EL ROBLE MINE UPDATED MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES

El Carmen de Atrato, Chocó Department, Colombia

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Table of Contents

Table of Tables

Table of Figures

1. SUMMARY

1.1. Introduction

This report has been prepared by Atico Mining Corporation (ATICO) and the Andes Colorado Corp. (AC) in accordance with the disclosure requirements of Canadian National Instrument 43-101 (NI 43-101) to disclose recent technical and scientific information in respect to the El Roble mine.

The current technical and scientific information related to the El Roble Mine is as follows:

Exploratory drilling (outside of the main deposits in production) and infill drilling (to better understand the deposits' geometry and grade and increase the resource categories), especially following September 30, 2020 (date of the previous Mineral Resource estimate).

Mineral Resources and Mineral Reserves are stated as of March 12, 2024.

The Mineral Resource estimate in this report replaces the previous technical report completed on September 30, 2020. The Mineral Reserve estimate in this report replaces the September 30, 2020 Mineral Reserve estimate for El Roble.

1.2. Property Description and Location

The El Roble mine (El Roble) is located in Atrato province, Chocó Department (adjacent to the border of Antioquia Department), in the country of Colombia. Carmen de Atrato is the nearest town and is located approximately 3 kilometres south of the mine and is accessed by an improved gravel road. The access road to Carmen de Atrato from the city of Medellin (Antioquia) is approximently 142 km of which 95 percent is paved.

The El Roble project consists of mineral concessions totalling approximately 6,355 hectares from which an underground mine and processing facility (El Roble Mine) currently owned and operated by Minera El Roble S.A. (MINER) produces copper and gold concentrates from a volcanic massive sulphide (VMS) mineral deposit. Atico acquired 90 percent of MINER and its assets on November 22, 2013. The assets include all the mining concessions, the exploratory licenses, the underground mine, the plant, the tailings storage facilities, the infrastructure, stockpiles and workshop facilities relating to El Roble. Additionally, several off-site concentrate storage facilites were included in the purchase.

1.3. Geology and Mineralization

The geology of the MINER mineral concessions (including those where MINER is currently conducting underground mining) consist of submarine mafic volcanic rocks, black to grey chert and overlying deep-water sedimentary rocks, consisting of sandstone-shale turbidites that are part of the Cretaceous Cañas Gordas Group. These units can be traced for over 800 kilometers along the western cordillera of Colombia. Within the Cañas Gordas Group the local pillow basalts, tuffs, hyaloclastites, and agglomerates that are believed to be part of the Barroso Formation, while deep-water marine sedimentary rocks that include chert, siltstone and minor limestone belong to the Penderisco Formation. All of these rock units were deformed and metamorphosed during the Late Cretaceous to Tertiary accretion to continental South America, which resulted in both low-angle thrusting and high-angle strike-slip faulting that trend in a generally north-south direction.

The mineral resources reported herein are located in mineralized bodies considered to be volcanic massive sulfides (VMS). These mineralized bodies are stratabound within the black chert unit, and MINER has not been able to identify economic mineralization outside of this stratigraphic unit. The largest of these deposits is Zeus lens or body, which is located at elevations 1,670 and 1,875 masl and has an average thickness of 35 meters.

1.4. Exploration Status

The drill programs conducted in 2022 and 2023 managed to complete 1,245.20 meters of drilling from six drill holes. The low production was due to difficult drilling conditions through a fault zone and the slow response by the drilling contractors to meet the challenge.

The drill data that was obtained from the abbreviated holes during these two campaigns highlighted 4 areas of interest (AOI) that warrant further testing by drilling.

- AOI-1 Archie Deep: Prospective black chert is located along trend of known mineralization, supported by geochemical anomalies in pathfinder elements Ag, Ba, As, Sb, Bi, Se, Te, Hg, Ga, and In; positive index of alteration (Ishikawa); and prospective geophysical anomalies in mag, chargeability, and resistivity.
- AOI-2 Archie East: Prospective black chert hosting veinlets of quartz-chalcopyrite in basalt; geochemical anomalies in pathfinder elements Ag, Ba, As, Sb, Bi, Se, Te, Hg, Ga, and In; positive index of alteration (chlorite, carbonate, pyrite); prospective geophysical anomalies in mag, chargeability, and resistivity.
- AOI-3 SE of El Roble Mine: Prospective black chert; geochemical anomalies in pathfinder elements Ag, Ba, Sb, Mo, Bi, Se, Te, and Hg; positive index of alteration (chlorite, carbonate, pyrite); prospective geophysical anomalies in chargeability and resistivity.
- AOI-4 Prospective basalt; geochemical anomalies in pathfinder elements Ag, Ba, Mo, Bi, Se, Te, Hg; positive index of alteration (Ishikawa); prospective geophysical anomalies in mag, chargeability, and resistivity.

Two campaigns of geochemical sampling were completed in El Roble in the Principal Target, North Target, and Gorgona Target. Both rock chip and soil samples were collected. These samples were analyzed in the internal analytical laboratory for Au, Cu, Fe, Zn, and Pb, and subsequently analyzed by XRF for other minor elements.

The soil geochemical results generated geochemical anomalies of Cu, Au, Fe, Pb, Zn and Ba that clearly outlined mineralized bodies recognized in the mine. These results show that the soil geochemical survey is a valuable exploration tool.

1.5. Mineral Resource and Mineral Reserves

The Mineral Resource estimation considers channel and core samples, in addition to the underground mine mapping for the construction of three-dimensional wireframes of the lithology and mineralized bodies. Estimation of grades in the block models only considers samples located inside the mineralized bodies solid, which are applied to anomalous grade or top cut treatment and a further compositing process. The model was constructed using 2m x

2m x 2m blocks, which represents the selective mining unit (SMU). The orebodies estimation is conducted separately body by body and element by element (Cu and Au). The methods used for grade estimation are cubic inverse distance (Goliat, Maximus, Maximus Sur, Perseo, A, B, D, D2, Afrodita, Rosario and Cuerpo Principal Orebodies) and Ordinary Kriging (Zeus Orebody).

Mineral Reserves were estimated by applying the El Roble mine plan to the block model wireframe to determine which blocks in the mine plan fit within the wireframe. These blocks were then diluted using historic information from El Roble, a suitable recovery factor based on surveyed results of stoping operations at El Roble was applied to each block and a break-even cut-off grade applied using historic cost information from El Roble. The blocks inside the wireframe were then rescheduled for the life of the ´Zeus, Maximus, Maximus Sur, Goliat, Perseo, Cuerpo Principal (Principal), A, B, D, D2, Rosario and Afrodita deposit and a financial projection made; the projection demonstrated robust economic performance. The blocks used in the mine plan were then compiled to make the total Mineral Reserve estimate.

Mineral Resource and Mineral Reserve estimates for the El Roble mine are reported as of March 12th 2024 and detailed in

Table 1.1 and Table 1.2.

Table 1.1 Mineral Resources as of March 12th, 2024

Category	Tonnes (000)	Cu Eq. (%)	Cu (%)	Au (g/t)	Contained Metal	
					Cu Lbs (000)	Au oz (000)
Measured	499.2	4.39	3.28	2.64	36,092	42.5
Indicated	381.5	5.11	3.55	3.48	29,884	42.7
Measured + Indicated	**880.7**	**4.70**	**3.40**	**3.00**	**65,976**	**85.2**
Inferred	-	-	-	-	-	-

Table 1.2 Mineral Reserves as of March 12th, 2024

Category	Tonnes (000)	NSR (US$/t)	Cu (%)	Au (g/t)	Cu_eq (%)
Proven	528.0	233	2.47	1.92	3.31
Probable	299.5	272	2.54	2.71	3.75
Total	827.5	247	2.49	2.20	3.47

Where:

1. *Mineral Resources and Mineral Reserves are as defined by CIM definition Standards on Mineral Resources and Mineral Reserves 2014.*
2. *Mineral Resources and Mineral Reserves are estimated provided above have an effective date of March 12th, 2024. The Mineral Resource estimates and the Mineral Reserve estimates were prepared by the Company's Internal QPs, who have the appropriate*

relevant qualifications, and experience in resource mineral estimation and reserves mineral estimation.

3. *The Mineral Reserves were estimated from the Measured and Indicated portions of the Mineral Resource estimates. Inferred Mineral Resources were not considered to be converted into Mineral Reserve estimates.*
4. *Mineral Reserves are reported using an NSR breakeven cut-off value of 130.11 US$/t (basis 2023 cost); this value is considered for the Zeus, Principal, A, B, D, D2, Afrodita and Rosario ore bodies. An NSR breakeven cut-off value of 74.43 US$/t is considered for the Maximus, Maximus Sur, Perseo, Goliat ore bodies.*
5. *Mineral Resources are reported using an NSR cut-off grade value of US$72.59/t for Zeus ore body, an NSR cut-off grade value of US$51.05/t this value is considered for the Maximus, Maximus Sur, Goliat and Perseo deposits and, an NSR cut-off grade of US$67.02/t for A, B, D, D2, Afrodita, Rosario and Principal ore body was used.*
6. *Metal prices used were US$1,991.00/troy ounce Au and US$ 4.12/lb Cu.*
7. *Metallurgical recoveries have been considered based on historical El Roble process plant results as of 2023. For the mine designated as low zone (Zeus, Maximus, Maximus Sur, Goliat and Perseo ore bodies) Cu recovery is 91.67% and Au recovery is 59.74%. For the mine designated as high zone (Principal, A, B, D, D2, Afrodita and Rosario orebodies) Cu is 93% and Au is 63%.*
8. *Metal payable recovery used 92.40% for gold and 94.03% for copper (2023 commercialization basis).*
9. *The average density for the ore-body was designated as follows; Goliat = 3.34t/m3, Maximus = 3.50t/m3, Maximus Sur = 3.26t/m3, Zeus = 3.53t/m3 and Perseo = 3.35t/m3. for A, B, D, D2, Afrodita, Rosario and Principal ore body the density was estimated using IDW.*
10. *Mineral Resources, as reported, are undiluted.*
11. *Mineral Resources are reported to 0.87% CuEq cut-off for ore-body Zeus. 0.61% CuEq cut-off for ore-bodies Goliat, Maximus, Maximus Sur and Perseo. 0.86%CuEq cut-off for ore-bodies A, B, D, D2, Afrodita, Rosario and Cuerpo Principal.*
12. *CuEq for each block was calculated by multiplying one tonne of mass of each block-by-block grade for both Au and Cu by their average recovery, metal payable recovery and metal price. If the block was higher than CuEq cut-off, the block is included in the estimate (resource or reserve estimate as appropriate).*
13. *CuEq is estimated considering metal price assumptions, metallurgical recovery for the corresponding mineral type/mineral process and the metal payable of the selling contract.*

    (a) The CuEq grade formula used was:

    *CuEq Grade = Cu Grade + Au Grade * (Au Recovery * Au Payable * Au Price) / (Cu Recovery * Cu Payable * Cu Price).*

    (b) Metal prices considered for Mineral Reserve estimates were US$4.12/lb Cu and US$1,991/oz Au for all sites.

