmental Control Plan in 2018. The EIA and subsequent management plans are comprehensive in the detail they provide. Some aspects such as resource use efficiency are yet to be considered by the developing Project. In the SLR QP's opinion the proposed environmental plans are adequate to address issues related to environmental compliance.
- Nexa reports that it has ISO systems in place and has committed to complying with all relevant legal requirements.

22.5 Social

- The 2017 EIA includes a social baseline description, assessment of socio-economic impacts, and management plans detailing measures to prevent, minimize, or mitigate the identified socio-economic impacts. These components are generally consistent with social impact assessment practices. Since the completion of the 2017 EIA, Nexa has continued to monitor socio-economic indicators. This monitoring program is focused on the potential impacts for the various phases of the Project. Nexa implements a complaint register to gather and respond to complaints from the public. In the SLR QP's opinion the social management programs and tools for Aripuanã are adequate to address potential issues related to local communities and Indigenous Peoples.
- Consultations with Indigenous Peoples regarding Project impacts and mitigations were undertaken. A study of the Indigenous communities was carried out to assess the environmental and socio-cultural impacts arising from the Project.
- The agreement signed with the artisanal miners cooperative establishes a consent from Nexa for use of 517 ha for artisanal mining activities for a period of two and a half years, which may be renewed for an equal period. The assigned area has no interference with the mining concession area related to the Aripuanã Project, which is located in another mining right owned by Nexa. The agreement also establishes that all environmental damages arising from the artisanal mining activity in the assigned area will be the cooperative's responsibility, and Nexa is exempt from any environmental liabilities arising from their activities.
- Nexa plans to employ mostly local people averaging approximately 65% local employees. Nexa reports that 54% of job vacancies in 2019 were filled by women.
- Nexa's developing the Project contributes positively to community well-being and development. The Project has provided assistance to the local authorities and communities in responding to the current COVID-19 pandemic. Nexa has established environmental and social management programs, as well as health and safety programs for its employees. Corporate policies, procedures, and practices are implemented in a manner consistent with relevant IFC Performance Standards.

22.6 Construction Progress

- Detailed engineering is 99% complete.
- Physical construction progress has been estimated by Nexa to be 55.37% as of the end of December 2020.
- 70% of long-lead equipment has been delivered to site.
- Pre-commissioning and commissioning are scheduled for the second half of 2021, with ramp-up to full production starting in 2022.
- Delays from the original schedule include:





- o Delays in completion of detailed engineering and outcomes of detailed engineering resulting in increases in quantities including earthworks and construction materials, investment in mine development, consumables, and spare parts, among others.
- o Additional infrastructure services due to issues experienced during earthworks activities.
- o Additional scope such as new equipment and infrastructure items in the process plant and in the tailings dry stack piles.
- o Increase in third-party services.
- o Upgrades at the Dardanelos power substation.
- o Logistics constraints on the upgrade of the Aripuanã river bridge.
- o The COVID-19 pandemic.

22.7 Costs and Economics

- Pre-production capital costs remaining from 2021 onward total approximately US\$234 million.
- Contingency comprises 7.6% of direct and indirect capital costs.
- Operating costs average US\$34.35 per tonne over the LOM, with higher unit costs at the start and end when full production is not achievable.
- Long-term metal prices (from 2026 onwards) are based on Nexa's projections. Nexa's long term price model uses multiple variables including supply (mine and refined), demand, cost drivers, capital cost, and other key elements. The long-term prices derived are in line with the consensus forecasts from banks and independent institutions and are as follows: US\$1.11/lb Zn, US\$0.87/lb Pb, US\$3.01/lb Cu, US\$1,500/oz Au, and US\$16.87/oz Ag.
- Smelter terms are projected by Nexa based on selling 46% of produced concentrates directly to China and 54% to Nexa's internal smelters and are consistent with industry benchmarks.
- The after-tax NPV at a 9% discount rate is \$356 million, and the IRR is 31.9%.
- This NPV and IRR does not include capital expenditures to date. Capital costs up to Q2 2020 amounted to US\$201 million. Nexa has forecast expenditures of US\$117 million in H2 2020, US\$227 million in 2021 and US\$1 million in 2022, totalling US\$547 million. An additional US\$201 million of sustaining capital is estimated during the LOM, which includes US\$66 million in mine development and US\$20 million in mine closure cost. Considering capital expenditures to date, the Project's after-tax NPV at a 9% discount rate is US\$27 million, and the IRR is 9.8%.





23.0 RECOMMENDATIONS

SLR offers the following recommendations for each area:

23.1 Geology and Mineral Resources

1. Infill areas where poorly angled drill holes are driving the geological interpretation.
2. Investigate the use of density weighting during compositing and interpolation.
3. Following up with additional step out drilling at Babaçú to increase the Mineral Resources.
4. Drill the Babaçú NW Exploration Target to convert the exploration target to Mineral Resources.
5. Continue to review minor issues with certain CRMs used in analytical quality assurance procedures.

23.2 Mining and Mineral Reserves

1. Review and optimize stope shapes after infill drilling and before mining as part of the short-term planning process.
2. Implement a rigorous grade control program during operations, to assess the impact of the various material grades and effectiveness of blending on the process recovery.

23.3 Mineral Processing

1. Confirm the recovery and concentrate grade values derived from earlier test work that have been used in project cash flow calculations by completing the ongoing pilot test work at Nexa's Vazante Mine using bulk blended ore samples simulating the processing of stringer and stratabound material together. This test work may also provide opportunities to optimize flotation conditions to maximize recovery and concentrate quality.
2. Using the talc flotation circuit configuration arrived at during test work at SGS GEOSOL in early 2020, confirm talc rejection efficiency and copper losses through pilot test work at Vazante Mine.

23.4 Environment

1. Develop and implement a project-specific environmental policy.
2. Revise the management plans on a regular basis and improve them where relevant based on feedback such as monitoring data or stakeholder comments. An action should therefore be specifically included in the management plans which describes how and when these plans will be revised and updated.
3. Ensure that the environmental monitoring plans are being implemented according to the Environmental Control Plan.
4. Compare monitoring results to relevant international standards, e.g., IFC standards specified in various guideline documents, in addition to local or national applicable standards.
5. Nexa has indicated that all third-party water users were identified, and the monitoring program was developed taking these users into account. Information should be maintained on potential sensitive receptors with respect to impacts such as dust generation, noise and third-party water surface and groundwater users so that these receptors can be monitored as relevant in order to ensure that all potential Project impacts are adequately managed.

The following recommendations associated with tailings disposal are proposed for the next phase of the design:

1. Classify the TMF in terms of the Global Tailings Standard or the Canadian Dam Association. The classification may require more conservative design criteria in terms of flood management and seismic loading.
2. Consider the stability assessment of the individual components of the double lined system and the interface between the components in the stability analyses. In particular, the interface between the smooth side of the geomembrane and the sand leakage detection layer.





3. Complete a deformation analysis to determine if the long-term strain of the high density polyethylene geomembrane is within acceptable limits.
4. Implement measures to control dust generation from the slopes of the TMF and internal access roads and ramps during the dry season.
5. Implement requirements to allow the progressive rehabilitation of the slopes.
6. Implement deposition planning for the wet season and the associated logistical requirements for the use and management of the inflatable warehouses.
7. Investigate the extent of the colluvial layer within the foundation of the TMF to provide a more accurate estimate of the volume of material that must be removed.
8. Carry out an initial assessment of the stability of the capping clay layer on the intermediate bench slopes to determine if slope flattening is required for closure.
9. Determine a source of clay with suitable quality for use as a lining and capping material.
10. Complete a formal risk assessment.

23.5 Social

1. Nexa has conducted extensive stakeholder engagement with communities in the area, including Indigenous Communities. As the Project evolves, Nexa should develop a stakeholder engagement plan going forward and update this plan regularly. A separate plan should be developed for engagement with Indigenous Communities. The Engagement with Indigenous Communities plan should specifically determine if these stakeholders are satisfied with the risks, impacts, and management measures identified for the Project. All stakeholder engagement plans should consider the current COVID-19 pandemic in terms of how interaction with stakeholders can be achieved both effectively and safely for as long as the pandemic is a factor.
2. Revise the social management plans on a regular basis and improve where relevant, based on feedback such as monitoring data or stakeholder comments. An action should therefore be specifically included in the management plans which describes how and when these plans will be revised and updated.
3. Clearly document the socio-economic monitoring program and methods and include benchmarks.
4. Develop and implement site-specific occupational, health, and safety plans.
5. Develop and implement a Chance Find procedure for heritage resources.
6. Maintain clear records on any worker grievances or ethical violations, if not done already.
7. Consider implementing preferential hiring, training, and development of Indigenous Peoples specifically.