    (c) Other key assumptions and parameters include: metallurgical recoveries; metal payable terms; direct mining costs, processing costs, and G&A costs.

14. *Modifying factors for conversion of resources to reserves included consideration for planned dilution which is based on spatial and geotechnical aspects of the designed stopes and economic zones, additional dilution consideration due to unplanned events, materials handling and other operating aspects, and mining recovery factors. Mineable shapes were used as geometric constraints.*

15. *Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.*
16. *There is no certainty that all or any part of the Mineral Resources estimated will be converted into Mineral Reserves.*
17. *There are no known political, environmental or other risks that could materially affect the development and mining of the Mineral Reserves in the El Roble mine;*
18. *Figures in the table are rounded to reflect estimate precision; small differences are not regarded as material to the estimates;*
19. *Reserves are estimated based on mining material that can be mined, processed and smelted.*
20. *Values are rounded and may differ from those presented in the press release. Totals may not sum precisely due to rounding.*
21. *Inclusion of ore blocks in the Mineral Reserve does not guarantee that they will be mined.*

1.6. Mining Operations

MINER continues to successfully manage the operation, mining 278,874 dry metric tonnes (dmt) of ore from underground to produce 13.2 Mlbs of copper and 10.1 koz of gold for the full year 2023 while continuing to improve the mine infrastructure. MINER continues to investigate cost effective ways to improve productivity and reduce costs. MINER is implementing two projects to reduce costs in the transport to the process plant stockpile and crushing/grinding of the ore as well improving the cemented rock fill. The first project will be the implementation of a SAG Mill (8' x 6') located at the same elevation and close to the process plant which will replace the uphill haul to the present coarse ore stockpile and replace the present primary crushing and grinding system. The second project, aimed at reducing cemented rock fill usage by applying a mixed fill, will use cemented rock fill with rock only filling in the last levels of a block delimited by stope block pillars. These modifications and associated savings in cost and increases in efficiency were not used to estimate Mineral Reources or Mineral Reserves in this report.

1.7. Conclusions and Recommendations

- ATICO classified the block model in accordance with the CIM Definition Standards for Mineral Resources and Mineral Reserves.
- The process used to estimate the Mineral Reserve meets international standards, including those standards applicable for a NI 43-101 compliant Mineral Reserve.
- The information used to prepare the estimate is of good quality and demonstrably reliable, as seen by the reconcilaitions and other work done as a check to confirm the accuracy of the information.
- The Mineral Reserve is a reasonable and accurate representation of the remaining mineral inventories of the Zeus, Goliat, Maximus, Maximus Sur, Perseo, Principal, A, B, D, D2, Afrodita and Rosario deposits.
- The El Roble project is financially robust until the known Mineral Reserve is depleted.
- There is significant risk to the project with regard to finding additional mineral reserves. If no additional mineral reserves are found within the next 18-24 months

there is significant risk to the project closing after the present mineral reserve is depleted.

2. Introduction

This Technical Report has been prepared by Atico Mining Corporation (ATICO) in accordance with the disclosure requirements of Canadian National Instrument 43-101 (NI 43-101) to disclose recent information about the Minera El Roble S.A. (MINER) Property known as the El Roble mine and associated process plant.

This information has resulted from additional underground development and sampling, as well as exploration drilling. The mineral resources and mineral reserves have been updated since ATICO's last effective September 2020 reported.

Information contained within this section has been reproduced and updated where necessary from previous Technical Reports including Atico and Andes Colorado, 2020, 2018, REI & RMI, 2013 and 2015; and Greg Smith & Demetrius Pohl, 2012.

The El Roble mine is owned by MINER, of which ATICO controls 90 percent. MINER is a direct subsidiary of Atico Mining Corporation. The remaining 10 percent of MINER is owned by several private entities. ATICO is based in Vancouver, British Columbia with management offices in Lima, Peru and Quito, Ecuador. ATICO shares are listed on the TSX Venture Exchange (TSX.V:ATY).

On November 22, 2013, ATICO acquired 90 percent of MINER and its assets, which include the El Roble mining concessions, exploration licenses, the El Roble underground mine, processing facility, and ancillary facilities. The current operation mines the Zeus, Goliat, Maximus and Maximus Sur deposits.

The cut-off date for the drill hole and channel sample information used in the Mineral Resource estimate is March 12th 2024. Technical, production, cost and other data also used a cut-off date of March 12th 2024. Production at El Roble has continued since that time, however no depletion of the Mineral Resource or the Mineral Reserve has been included in this report.

Field data was compiled and validated by MINER and ATICO staff. Geological description of the samples, geological interpretations and three-dimensional wireframes of the bodies were completed by MINER and reviewed by ATICO personnel. The March 2024 Mineral Resource estimates were undertaken by ATICO under the technical supervision of the Qualified Person, Mr. Antonio Cruz.

The mine planning, cost estimation and other information used in the Mineral Reserve estimate were undertaken by the Mine Planning/Engineering department of MINER and ATICO staff, under the technical supervision of the Independent Qualified Person, Mr. Thomas Kelly of Andes Colorado (AC).

The authors of this Technical Report are Qualified Persons as defined by NI 43-101. Mr. Thomas Kelly (Registered Member of SME 1696580) of AC, advisor to the Company and an independent qualified person according to the standards of National Instrument 43-101, is responsible for ensuring that the technical information contained in this technical report as listed in Table 2.1, *Authors of Current Report* is accurate from the original reports and the data provided or developed by Atico and has visited the property on numerous occasions. Mr. Antonio Cruz has been employed by MINER from February 2013 to July 2018, and is currently Mineral Resource Manager for ATICO (since August 2018) and has visited the property on numerous occasions. He is responsible for ensuring the correctness of the information and its sources as lisated in Table 2.1.

Responsibilities for the preparation of the different sections of this Technical Report are shown in Table 2.1 with definitions of terms and acronyms detailed in Table 2.2.

Table 2.1 Authors of Current Report

Author	Company	Area of Responsibility
Thomas Kelly	Andes Colorado	Principal Reviewer, all the chapters below and Summary.
SME, (CP)		Chapters 1, 2, 13, 15, 16, 17, 18, 19, 21, 22, 24, 25, 26, 27
Antonio Cruz,	ATICO	Quality Assurance/Quality Control Geology, Mineral Resource Estimate, Geology, Property Description
AIG (CP)		Chapters 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 and 14, 20, 23,

Definitions of terms and acronyms detailed in Table 2.2.

Table 2.2 Acronyms

Acronym	Description	Acronym	Description
Ag	Silver	MVA	megavolt ampere
Au	Gold	MW	megawatt
cfm	cubic foot per minute	NI	national instrument
cm	Centimeters	NN	nearest neighbor
COG	cut-off grade	NSR	net smelter return
Cu	Copper	OK	ordinary kriging
Dmt	dry metric tonne		
g	Grams	oz	troy ounce
g/t	grams per dry metric tonne	oz/t	troy ounce per dry metric tonne
ha	Hectares	ppm	parts per million
kg	Kilograms	Pb	lead
km	Kilometers	psi	pounds per square inch
kg/t	kilogram per dry metric tonne	QAQC	quality assurance/quality control
kV	Kilovolts	RMR	rock mass rating
kW	Kilowatts	RQD	rock quality designation
kVA	kilovolt ampere	s	second
lbs	Pounds	t	Dry metric tonne
l	liter	t/m3	Dry metric tonnes per cubic meter
LOM	life-of-mine	tpd	Dry metric tonnes per day
m	Meters	yd	yard
mm	Milimeters		

Acronym	Description	Acronym	Description
Ma	millions of years	yr	year
masl	meters above sea level	Zn	zinc
Moz	million troy ounces	US$/t	United States dollars per tonne
Mn	Manganese	US/g	United States dollars per gram
Mt	million dry metric tonnes	US/%	US dollars per percent
		US_M	United States dallars stated in millions