23.6 Costs and Economics

1. Continuously monitor costs and exchange rates and lock in costs as soon as possible to eliminate economic uncertainty.





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25.0 RELIANCE ON INFORMATION PROVIDED BY THE REGISTRANT

This Technical Report Summary has been prepared by SLR Consulting Ltd (SLR) for Nexa. The information, conclusions, opinions, and estimates contained herein are based on:

- Information available to SLR at the time of preparation of this report.
- Assumptions, conditions, and qualifications as set forth in this report.
- Data, reports, and other information supplied by Nexa and other third-party sources.

For the purpose of this report, SLR has relied on ownership information provided by Nexa. SLR was provided with a legal opinion letter prepared by Nexa’s legal department describing the mineral rights, dated July 17, 2020 and a letter by ICP Brazil describing the surface rights, dated April 28, 2020. These opinions have been relied on in Section 3 and the Summary of this report. SLR has not researched property title or mineral rights for the Project as we consider it reasonable to rely on Nexa’s legal counsel who is responsible for confirming this information on a regular basis..

Except for the purposes legislated under U.S. federal securities laws and the Canadian provincial securities laws, any use of this Technical Report Summary by any third party is at that party’s sole risk.





26.0 DATE AND SIGNATURE PAGE

This report titled “Technical Report Summary on the Aripuanã Zinc Project, State of Mato Grosso, Brazil” with an effective date of September 30, 2020 was prepared and signed by:

SLR Consulting (Canada) Ltd. **(Signed) *SLR Consulting (Canada) Ltd.***

Dated at Toronto, ON
January 15, 2021



Nexa Resources S.A. | Aripuanã Zinc Project, SLR Project No: 233.03252.R0000
Technical Report Summary - January 15, 2021



CONSENT OF QUALIFIED PERSON

I, **Cesar Moreno, B.Eng., MAusIMM**, a Qualified Person for purposes of subpart 1300 of Regulation S-K ("**S-K 1300**"), and a Nexa Resources employee, consent to the public filing of the Annual Report titled "**Annual Report Pursuant to section 13 or 15(d) of the Securities Exchange act of 1934**" with an effective date of **December 31, 2025**. The document contains certain disclosures relating to the mining properties of Nexa Resources S.A. ("**Nexa Resources**", "**Nexa**" or the "**Company**") that have been prepared in accordance with S-K 1300 adopted by the U.S. Securities and Exchange Commission.

I certify that I have supervised and validated the **Mineral Reserves** estimate performed by Nexa employees for the **Cerro Lindo mine**.

I also certify that I have read the annual report on Form 20-F and approved the document being filed by Nexa Resources S.A. and that it fairly and accurately represents the **Mineral Reserves** for each propriety for which I am responsible.

Dated: March 26, 2026.

/s/ Cesar Moreno

Cesar Moreno, B.Eng., MAusIMM
AusIMM No. 3138524





CONSENT OF QUALIFIED PERSON

I, **Mateus Gomes Ribeiro, B.Eng., MAusIMM**, a Qualified Person for purposes of subpart 1300 of Regulation S-K (“**S-K 1300**”), and a Nexa Resources employee, consent to the public filing of the Annual Report titled “**Annual Report Pursuant to section 13 or 15(d) of the Securities Exchange act of 1934**” with an effective date of **December 31, 2025**. The document contains certain disclosures relating to the mining properties of Nexa Resources S.A. (“**Nexa Resources**”, “**Nexa**” or the “**Company**”) that have been prepared in accordance with S-K 1300 adopted by the U.S. Securities and Exchange Commission.

I certify that I have supervised and validated the **Mineral Reserves** estimate performed by Nexa employees for: **Vazante mine and Vazante Aroeira Tailings**.

I also certify that I have read the annual report on Form 20-F and approved the document being filed by Nexa Resources S.A. and that it fairly and accurately represents the **Mineral Reserves** for each propriety for which I am responsible.

Dated: March 26, 2026.

/s/ Mateus Gomes Ribeiro

 Mateus Gomes Ribeiro, B.Eng., MAusIMM
 AusIMM No. 3131208





CONSENT OF QUALIFIED PERSON

I, **Renzo Suarez, B.Eng., MAusIMM**, a Qualified Person for purposes of subpart 1300 of Regulation S-K (“**S-K 1300**”), and a Nexa Resources employee, consent to the public filing of the Annual Report titled “**Annual Report Pursuant to section 13 or 15(d) of the Securities Exchange act of 1934**” with an effective date of **December 31, 2025**. The document contains certain disclosures relating to the mining properties of Nexa Resources S.A. (“**Nexa Resources**”, “**Nexa**” or the “**Company**”) that have been prepared in accordance with S-K 1300 adopted by the U.S. Securities and Exchange Commission.

I certify that I have supervised and validated the **Mineral Reserves** estimate performed by Nexa employees for: **Cerro Pasco Complex, including the El Porvenir, Atacocha Underground and Atacocha Open Pit mines**.

I also certify that I have read the annual report on Form 20-F and approved the document being filed by Nexa Resources S.A. and that it fairly and accurately represents the **Mineral Reserves** for each propriety for which I am responsible.

Dated: March 26, 2026.

/s/ Renzo Suarez

 Renzo Suarez, B.Eng., MAusIMM
 AusIMM No. 3132852





CONSENT OF QUALIFIED PERSON

I, **Cristovao Teofilo dos Santos, B.Eng., FAusIMM**, a Qualified Person for purposes of subpart 1300 of Regulation S-K (“**S-K 1300**”), and a Nexa Resources employee, consent to the public filing of the Annual Report titled “**Annual Report Pursuant to section 13 or 15(d) of the Securities Exchange act of 1934**” with an effective date of **December 31, 2025**. The document contains certain disclosures relating to the mining properties of Nexa Resources S.A. (“**Nexa Resources**”, “**Nexa**” or the “**Company**”) that have been prepared in accordance with S-K 1300 adopted by the U.S. Securities and Exchange Commission.

I certify that I have supervised and validated the **Mineral Reserves** estimate performed by Nexa employees for the **Aripuanã mine**.

I also certify that I have read the annual report on Form 20-F and approved the document being filed by Nexa Resources S.A. and that it fairly and accurately represents the **Mineral Reserves** for each propriety for which I am responsible.

Dated: March 26, 2026.

/s/ Cristovao Teofilo dos Santos
 Cristovao Teofilo dos Santos, B.Eng., FAusIMM
 AusIMM No. 312542





CONSENT OF QUALIFIED PERSON

I, **José Antonio Lopes, B.Geo., FAusIMM(Geo)**, a Qualified Person for purposes of subpart 1300 of Regulation S-K ("**S-K 1300**"), and a Nexa Resources employee, consent to the public filing of the Annual Report titled "**Annual Report Pursuant to section 13 or 15(d) of the Securities Exchange act of 1934**" with an effective date of **December 31, 2025**. The document contains certain disclosures relating to the mining properties of Nexa Resources S.A. ("**Nexa Resources**", "**Nexa**" or the "**Company**") that have been prepared in accordance with S-K 1300 adopted by the U.S. Securities and Exchange Commission.

I certify that I have supervised and validated the **Mineral Resources** estimate performed by Nexa employees for: **Vazante and Aripuanã mines, and Vazante Aroeira Tailings; and Bonsucesso Project**.

I also certify that I have read the annual report on Form 20-F and approved the document being filed by Nexa Resources S.A. and that it fairly and accurately represents the **Mineral Resources** for each propriety for which I am responsible.

Dated: March 26, 2026.

/s/ José Antonio Lopes

José Antonio Lopes, B.Geo., FAusIMM(Geo)
AusIMM No. 224829



**CONSENT OF QUALIFIED PERSON**

I, **Jerry Huaman Abalos, B.Geo., MAusIMM CP(Geo)**, a Qualified Person for purposes of subpart 1300 of Regulation S-K (“**S-K 1300**”), and a Nexa Resources employee, consent to the public filing of the Annual Report titled “**Annual Report Pursuant to section 13 or 15(d) of the Securities Exchange act of 1934**” with an effective date of **December 31, 2025**. The document contains certain disclosures relating to the mining properties of Nexa Resources S.A. (“**Nexa Resources**”, “**Nexa**” or the “**Company**”) that have been prepared in accordance with S-K 1300 adopted by the U.S. Securities and Exchange Commission.

I certify that I have supervised and validated the **Mineral Resources** estimate performed by Nexa employees for: **Cerro Lindo, El Porvenir, Atacocha Underground, and Atacocha Open Pit mines; and for Magistral, Hilarión and Florida Canyon Projects.**

I also certify that I have read the annual report on Form 20-F and approved the document being filed by Nexa Resources S.A. and that it fairly and accurately represents the **Mineral Resources** for each propriety for which I am responsible.