3. Reliance on Other Experts

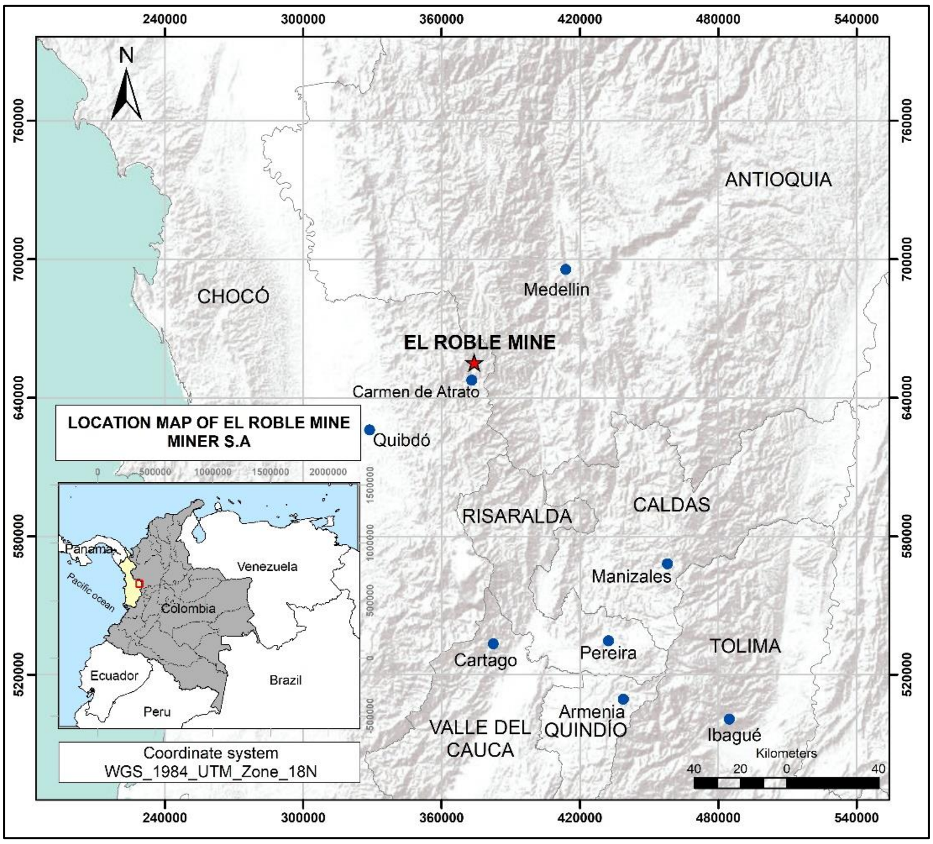
As for the status of the mineral concessions, the Qualified Persons responsible for this amended Technical Report have relied on title opinions provided to them by MINER's legal counsel confirming that the mineral concessions were in good standing as of that date.

4. Property Description and Location

4.1. Mineral Tenure

The El Roble mine is located in the northwestern part of Colombia, in the municipality of EL Carmen de Atrato, Department of Choco and at an average altitude of 2248 m.a.s.l. The property is located 142 km from the city of Medellín and 102 km from the city of Quibdó at UTM coordinates 374,184.215mE and 655,219.9mN (datum WGS84-18N). Figure 4.1 shows the location of the El Roble Mina.

Figure 4.1Location of the El Roble Mine, Choco Department, Colombia



4.2. Mineral Tenure

Minera El Roble S.A. (MINER) is the owner of seven mining titles, which total 6,356.5715 hectares and are composed of four current mining concession contracts (9319, GK3-091, FJT-15A, FJT-15R) and three current exploration licenses (00172-27 00173-27, 00175-27).

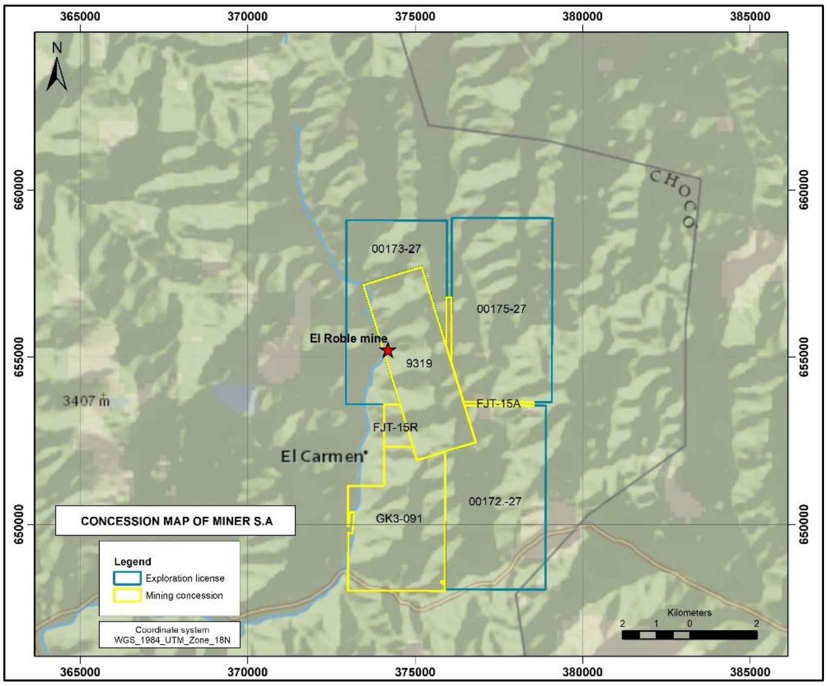
The El Roble Mine is located within mining concession 9319 with a total area of 1000.2841 hectares. In January 2020, MINER requested a new contract from the National Mining Agency (ANM) for concession 9319 and according to law 683 of the ANM, the contract would have a duration of 30 years. Currently, the mining concession is in force according to article 35 of Decree Law 019 of 2012, which establishes that "the validity of the permit, license or authorization will be understood to be temporarily renewed until the decision of the competent authority is made. Table 4.1 shows the details of each concession held by Miner El Roble S.A.

Table 4.1 List of mining titles owned by MINER.

Title	Title Holder/Request	Classification	Stage	Area (hectares)	Registration Date	Expiration Date
00173-27	Minera El Roble S.A.	Exploration License	Second year of exploration	952.9803	23/12/2010	22/12/2012 License in conversion to mining contract
00175-27	Minera El Roble S.A.	Exploration License	Fifth year of exploration	1627.8666	11/03/2013	10/03/2018 License in conversion to mining contract
9319	Minera El Roble S.A.	Mining Concession	Twenty-six years of exploitation	1000.2841	20/03/1990	23/01/2022 Process a new mining contract
FJT-15A	Minera El Roble S.A.	Mining Concession	Eleven years of exploitation	49.5139	11/02/2008	10/02/2038 Activities suspended until January 2025
FJT-15R	Minera El Roble S.A.	Mining Concession	Eleven years of exploitation	84.8381	11/02/2008	10/02/2038 Activities suspended until January 2025
GK3-091	Minera El Roble S.A.	Mining Concession	Third year of construction and assembly	1085.792	17/12/2010	16/12/2040 Request for suspension of activities

The locations of all of these concessions are shown in Figure 4.2.

Figure 4.2 Location of Mining Concessions at El Roble Mine.



4.3. Surface Property

In accordance with Colombian law, the purchase price of surface properties is based on the fair market value of the surface, regardless of the potential value of the underlying minerals.

MINER is the owner of 394.55 hectares. Table 4.2 shows the relationship of surface properties that MINER uses in the El Roble mine.

Table 4.2 List of surface properties located within mining concession 9319 that MINER has

Registration folio	Name	Area (ha)	Status
180-3343	Lote Mina El Silencio A	25.1326	Owner
180-6955	Lote Mina La Perla	3.25	Owner
180-1707	Lote Mina Aguas Claras	98.4375	Ownership
180-7225	Lote Mina El Silencio C	16.73	Owner
180-7224	Lote Mina El Silencio B La Pradera	16.8	Owner
180-8287	El Polvorin	0.1423	Owner
180-6407	Presa 3 Lo 2 Rio Arriba Tabaco	1.26	Owner
180-6406	Presa A Lo.1 Rio Arriba	16.4062	Owner
180-6408	Presa C Lo 3 Rio Arriba	0.825	Owner
180-36990	Terreno Presa IV	1.2484	Owner
180-7002	Lote La Cristalina	0.2	Owner
180-5478	Lote Terreno La Cristalina	204.875	Owner
180-3710	Lote Terreno La Cristalina	1.25	Owner
180-4282	Rural Atico	1.02	Ownership
180-4377 / 180-4378	Lote La Floresta El Gringo	4.2	Owner
180-11981	Lote De Terreno El Roble	2.7755	Owner
180-11785	Predio Familia Vera	N/A	Easement
180-900	Predio Maria Restrepo	N/A	Easement

4.4. Review of General Mining Law in Colombia

In 2000, the Colombian state approved the Mining Code - Law No. 685, which defines the responsibilities and roles of the State and the private sector in mining. The National Mining Agency (ANM) is in charge of managing the mineral resources of the Colombian state and was created under Decree 4134 of 2011 of the Ministry of Energy and Mines of Colombia. Mining activities in Colombia are based on the following legal regulatory frameworks:

- Law No. 685, Mining Code (2001)
- Law No. 2056, General Royalties System
- Law No. 685, Mining Code (2001)
- Law No. 99 creating the new environmental institutions (1993)
- Decree No. 2811, Code of Natural Resources and Environmental Protection (1974)
- Regulation of environmental licenses, Decree 2041 (2014)
- Decree No. 1320, Regulations for Prior Consultation for the exploitation of natural resources (1998)
- Decree No. 261, Interinstitutional Coordination Protocol for Prior Consultation (2013)
- Presidential Directive, Guide for Prior Consultation with Ethnic Communities (2020)
- Law No. 21 approving OIT Convention 169 (1991)

The government entities that regulate, authorize and related to mining activities in Colombia are: a) Ministry of Mines and Energy; b) Ministry of the Environment (MMA); c) Mining-Energy Planning Unit (UPME); d) Colombian Geological Service (SGC); e) National Mining Agency (ANM); f) National Environmental System (SINA); g) National Environmental License Agency (ANL).

According to article 14 of the mining code, a mining concession contract granted by the ANM allows various types of activities to be carried out with the objective of determining the existence of minerals to be economically exploited, in addition, it grants the right to build and install equipment, services and works in the mining concession or outside them.

The mining concession contract granted by the ANM includes the following stages: i) Exploration, with a period of up to 8 years; ii) Construction and Assembly, up to a period of 4 years; iii) Exploitation up to a period of 30 years. These mining contracts can be requested again under article 35 of Decree Law 019 of 2012.

4.5. Royalties

According to the 1991 Political Constitution of the Colombian State, "Royalties are economic considerations that the State receives for transferring the exploitation of non-renewable resources", according to the royalty policy the Colombian state receives from mining companies. in exploitation between 3% and 8% of the value of net production. Specifically, 4% are allocated for the production of gold and silver while 5% is allocated for copper.