Dated: March 26, 2026.

/s/ Jerry Huaman Abalos

Jerry Huaman Abalos, B.Geo., MAusIMM CP(Geo)
AusIMM No. 337058

NEXA RESOURCES S.A.

POLICY FOR THE RECOVERY OF ERRONEOUSLY AWARDED COMPENSATION

1. **Purpose.** The purpose of this Policy is to describe the circumstances in which Executive Officers will be required to repay or return Erroneously Awarded Compensation to the Company Group in accordance with the Clawback Rules. Each Executive Officer shall be required to sign and return to the Company the Acknowledgement Form attached hereto as Exhibit A pursuant to which such Executive Officer will acknowledge that he or she is bound by the terms of this Policy; provided, however, that this Policy shall apply to, and be enforceable against, any Executive Officer and his or her successors (as specified in Section 11 of this Policy), including those who succeed any Executive Officer on an interim basis, regardless of whether or not such Executive Officer properly signs and returns to the Company such Acknowledgement Form and regardless of whether or not such Executive Officer is aware of his or her status as an Executive Officer. This Policy is designed to comply with the Clawback Rules.

2. **Administration.** Except as specifically set forth herein, this Policy shall be administered by the Compensation, Nominating and Governance (CNG) Committee of the Board unless the Board determines to administer this Policy itself. Any determinations made by the CNG Committee shall be final and binding on all affected individuals and need not be uniform with respect to each individual covered by this Policy. Subject to any limitation under applicable law, the Board and/or the CNG Committee may authorize and empower any officer or employee of the Company Group to take any and all actions necessary or appropriate to carry out the purpose and intent of this Policy (other than with respect to any recovery under this Policy involving such officer or employee).

3. **Definitions.** For purposes of this Policy, the following capitalized terms shall have the meanings set forth below.

(a) ***“Accounting Restatement”*** shall mean an accounting restatement: (i) due to the material noncompliance of the Company with any financial reporting requirement under the securities laws (as used in the Clawback Rules), including any required accounting restatement to correct an error in previously issued financial statements that is material to the previously issued financial statements (a “Big R” restatement); or (ii) that would result in a material misstatement if the error were corrected in the current period or left uncorrected in the current period (a “little r” restatement). For the avoidance of doubt, financial statements to be considered in the previous paragraph are Company’s consolidated financial statements for the relevant fiscal year(s) prepared in accordance with International Financial Reporting Standards as issued by the International Accounting Standards Board (“Consolidated IASB IFRS”) included in the relevant filings of the Company under the securities laws.

(b) ***“Board”*** shall mean the Board of Directors of the Company.

(c) ***“Clawback Eligible Incentive Compensation”*** shall mean, with respect to each individual who served as an Executive Officer at any time during the applicable performance period for any Incentive-based Compensation (whether or not such Executive Officer is serving at the time the Erroneously Awarded Compensation is required to be repaid to the Company Group),

all Incentive-based Compensation Received by such Executive Officer: (i) on or after the Effective Date; (ii) after beginning service as an Executive Officer; (iii) while the Company has a class of securities listed on the NYSE; and (iv) during the applicable Clawback Period.

(d) **"Clawback Period"** shall mean, with respect to any Accounting Restatement, the three completed fiscal years of the Company immediately preceding the Restatement Date and any transition period (that results from a change in the Company's fiscal year) of less than nine months within or immediately following those three completed fiscal years.

(e) **"Clawback Rules"** shall mean Section 10D of the Exchange Act and any applicable rules or standards adopted by the SEC (including Rule 10D-1 under the Exchange Act), the NYSE (including Section 303A.14 of the NYSE Listed Company Manual) or the rules of any other U.S. national securities exchange or national securities association on which the Company's securities are listed, in each case as may be in effect from time to time.

(f) **"CNG Committee"** shall mean the Compensation, Nominating and Governance Committee of the Board, or any other committee designated by the Board to administer the Policy, and in the absence of such a committee, a majority of the independent directors serving on the Board.

(g) **"Company"** shall mean Nexa Resources S.A.

(h) **"Company Group"** shall mean the Company, together with each of its direct and indirect subsidiaries.

(i) **"Effective Date"** shall mean October 2, 2023.