During the three months ended December 31, 2015, the Company's operating subsidiary, Minera El Roble S.A. ("MINER"), received notice of claim from the mining authority (the "National Mining Agency") in Colombia requesting payment of royalties related to past copper production. The National Mining Agency based its claim on the current mining law, which is subsequent to the prevailing mining law under which MINER executed the mining contract regulating its royalty obligations for the El Roble mining property. The current mining law in Colombia explicitly states that it does not affect contracts executed prior to this law entering into force. Accordingly, the Company refuted the notice of claim, taking the position it has complied with the royalty payments due and called for under the contract.

In 2017, the National Mining Agency in Colombia submitted a claim for $5,000,000 (up from $2,000,000) plus additional interest and fees. The Company has been vigorously defending itself against this action before the Administrative Tribunal of Cundinamarca (the "Tribunal"). Such claims may take up to ten years to reach a resolution in Colombian courts. The National Mining Agency had updated the claim amount to COP$87,933,286,817 (approximately $22,900,000) for all royalties in dispute up to December 2021, and in June 2022, to COP$101,217,832,270 (approximately $26,300,000) for all royalties in dispute up to January 23, 2022, the expiry date of the mining contract. Such amounts exclude indexation and related late payment interest.

On December 27, 2021, the Company entered into an agreement (the "Agreement") with the National Mining Agency to settle the dispute via binding arbitration at the Center for Arbitration and Conciliation of the Bogota Chamber of Commerce for the purposes of seeking an expedited resolution to the ongoing claim. The parties have completed the submission of the statement of claim, counterclaim, and respective replies. The next step is for the tribunal to hold the first procedural hearing on June 13, 2024 (rescheduled by the Tribunal from April 16, 2024), prior to the discovery phase of the proceedings (evidence exchange) and subsequent final hearings. The arbitration rules state that the tribunal's final decision (the "Award") is to be made six to twelve months after this first procedural hearing. According to the Agreement, to the extent that an Award is rendered in favor of the Company, the Payment Plan (see below) will cease, and any amounts already paid will be reimbursed to or offset against future royalty obligations.

The Agreement allowed for the Company to be recognized as being formally in good standing with the National Mining Agency, enabling the Company to apply for a new mining contract on the property. The previous contract and related title expired on January 23, 2022.

The Agreement called for the Company to enter into a five-year Payment Plan (which was amended in June 2022) payable in biannual instalments for a total amount of COP$101,217,832,270 (approximately $26,300,000) plus interest at a 6% annual rate (in aggregate of COP$120,252,412,294 or approximately $31,300,000) with the following payment schedule: initial upfront payment of COP$3,800,000,000 (paid in 2021), followed by COP$15,130,315,236 (paid in 2022), COP$15,301,117,051 (paid in 2023), COP$15,847,046,908 (approximately $4,100,000) in 2024, COP$26,501,243,006 (approximately $6,900,000) in year 2025 and COP$43,672,690,093 (approximately $11,400,000) in year 2026. The total amount payable represents all outstanding royalty payments which the National Mining Agency has claimed through to the expiry date of the mining contract. The parties have agreed to this interim arrangement until a final arbitration decision is made.

As security for the Payment Plan, the Company pledged one real estate property located in Colombia in addition to granting a rotating pledge over, currently, 7,800 wet metric tonnes of concentrate inventory. The security is being released proportionally as payments are being made in accordance with the payment schedule. The security may be substituted at a later date. The Company recorded an arbitration asset for any payment made under the Payment Plan. The Company continues to work towards obtaining a new contract to renew title for the operating mine. The Company has been allowed to continue operating while the process for the contract and title renewal continues. There is no assurance the renewal will be obtained

5. Accessibility, Climate, Local Resources, Infrastructure and Physiography

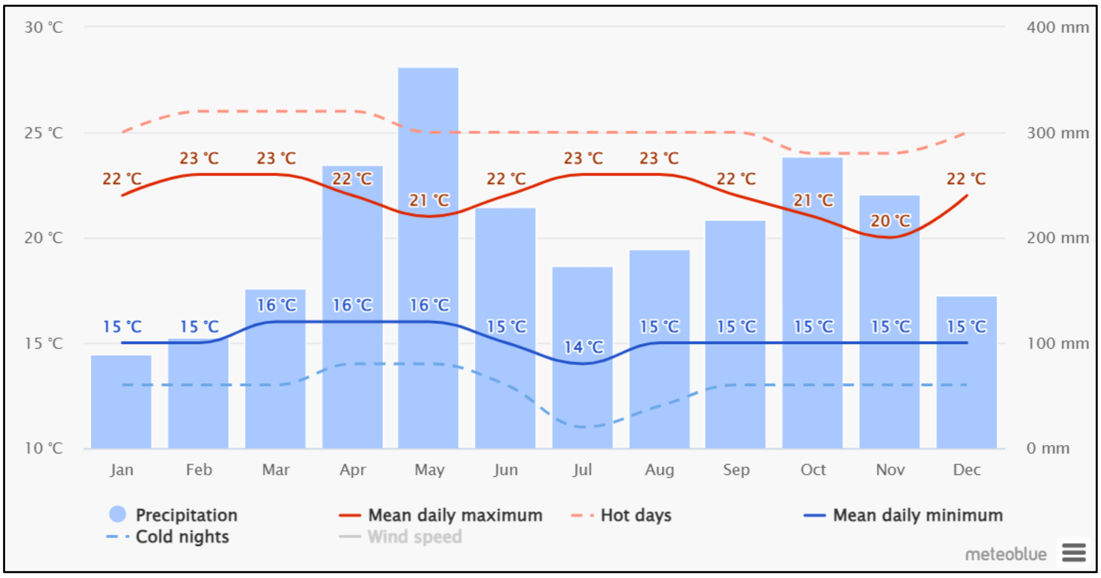
5.1. Accessibility

Access to the El Roble mine is from the city of Medellín, which is the most used, and from the city of Quibdó and both options belong to National Route 60. The section of the city of Medellín is approximately 150 kilometers and the the road is paved with some unpaved areas, which it runs through; Medellín – Amaga – Bolombolo – Ciudad Bolívar – El Siete – El Carmen de Atrato and 3 kilometers of improved gravel road to the El Roble Mine. From the city of Quibdo the road is paved with larger unpaved areas with a total of 120 kilometers and has the following route: Quibdo – Tutunendo – El Carmen de Atrato and 3 kilometers of paved road to the El Roble Mine.

5.2. Climate

The El Roble mine is located in the equatorial or intertropical climate zone, the average temperature is 17°C (varies between 25°C and 15°C). Intense rainfall of an average of 200 mm occurs in March-June and September-November; The lower intensity rainfall (average of 180 mm) occurs in two periods: December-January and June-August. The figure 5.1 show historical average precipitation and temperature.

Figure 5.1 Historical average precipitation and temperature in the El Roble mine. Source: https://www.meteoblue.com



5.3. Local Resources

5.3.1. Human Resources

The majority of workers, qualified technical and professional personnel that MINER hires come mainly from the town of Carmen de Atrato and surrounding areas (40%), while 60% come from the different regions of Colombia. 20% of the jobs carried out in the different areas of the mining operation (concentration plant, mine, environment, administration) are carried out by women.

Various local contractors provide minor services to the El Roble Mine such as; transportation, food, construction aggregates, personnel for temporary work, minor civil works, etc. The workforce of local suppliers is 100% from El Carmen de Atrato.

5.3.2. Water Resources

Hydrographically, the El Roble mine is located within the upper basin of the Atrato River, most of the water used by the mining operation (domestic and industrial) comes from precipitation that flows through surface runoff controlled by the topography. The main tributaries of the Atrato River in the area of influence of the El Roble mine that supply water resources are; The El Roble stream and the Archie Sur stream, both have collection points at 2100 meters above sea level. Find out water consumption

5.3.3. Water Resources

ISAGEN company supplies electrical energy to the El Roble mine, which is distributed from a substation (it has 3 transformers). Through a high voltage line, the energy is taken to three substations, located around the mine, which transform the high voltage energy from 13.2Kv to 440v to power all the equipment related to the mining operation.

5.4. Infrastructure and Physiography

5.4.1. Physiography

The relief corresponds to an orogenic mountain range that is located in the western mountain range of Colombia. The altitude varies between 1,600 and 2,700 meters above sea level and is characterized by a mountain morphology with high slopes and "V" type valleys. Fluvial currents took advantage of erosion processes to form asymmetrical ridges and valleys. The predominant coverage corresponds to; i) Fragmented forests, made up of discontinuities covered with grass, crops or vegetation. ii) Vegetation in transition, regeneration vegetation or succession of fast-growing and heliophyllite species. iii) clean pastures, intended for livestock activity.

5.4.2. Infraestructure

The area has good access infrastructure and public and private facilities. The main roads to the mine are properly paved and with small unpaved sections. The concentrate produced by the mine is transported to the port of Buenaventura-Cali, through a paved road of approximately 500km.

The municipality of El Carmen de Atrato has; a first-level Health Service Provider Institution (San Roque Hospital), Four educational schools and supply centers.

The main infrastructures that the El Roble Mine; Beneficiation and processing plant, dry filtered tailings deposit, tailings dehydration plant, concentrate warehouse, tailings dams, dining room, warehouse, administrative offices, technical offices, maintenance workshops.

6. History

6.1. Discovery

Copper mineralization in the El Roble area was first discovered during the early 1970s at the Santa Anita deposit, located six kilometres south of the current El Roble mine operation and within the MINER mineral concession area.

At Santa Anita, a small amount of copper was reportedly produced underground from vein and stockwork mineralization. During this same time, Don Humberto Echavarria (the owner of the Santa Anita mine) reportedly found eroded boulders of massive sulphide mineralization below the current site of the El Roble mine during construction of a road from Carmen de Atrato to the town of Urrao. The source of the boulders was found to be a landslide scarp upslope of the road that exposed an outcrop of oxidized massive sulphide mineralization (gossan). The first company to exploit the El Roble deposit (at a mining rate of 30-tpd) was Minas El Roble, which was incorporated in 1972.

6.2. Historic Exploration and Development

Minas El Roble entered a joint venture with Kennecott Copper Company (Kennecott) in 1982. During a two-year period, Kennecott spent approximately US$2M on exploration that included surface mapping and sampling, a ground magnetic survey, and a 22-hole diamond drilling program (holes R-01 through R-22) totalling 2,190-m (averaging just 100-m in depth) that identified a historic mineral resource of approximately 1.1 million tonnes. Because this mineral resource did not meet Kennecott's minimum deposit size requirements, the company withdrew from the joint venture.

Following Kennecott's departure, a partnership between Minas El Roble and Nittetsu Mining Company Ltd. of Japan was formed in 1986. As the operator, Nittetsu expanded the area of surface mapping and sampling, conducted induced polarization (IP) and resistivity geophysical surveys, and completed additional drilling that identified and delineated two mineralized zones.

One of these, termed the Main zone, measured approximately 80-m along strike by 100-m down-dip by 45-m in wide. This zone was reported to contain a historic resource of approximately 700,000 -dmt of "proven plus probable reserves" that averaged 5.48% Cu, 3.06 g/t Au and 9.39 g/t Ag above the 2,225 masl elevation in the mine.

The adjacent North zone was reported to have dimensions of approximately 100 m along strike by 80-m down-dip by 15 m in width, containing a historic resource of approximately 273,000 dmt averaging 2.67% Cu, 3.25g/t Au and 10.9g/t Ag. The Qualified Persons responsible for this Technical Report were not able to review any of the tonnage and grade estimates discussed in this paragraph and are of the opinion that it is highly unlikely that these estimates are meet the the standards set out in NI 43-101 and CIM guidelines for Mineral Resources or Mineral Reserves.

In 1987, C. Itoh and Co. of Japan joined the Nittetsu/Minas El Roble partnership to form a new company, EREESA, which began construction of a 96,000 tonnes per year processing plant that was completed in 1990 and began operation at the rate of 380 tpd. Nittetsu continued to be the project operator, completing 66 additional diamond drill holes totalling 7,731-m (averaging 117-m depth), which increased reported historic "reserves" to approximately 1.2 million tonnes averaging 4.83% Cu, 3.23g/t Au, and 12.4g/t Ag. As with previous historic "reserve" estimates mentioned in this section, the Qualified Persons responsible for this

Technical Report were not able to review the tonnage and grade estimates discussed in this paragraph, and are of the opinion that it is highly unlikely that these estimates are meet the standards set out in NI 43-101 and 2014 CIM guidelines for Mineral Resources/Mineral Reserves.

In 1990, twenty additional holes, Holes CR1 to CR-20, totalling 4,638-m were drilled from the surface, along with completion of more IP/Resistivity surveys. Nittetsu and C. Itoh eventually withdrew from the joint venture and left Colombia in 1997, after which the name of the company was changed to Minera El Roble S.A. (MINER).

Since the departure of the Japanese partners in 1997, the El Roble mine has been operated by MINER, producing copper-gold concentrates and continuing to expand and delineate Mineral Resources in known volcanic massive sulphide (VMS) lenses by in-fill and step-out diamond drilling, and initial diamond drilling to discover new VMS lenses. As of the date of this Technical Report, 230 diamond drill holes totaling 27,645 m have been completed from both surface pads and underground stations. This drilling is summarized in greater detail in Chapter 10.0 of this Technical Report.

On November 22, 2013, ATICO acquired 90 percent of MINER and its assets, which include the El Roble mining concessions, exploration licenses, the El Roble underground mine, its processing facility, and ancillary facilities. Underground development, production mining, and processing has continued uninterrupted since ATICO's acquisition of MINER and its assets. Surface and underground exploration programs have also been conducted. In this report, the estimation of mineral reserves is included for the first time in the history of MINER.

6.3. Historic Production, Mining and Processing

The El Roble mine has been in production since 1990, during 1993 the mine was closed for safety reasons. In 2013 and 2019 it was paralyzed for 6 and 10 weeks respectively due to a mining strike.

The average production until 2013 was 320 tons per day and the exploitation of the mineralized bodies was located between levels 2000 and 2200 meters above sea level. Between 2014 and 2023, the average production was 850 tons per day and mining exploitation focused on the Zeus, Maximus, Maximus Sur, and Goliat mineralized bodies discovered by ATICO in 2013; All mining development and exploitation operations were located between the 1950 and 1680 levels, for which a main access was developed at the 1880 level.

A total of approximately 1.6 million tons were exploited from 1990 to 2013 by the owners prior to ATICO and with average grades of 2.4% Cu and 2 g/t Au; 2.5 million tons were exploited between 2014 and 2023 and with grades of 3.3% Cu and 2.7 g/t Au. Table 6.1 shows mining production and concentrate production from 2004 to 2023. The historical records up to 2003 do not present gold grades or concentrate production, therefore, table 6.1 is not shown.

Table 6.1 Summary of production at the El Roble mine between 2004 and 2023 (ATICO)

Year	Ore Production			Concentrate Production		
	Tonnes	Cu %	Au (g/t)	Tonnes	Cu %	Au (g/t)
2004	75,706	2.25	2.46	7,840	18.20	15.92
2005	68,696	2.06	1.02	6,330	20.76	11.65
2006	29,684	2.03		2,903	19.39	10.83
2007	49,878	1.63	3.91	4,196	18.00	23.13
2008	61,838	1.88	3.91	5,253	19.50	23.16
2009	73,214	1.77	3.17	5,688	20.80	25.70
2010	71,312	1.14	2.00	3,916	18.64	21.90
2011	76,379	1.19	1.40	4,042	20.30	15.86
2012	69,831	1.21	1.79	3,760	20.10	20.00
2013	69,895	1.07	1.56	3,294	19.40	21.70
2014	133,332	3.37	3.30	19,417	21.20	15.30
2015	178,095	3.26	2.78	29,024	18.82	11.78
2016	242,717	3.71	2.17	41,494	20.47	8.36
2017	256,078	3.87	2.10	42,801	21.80	7.90
2018	285,351	3.68	2.06	44,510	22.10	7.95
2019	231,746	3.52	2.03	34,946	21.90	9.30
2020	294,421	3.48	1.98	44,531	21.01	7.56
2021	286,678	3.07	1.98	42,252	19.42	8.10
2022	250,674	2.99	2.31	35,499	19.20	9.82
2023	288,987	2.34	1.89	32,667	18.41	9.67
Total	**3,094,512**	**2.96**	**2.18**	**414,363**	**20.39**	**10.23**

The existing processing plant at El Roble has been operated by MINER since 1990 and, after recent upgrades by ATICO, has a rated nominal throughput capacity of 850 tpd. Ore processing consists of conventional crushing, grinding, and flotation to produce a copper-gold concentrate. Grinding is to 80 per cent passing 200 mesh for flotation feed. Four banks of six flotation cells each generate concentrates, which are subsequently thickened, filtered and stored on site for shipping via highway truck to the Pacific Coast port of Buenaventura. Process tailings are deposited in an impoundment facility situated along the banks of the Atrato River next to the processing plant, or in a separate tailing’s impoundment located downstream of the processing plant. Process waste water is decanted in a series of ponds and then released (at a pH between 7.48 and 8.45) into the Atrato River.

6.4. Historic Estimates

The historical estimates made for the El Roble Mine according to international standards were carried out in June 2018 (SRK-Peru) and March 2020 (ATICO staff). The declaration of mineral resources in both years were only for the mineralized bodies discovered by ATICO in 2013. There are no historical records of the estimates in the mineralized bodies that were exploited prior to 2013. Table 6.2 shows the declaration of historical resources on SEDAR.

Table 6.2 Declaration of the estimation of resources according to the CIM (ATICO)

<table>
<tr><th>Year</th><th>Category</th><th>Tonnes (000)</th><th>Cu Eq. (%)</th><th>Cu (%)</th><th>Au (g/t)</th><th>Method</th><th>Cut off</th></tr>
<tr><td rowspan="4">2020</td><td>Measured</td><td>1039.2</td><td>4.34</td><td>3.31</td><td>2.29</td><td rowspan="4">ID2, OK</td><td rowspan="4">0.88% CuEq</td></tr>
<tr><td>Indicated</td><td>135.2</td><td>4.06</td><td>2.89</td><td>2.62</td></tr>
<tr><td>Measured + Indicated</td><td>1174.4</td><td>4.30</td><td>3.26</td><td>2.33</td></tr>
<tr><td>Inferred</td><td>17.1</td><td>2.03</td><td>0.49</td><td>3.41</td></tr>
<tr><td rowspan="4">2018</td><td>Measured</td><td>1357.1</td><td>4.56</td><td>3.76</td><td>2.24</td><td rowspan="4">ID2, OK</td><td rowspan="4">0.973% CuEq</td></tr>
<tr><td>Indicated</td><td>446.2</td><td>4.05</td><td>3.24</td><td>2.27</td></tr>
<tr><td>Measured + Indicated</td><td>1803.3</td><td>4.43</td><td>3.63</td><td>2.25</td></tr>
<tr><td>Inferred</td><td>23.9</td><td>2.06</td><td>0.62</td><td>4.06</td></tr>
</table>