(j) **"Erroneously Awarded Compensation"** shall mean, with respect to each Executive Officer in connection with an Accounting Restatement, the amount of Clawback Eligible Incentive Compensation that exceeds the amount of Incentive-based Compensation that otherwise would have been Received had it been determined based on the restated amounts, computed without regard to any taxes paid.

(k) **"Exchange Act"** shall mean the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

(l) **"Executive Officer"** shall mean any individual who is (or was at any time during the applicable Clawback Period) a managing or executive officer as determined in the Company's Article of Association or by the Board or the CNG Committee in accordance with the definition of "executive officer" as set forth in the Clawback Rules and any other senior executive, employee or other personnel of the Company Group who may from time to time be deemed subject to the Policy by the CNG Committee. For the avoidance of doubt, the CNG Committee shall have full discretion to determine which individuals in the Company Group shall be considered an "Executive Officer" for purposes of this Policy. Individuals serving in the following roles at the Company Group shall be deemed to be an Executive Officer for the purposes of this Policy: the Company's president, principal financial officer, principal accounting officer (or if there is no such accounting officer, the controller), any vice-president of the Company in charge of a principal business unit, division, or function (such as sales, administration, or finance), any other officer

who performs a policy-making function, or any other person who performs similar policymaking functions for the Company or Company Group.

(m) **“Financial Reporting Measures”** shall mean measures that are determined and presented in accordance with the accounting principles used in preparing the Company’s financial statements, and any measures that are derived wholly or in part from such measures. Stock price and total shareholder return shall for purposes of this Policy be considered Financial Reporting Measures. For the avoidance of doubt, a Financial Reporting Measure need not be presented within the Company’s financial statements or included in a filing with the SEC.

(n) **“Incentive-based Compensation”** shall mean any compensation that is granted, earned or vested based wholly or in part upon the attainment of a Financial Reporting Measure.

(o) **“Impracticable”** shall mean, in accordance with the good faith determination of the independent directors of the CNG Committee that either: (i) the direct expenses paid to a third party to assist in enforcing the Policy against an Executive Officer would exceed the amount to be recovered, after the Company has made a reasonable attempt to recover the applicable Erroneously Awarded Compensation, documented such reasonable attempt(s) and provided such documentation to the NYSE (ii) recovery would violate Luxembourg law where that law was adopted prior to November 28, 2022, provided that, before concluding that it would be impracticable to recover any amount of Erroneously Awarded Compensation based on violation of Luxembourg law, the Company has obtained an opinion of Luxembourg counsel, acceptable to the NYSE, that recovery would result in such a violation and a copy of the opinion is provided to the NYSE; or (iii) recovery would likely cause an otherwise tax-qualified retirement plan, under which benefits are broadly available to employees of the Company Group, to fail to meet the requirements of 26 U.S.C. 401(a) (13) or 26 U.S.C. 411(a) and regulations thereunder.

(p) **“Method of Recovery”** shall include, but is not limited to: (i) requiring reimbursement of Erroneously Awarded Compensation; (ii) seeking recovery of any gain realized on the vesting, exercise, settlement, sale, transfer, or other disposition of any equity-based awards; (iii) offsetting the Erroneously Awarded Compensation from any compensation otherwise owed by the Company Group to the Executive Officer; (iv) cancelling outstanding vested or unvested equity awards; and (v) taking any other remedial and recovery action permitted by applicable law, as determined by the CNG Committee.

(q) **“NYSE”** shall mean the New York Stock Exchange.

(r) **“Policy”** shall mean this Policy for the Recovery of Erroneously Awarded Compensation, as the same may be amended and/or restated from time to time.

(s) **“Received”** shall, with respect to any Incentive-based Compensation, mean deemed receipt and Incentive-based Compensation shall be deemed received in the Company’s fiscal period during which the Financial Reporting Measure specified in the Incentive-based Compensation award is attained, even if the payment or grant of the Incentive-based Compensation occurs after the end of that period. For the avoidance of doubt, Incentive-Based Compensation that is subject to both a Financial Reporting Measure vesting condition and a service-based vesting

condition shall be considered received when the Financial Reporting Measure is achieved, even if the Incentive-Based Compensation continues to be subject to the service-based vesting condition.

(t) **“Restatement Date”** shall mean the earlier to occur of: (i) the date the Board, a committee of the Board or the Executive Officer or Executive Officers of the Company authorized to take such action if Board action is not required, concludes, or reasonably should have concluded, that the Company is required to prepare an Accounting Restatement; or (ii) the date a court, regulator or other legally authorized body directs the Company to prepare an Accounting Restatement.