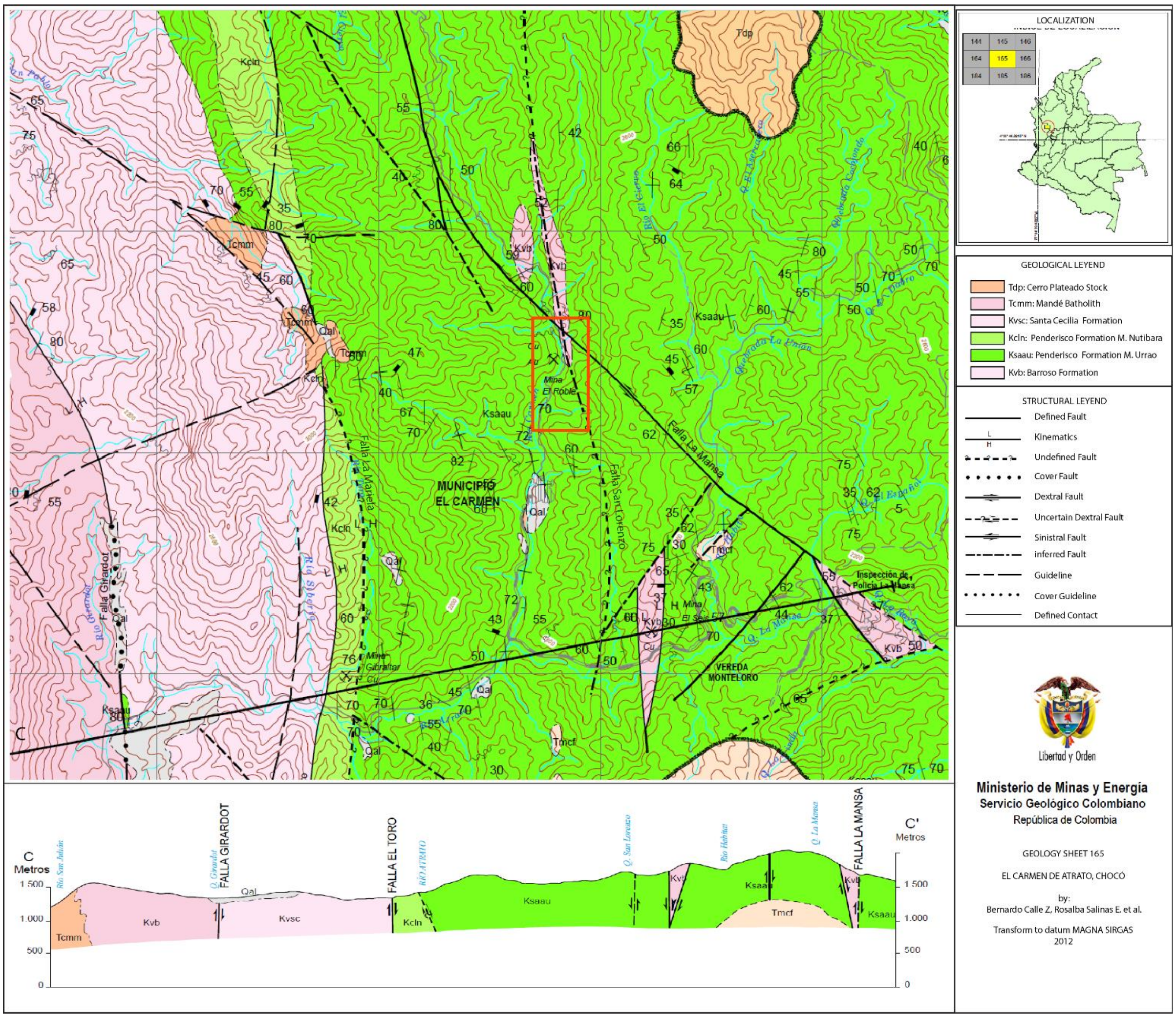
7. Geological Setting and Mineralization

7.1. Regional Geology

In the concession area there are volcano-sedimentary units from the Cretaceous, intrusive rocks from the Tertiary and volcanic rocks from the Upper Tertiary. The area can be considered as a trans-arc basin, which forms the Western Cordillera. It is characterized by a sequence of volcano-sedimentary rocks called the Cañasgordas Group (Álvarez and González, 1978), of Cretaceous age. The upper section of this group is mainly composed of a sequence of turbidite rocks, called the Penderisco Formation, divided into two members: the lower member composed of intercalations of limestone and chert, called Nutibara Member and the upper member composed of intercalations of Lithosandites, siltstones and mudstones, called Urrao Member. The latter constitutes the host rock for the mineralization of the El Roble deposit. This Cretaceous sequence was intruded by the tertiary Farallones stock, called Farallones Monzodiorite (González and Londoño, 1998). The lower section of the Cañasgordas Group is referred as the Barroso Formation, and it consists of mafic volcanic rocks including pillow basalts, tuffs, hyaloclastites, and agglomerates. All these rock units were deformed and metamorphosed during Late Cretaceous to Tertiary accretion, wich resulted in both low-angle thrusting and high-angle strike-slip faulting that trend in a general north-south direction.

Structurally, in the area there is a simple shear component evidenced by the multiple sinistral strike-slip faults that govern the area with an NNW-SSE trend and a secondary with NE-SW direction of sinistral component, these being part of a relay system of the N-NW system. The main faults present in the area are the La Mansa fault, which is a N–NW trending structure that dips preferentially to the East, although locally there are shear planes dipping to the West, and there are also several systems of main faults oriented NW-SE, NE-SW and N-S, as San Lorenzo Fault and La Mariela fault, which are recognizable in the field by the development of breccia zones, cataclasis and mylonitization, lithological changes associated with contacts, geomorphological features and active seismicity at depths between 25 - 90 km (Calle, B. and Salinas, R., 1986). The figure 7.1 show Regional Geologic Map.

Figure 7.1 Regional Geologic Map, modify from Calle, Z., and Salinas, E., 1986



7.2. Property Geology

Atico geologists and other workers use four major rock classifications to described the geology of El Roble license areas. The lowest unit is a submarine mafic volcanic unit up to several kilometers thick. Whole rock (NaO, K2O, MgO, FeO) analyses reported by Ortiz et al. (1990) place the basalt flows in the tholeiitic field. The mafic volcanic unit is overlain by a "black chert unit" up to 30 m thick and turn these grades upwards into a pelagic sedimentary unit, locally termed the "grey chert" up to 120 m thick. The entire package is topped by a sandstone-mudstone, turbidite unit several kilometers thick. The massive sulfide deposits are hosted in the black chert and grey chert units always occurring within meters of the uppermost mafic volcanic contact. The succession of basalt flows, black to grey chert and overlying pelagic sedimentary rocks and sandstone-shale turbidites sequence has been intruded by andesite and latite dikes which post date and disrupt the massive sulfide mineralization. Within the pelagic, chert mudstones of the "black" and "grey cherts" Pratt (2014) recognized several additional lithologies which are described in detail below and shown in figure 7.2.

7.2.1. Stratigraphy

The stratigraphic units observed in the El Roble license area are described from oldest to youngest below.

Basalts (Kv). Composed of mafic volcanic rocks assigned to the Barroso Formation. These rocks were moderately vesicular and showed propylitic alteration. They could have been emplaced as a massive flow or sill. It is massive- to pillowed basalts, with minor hyaloclastites and hyalotuffs. The pillows have chilled, amygdaloidal margins and breadcrust-type fracturing and display excellent variolitic texture in places, typical of quenched, rapidly cooled lava. The pillow margins are dark green and glassy and frequently remarkably unaltered. Limestones and cherts are intercalated with the pillow lavas and seem to increase upwards. The basalt section is intruded by large volumes of younger tertiary andesite dykes which may be difficult to distinguish from basalt under field conditions.

Black Chert (Kbc). This unit is dividing in several types of interbedded rocks and consists in the host rock of the mineralization of the El Roble mine. There is a mudstone unit that consists of black laminated, to massive mudstone with some pyrite-rich layers. A very distinctive chert, approximately 1-m thickness, occurs between the basalt and massive sulfide. It has a distinct zebra-type black and white banding. The massive sulphide is underlain in some drill holes by a massive dolomite (± quartz) rock. Frequently with a brecciated appearance, it is widely overprinted by massive or semi-massive sulphide (Pratt & Ponce, 2014). There are two possible explanations for the origin of this rock. Firstly, it was originally a massive limestone, part of the stratigraphic sequence. Limestones and calcarenites are common above the massive sulphide, so the existence of a more massive limestone is not unexpected. The second possibility is that the dolomite rock is entirely hydrothermal. This unit also contain a very graphitic, sooty limestones and cherts. The limestones are commonly laminated and overprinted by calcite/dolomite rhombs. The limestones disappear upwards and pass into black graphitic cherts. The black cherts become paler upwards. Unusual light grey nodular cherts, with interbedded mudstones/siltstones, occur above the Mudstone unit (Figure 7.2). The rock consists of chert nodules and black, organic-rich mudstones with abundant pyrite and graphite.

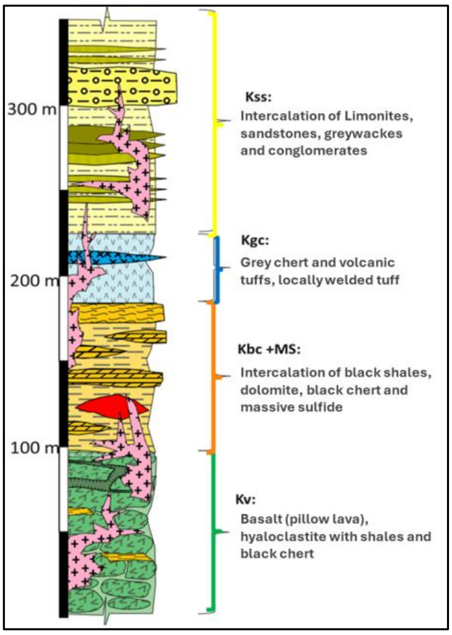
Massive and Semi-massive sulphide (MS – SMS). The massive sulfide ore at El Roble is primarily composed of chalcopyrite with variable amounts of pyrite and pyrrhotite. Other base metal sulfides such as galena and sphalerite are not abundant. The massive sulfides are texturally variable and can be brecciated or banded. Within meters of the massive sulfide ores, the 'black chert' is intensively carbonate-altered. In many cases, white spotting of the carbonaceous mudstone was observed. In some cases, carbonate-altered 'black chert' was found to be crosscut by chlorite veins. In some cases, these chlorite veins were associated with pyrite or pyrrhotite stringers. A progression from the intense carbonate alteration into a zone of massive pyrite with elevated gold grades could be observed. The massive pyrite was found to be associated with the silicification of the host rocks. The massive sulfides commonly give way to massive chalcopyrite. Massive chalcopyrite predominates within the core of the massive sulfide lenses.