(u) **“SEC”** shall mean the U.S. Securities and Exchange Commission.

4. Repayment of Erroneously Awarded Compensation.

(a) In the event the Company is required to prepare an Accounting Restatement, the CNG Committee shall reasonably promptly (in accordance with the applicable Clawback Rules) determine the amount of any Erroneously Awarded Compensation for each Executive Officer in connection with such Accounting Restatement and shall reasonably promptly thereafter provide each Executive Officer with notice containing the amount of Erroneously Awarded Compensation and a demand for repayment or return, as applicable. For Incentive-based Compensation based on stock price or total shareholder return where the amount of Erroneously Awarded Compensation is not subject to mathematical recalculation directly from the information in the applicable Accounting Restatement, the amount shall be determined by the CNG Committee based on a reasonable estimate of the effect of the Accounting Restatement on the stock price or total shareholder return upon which the Incentive-based Compensation was Received (in which case, the Company shall maintain documentation of such determination of that reasonable estimate and provide such documentation to the NYSE). The CNG Committee is authorized to engage, on behalf of the Company, any third-party advisors it deems advisable in order to perform any calculations contemplated by this Policy. For the avoidance of doubt, recovery under this Policy with respect to an Executive Officer shall not require the finding of any misconduct by such Executive Officer or such Executive Officer being found responsible for the accounting error leading to an Accounting Restatement.

(b) In the event that any repayment of Erroneously Awarded Compensation is owed to the Company Group, the CNG Committee shall, or shall cause one or more other members of the Company Group to, recover reasonably promptly the Erroneously Awarded Compensation through any Method of Recovery it deems reasonable and appropriate in its discretion based on all applicable facts and circumstances and taking into account the time value of money and the cost to shareholders of delaying recovery. For the avoidance of doubt, except to the extent permitted pursuant to the Clawback Rules, in no event may the Company Group accept an amount that is less than the amount of Erroneously Awarded Compensation in satisfaction of an Executive Officer’s obligations hereunder. Notwithstanding anything herein to the contrary, the Company shall not be required to take the actions contemplated in this Section 4(b) if the independent directors serving on the CNG Committee determines in good faith that recovery would be Impracticable. In implementing the actions contemplated in this Section 4(b), the CNG Committee will act in accordance with the listing standards and requirements of the NYSE and with the applicable Clawback Rules.

5. Reporting and Disclosure. The Company shall file all disclosures with respect to this Policy in accordance with the requirements of U.S. federal securities laws, including any disclosure required by applicable SEC rules.
6. Indemnification Prohibition. No member of the Company Group shall be permitted to indemnify any Executive Officer against the loss of any Erroneously Awarded Compensation that is repaid, returned or recovered pursuant to the terms of this Policy and/or pursuant to the Clawback Rules, including any payment or reimbursement for the cost of third-party insurance purchased by any Executive Officer to cover any such loss under this Policy and/or pursuant to the Clawback Rules. Further, no member of the Company Group shall enter into any agreement that exempts any Incentive-based Compensation from the application of this Policy or that waives the Company Group's right to recovery of any Erroneously Awarded Compensation and this Policy shall supersede any such agreement (whether entered into before, on or after the Effective Date). Any such purported indemnification (whether oral or in writing) shall be null and void.
7. Interpretation. The CNG Committee is authorized to interpret and construe this Policy and to make all determinations necessary, appropriate, or advisable for the administration of this Policy. It is intended that this Policy be interpreted in a manner that is consistent with the requirements of the Clawback Rules. The terms of this Policy shall also be construed and enforced in such a manner as to comply with applicable law, including the Sarbanes-Oxley Act of 2002, the Dodd-Frank Wall Street Reform and Consumer Protection Act, and any other law or regulation that the CNG Committee determines is applicable. In the event any provision of this Policy is determined to be unenforceable or invalid under applicable law (including under Luxembourg law), such provision shall be applied to the maximum extent permitted by applicable law and shall automatically be deemed amended in a manner consistent with its objectives to the extent necessary to conform to any limitations required by applicable law.
8. Effective Date. This Policy shall be effective as of the Effective Date.
9. Amendment; Termination. The Board may modify, amend or terminate this Policy, in whole or in part, from time to time in its discretion and shall amend any or all of the provisions of this Policy as it deems necessary, including as and when it determines that it is legally required by any federal securities law, SEC rule or NYSE rule. Notwithstanding anything in this Section 9 to the contrary, no amendment or termination of this Policy shall be effective if such amendment or termination would (after taking into account any actions taken by the Company contemporaneously with such amendment or termination) cause the Company to violate the Clawback Rules, or any federal securities law, SEC rule or NYSE rule. Furthermore, unless otherwise determined by the Board or as otherwise amended, this Policy shall automatically be deemed amended in a manner necessary to comply with any change in the Clawback Rules.
10. Other Recoupment Rights; No Additional Payments. The Board and the CNG Committee intends that this Policy will be applied to the fullest extent permitted by applicable law. The CNG Committee may require that any employment agreement, equity award agreement, or any other agreement entered into on or after the Effective Date shall, as a condition to the grant of any benefit thereunder, require an Executive Officer to agree to abide by the terms of this Policy. Executive Officers shall be deemed to have accepted continuing employment on terms that include compliance with the Policy, to the extent of its otherwise applicable provisions, and to be

contractually bound by its enforcement provisions. Executive Officers who cease employment or service with the Company Group shall continue to be bound by the terms of the Policy with respect to Incentive Compensation subject to this Policy. Any right of recoupment under this Policy is in addition to, and not in lieu of, any other remedies or rights of recoupment that may be available to the Company Group under applicable law, regulation or rule or pursuant to the terms of any similar policy in any employment agreement, cash-based bonus plan, equity award agreement or similar agreement and any other legal remedies available to the Company Group. Nothing in this Policy precludes the Company from implementing any additional Clawback or recoupment policies with respect to Executive Officers. Application of this Policy does not preclude the Company Group from taking any other action to enforce any Executive Officer's obligations to the Company or the Company Group, including termination of employment or institution of civil or criminal proceedings or any other remedies that may be available to the Company or Company Group with respect to any Executive Officer.

11. Successors. This Policy shall be binding and enforceable against all Executive Officers and their beneficiaries, estates, heirs, executors, administrators or other legal representatives to the extent required by the Clawback Rules or as otherwise determined by the CNG Committee.

* * *

Exhibit A

**NEXA RESOURCES S.A.
POLICY FOR THE RECOVERY OF ERRONEOUSLY AWARDED COMPENSATION
ACKNOWLEDGEMENT FORM**

By signing below, the undersigned executive officer (the “**Executive Officer**”) acknowledges and confirms that the Executive Officer has received and reviewed a copy of the Nexa Resources S.A. Policy for the Recovery of Erroneously Awarded Compensation (the “**Policy**”). Capitalized terms used but not otherwise defined in this Acknowledgement Form (this “**Acknowledgement Form**”) shall have the meanings ascribed to such terms in the Policy.

By signing this Acknowledgement Form, the Executive Officer acknowledges and agrees as follows:

- (a) the Executive Officer is and will continue to be subject to the Policy and that the Policy will apply both during and after the Executive Officer’s employment with the Company Group;
- (b) to the extent necessary to comply with the Policy, the Policy hereby amends any employment agreement, equity award agreement or similar agreement that the Executive Officer is a party to with the Company Group;
- (c) the Executive Officer shall abide by the terms of the Policy, including, without limitation, by returning any Erroneously Awarded Compensation to the Company Group to the extent required by, and in a manner permitted by, the Policy;
- (d) any amounts payable to the Executive Officer, including any compensation that is granted, earned, or vested based wholly or in part upon the attainment of a Financial Reporting Measure or based on the Company Group’s performance shall be subject to the Policy as may be in effect and modified from time to time in the sole discretion of the Company or as required by applicable law or the requirements of an exchange on which the Company’s shares are listed for trading, and that such modification will be deemed to amend this acknowledgment;
- (e) the Company Group may recover compensation paid to the Executive Officer through any Method of Recovery the CNG Committee deems appropriate, and the Executive Officer agrees to comply with any request or demand for repayment by the Company Group in order to comply with the Policy;
- (f) the Company Group may, to the greatest extent permitted by applicable law, reduce any amount that may become payable to the Executive Officer by any amount to be recovered by the Company Group pursuant to the Policy to the extent such amount has not been returned by the Executive Officer to the Company Group prior to the date that any subsequent amount becomes payable to the Executive Officer.

[Signature page follows]

Signature

Print Name

Date