Grey Chert (Kgc). The black chert to the west change color and become lighter, the rocks become dark brown to gray chert with abundant fractures filled with organic matter, the contact between both rocks transitional with marked lateral variations, locally faulted. The unit is stratified and intensely folded, in general it presents a planar parallel and locally wavy structure. Contains material pyroclastic as volcanic ash and some levels present an apparent bioturbation. It has carbonate veins and sometimes has manifestations of disseminated pyrite and in stringuers (random veins).

Sandstones (Kss). This is the most extensive lithological unit in the concession area and is located from the slopes to the lowest parts, it is made up of mostly vertical and locally folded strata. It is found in depositional contact with the Gray Chert unit and sometimes on the Black Chert unit. Its thickness is estimated at more than 2,000 meters, and it is part of the highest units in the stratigraphic sequence. It is made up of polymictic conglomerates with fragments of all the units prior to this one in the stratigraphic sequence such as basalts, black chert, and gray chert. There are also levels of intercalations of fine sandstones with shales, claystones, shales and greywackes. The detrital sedimentary rocks are part of the Urrao Member of the Penderisco Formation of the Cañasgordas Group, which has been dated to the late Cretaceous age.

Breccia (Hbx). Across the volcano-sedimentary sequence there are fluid-related breccia zones with high concentration of silica matrix and different types od lithic fragments. Different breccias zones are associated with andesitic dykes and near to the orebodies with secondary disseminated pyrite. Low mineralization of copper and gold (<1%/<1ppm) are present in the breccia zones. It seems the breccia is related to recent hydrothermal fluid event, syngenetic with dykes and sill intrusions.

Figure 7.2 Stratigraphic Schemes and Lithology Codes (Pratt, 2014)



7.2.2. Structural Setting

The entire volcano-sedimentary sequence presents a strong tilt. The overturning of the strata implies in the first instance a sub-horizontal compression, additionally, brittle faulting and ductile shearing become more intense towards the sedimentary/basalt and sedimentary/sulphide contacts, evidently due to the strong contrast of competencies between the units' rocks. The latter consequently exhibit a strong degree of deformation with the development of folds and ductile shear structures towards the contacts with the black chert and mudstones, as well as a low degree of cleavage. Most faults are sub-vertical and sub-parallel to the stratification. The stratigraphic sequence tilts strongly to the East, the contacts and strata have high dips (>70°) to the East and West and are generally framed by fault zones with development of ductile shear.

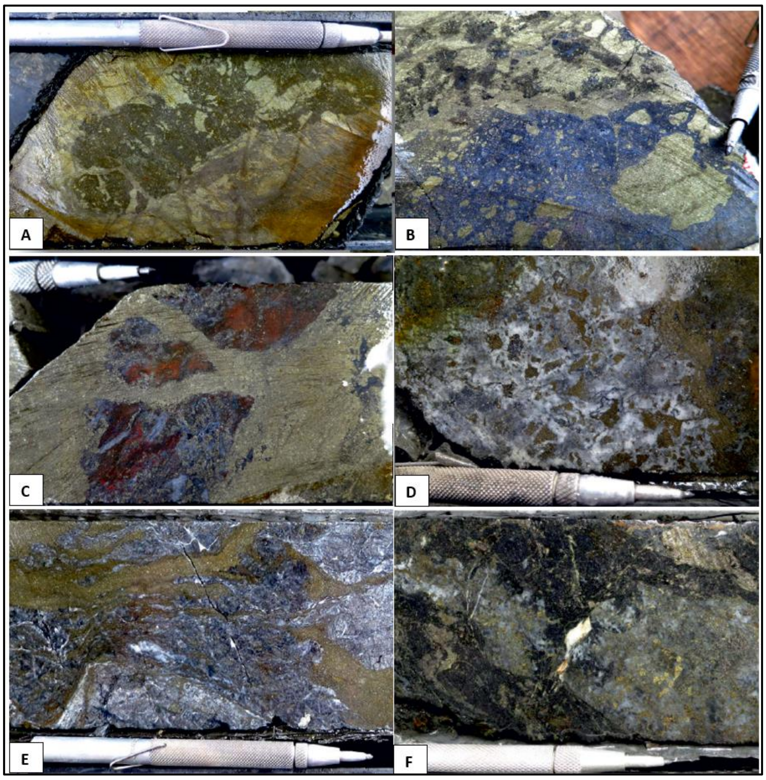
The basalt/sedimentary contact is sometimes observed affected by andesitic dykes, which in different areas are affected by cataclasis or shear. Within the sedimentary unit, the dikes intrude the sequence particularly parallel to the direction of stratification (as sills), and with NW and WNW trends. The dikes observed within the massive sulfide bodies present strong argillic alteration and within the volcano-sedimentary sequence they exhibit local deformations, however within the basalt block they generally do not show considerable deformation.

7.2.3. Mineralization

The El Roble deposit consists a series of massive sulfide lenses, separated by faulting and are the dismembered fragments of once coherent, single, massive sulphide body. The mineral deposit that comprises the El Roble Project consists of mafic-type volcanogenic massive sulfide (VMS) mineralization for which there are numerous examples in the world. The host rocks for the VMS mineralization present on the MINER El Roble mineral concessions consist of basalt flows, black to grey chert and overlying deep-water sedimentary rocks, and sandstone. The deposition of the VMS mineralization is syngenetic with the black chert, which generally forms both the hanging wall and footwall "host" to the mineralization. The portion of the El Roble deposit currently being mined by MINER has been overturned by folding such that it now dips steeply to the east. Based on the drill hole data provided by MINER as of the effective date of this amended Technical Report, the dimensions of the deposit currently are 325 meters along strike by ±600 meters deep and up to 45 meters in thickness. Continuity of the mineralization is locally disrupted by Tertiary andesite and latite dikes up to 10 meters in width that intrude both the VMS mineralization and the host rocks. Strands of one of the major regional northwest-striking faults have resulted in conjugate N-S, E-W NW-SE faults offset the mineralization particularly below the 2100 level of the mine.

The massive sulfide mineralization is fine-grained, with only locally evident internal structure or banding, consisting predominantly of fine-grained pyrite and chalcopyrite (Figure 7.3). Pyrite occurs as euhedral and subhedral grains that vary from 0.04 to 0.01 millimeters in diameter. Colloform pyrite textures and crushed pyrite grains are also common. Chalcopyrite typically fills spaces between pyrite grains, along with minor pyrrhotite and sphalerite, no other sulphide minerals have been identified. Gold occurs as electrum in 10- to 100-micron irregular grains in the spaces between pyrite grains. Minor silver is also present, presumably as a component of the electrum. Gangue minerals include quartz and chlorite along with lesser calcite, dolomite and minor hematite and magnetite.

Figure 7.3 Mineralization styles at El Roble Mine



A. Chalcopyrite massive sulfide with Pyrrhotite flows,

B. Chalcopyrite semi-massive sulfide with high content of magnetite in matrix,

C. Pyrite massive sulfide with hematite clasts,

D. Pyrite semi-massive sulfide with high content of carbonates in matrix,

E. Pyrite interbedded stringers into black chert,

F. Replacement of carbonates by chalcopyrite and pyrite in semi-massive sulfide.

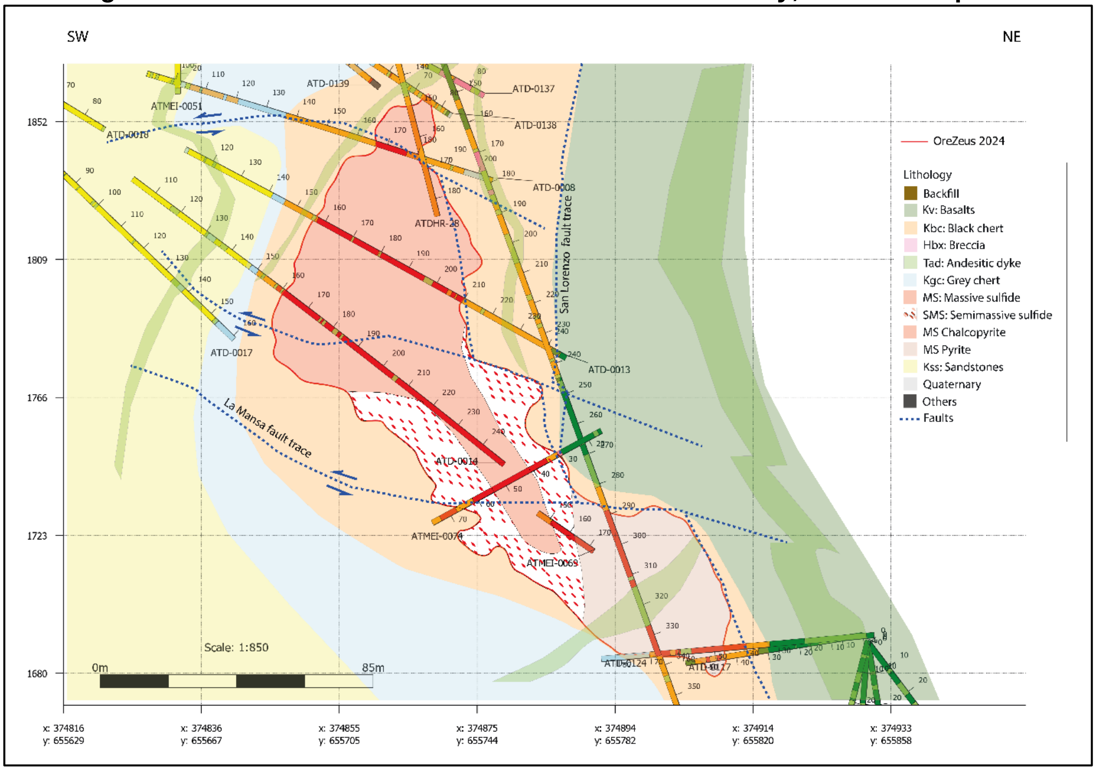
7.3. Ore bodies at the El Roble Mine

7.3.1. Zeus Ore Body

Zeus orebody extends from level 1678 to 1890 masl with 212 meters in height, with 185 meters in the maximum length at level 1747 masl and 64 meters as maximum width at level 1790 masl. It constitutes the largest orebody in de El Roble deposit and current focus of mining operation. This body is divided in two main mineralized zones well defined. In the upper zone above level 1770masl the body has a trend with dips between 70-75°, and it is composed mainly of massive sulfide with chalcopyrite, interstitial pyrite and fine-grained stringuers. Contacts with host rock has a high grade of deformation related to the fault-reactivation with evidence of high content of gouge, drag folds and echelon structures type. Furthermore, lower zone is represented by fine-grained pyrite massive sulfide, with chalcopyrite in less amount and less extension stringuers, mainly in the south zone of the body, where it is strongly deformed and faulted with dismembered and isolated blocks between shear zones up to 2 meters thick. In the lower zone it has a general trend with dips between 40-45°, contact faults up to 25° dip as in the hanging wall contact of levels 1757masl – 1752 masl. In addition, host rock has a strong deformation, mainly to the boundaries. In general, Zeus body is characterized by mineralogic transition of chalcopyrite to pyrite throughout its extension in depth.

The metal content of copper and gold varies depending on the concentrations of chalcopyrite and pyrite throughout the body, the highest concentrations of copper (>4%) are associated with a concentration equally greater than 60% of chalcopyrite, in the bands that extend from the upper level 1890masl to level 1727masl, extending from the central area to the southern area of the body. Furthermore, gold concentrations (>5ppm) are mainly associated with the bands with the highest pyrite content and where it is found with a very fine-grained massive habit. This strip extends from level 1860masl to level 1687masl from the central area to the northern edge. The figure 7.4 sho Schematic Cross section of the Zeus orebody.

Figure 7.4 Schematic Cross Section of the Zeus orebody, El Roble Deposit

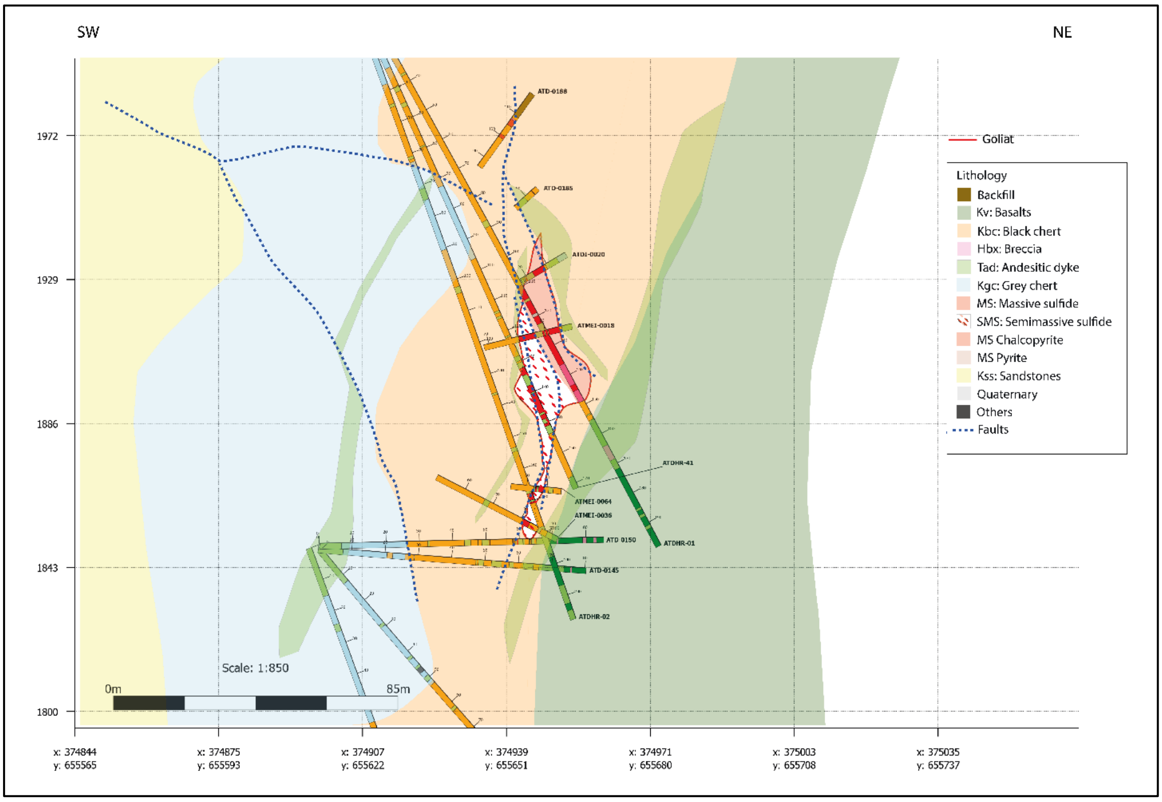


7.3.2. Goliat Ore Body

It is found from level 1950 to 1850 masl, with a maximum length of 85 meters at level 1908 masl and a maximum width of 22 meters at level 1900 masl. It is composed of massive to semi-massive sulfide of chalcopyrite and pyrite, in an approximate percentage of 60 and 40% respectively. However, at lower levels, pyrite predominates within its composition. This body has a high deformation, evidencing large shear zones that cross it and divide it into smaller blocks, with intrusions of strongly altered dikes, drag blocks of black chert with high graphite content within the body and high material content gouge between the fault planes, especially in the contact zones between the sulfide and the host rock, where it is also possible to find drag folds and augen-type structures in S-C type deformation planes. These structures tend to occur mainly with dips greater than 70° as well as the disposition of the body itself, with a deflected strike of N60W. In addition, it is cut by several andesitic dykes distributed along its entire length, which were located through the planes of weakness generated by the high deformation mentioned, both the mineral blocks and the shear zones with presence of black chert and dike as tectonic breccias, present economical metallic contents of copper and gold and constitute the envelope of the body.

The chalcopyrite content is mainly concentrated above the 1885 level, where copper concentrations above 5% and up to 18% in specific areas are evident. Likewise, high concentrations of gold associated with chalcopyrite bands occur above the 1907 level where values above 5ppm up to 10 ppm are obtained. Below the 1885 level, the concentrations of copper and gold decrease substantially and the content of thick pyrite predominates in blocks with a massive texture and with the same state of deformation as the upper part. The figure 7.5 show Schematic Cross section of the Goliat orebody.

Figure 7.5 Schematic Cross Section of the Goliat orebody, El Roble Deposit

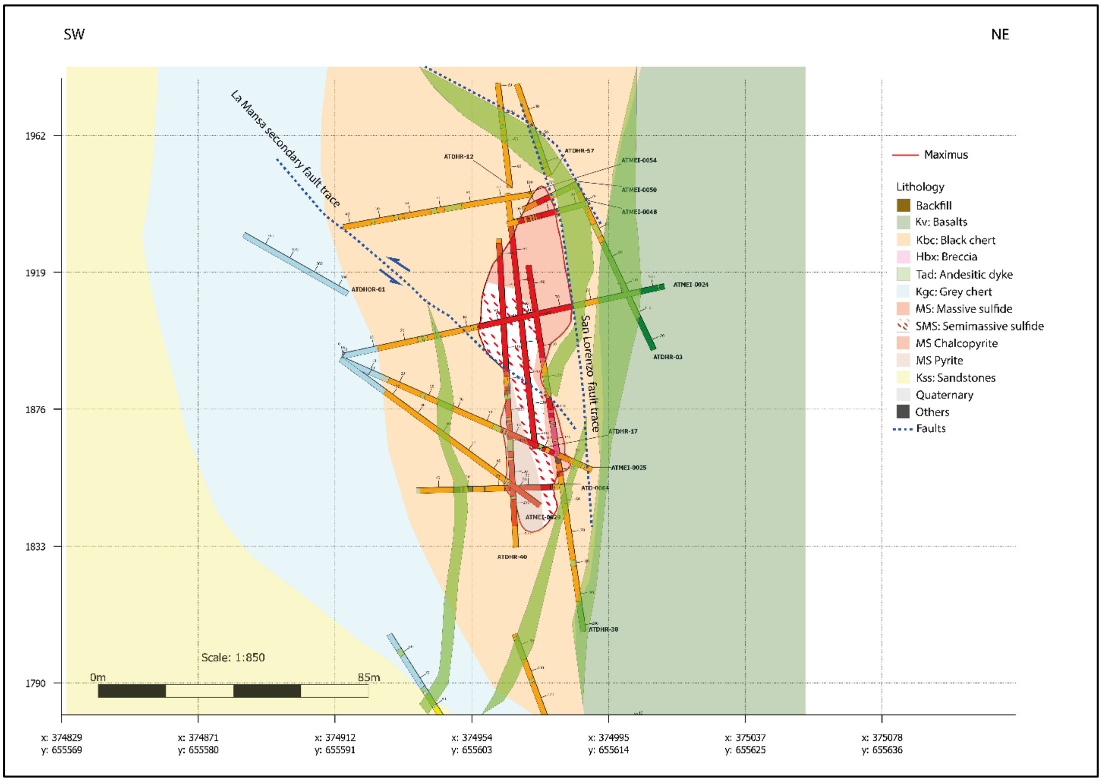


7.3.3. Maximus Ore Body

This body extends between levels 1950 and 1835 masl with 115 meters of height, 65 meters of longest length at level 1872 masl and 35 meters of maximum width at level 1880 masl. It presents lower compositional variations along its vertical extension due to the concentrations of chalcopyrite and pyrite. It consists of massive sulfide of chalcopyrite and fine-grained pyrite in a highly hardness siliceous matrix and intruded by dykes of andesitic composition, specifically in the southern sector of the body, which do not greatly affect the composition or structure of the body and which, in addition, are mineralized with disseminated pyrite. In general, Maximus orebody is arranged with strikes of N10W and subvertical dips between 70° - 80° NE. Due to the high silica content in the matrix, the body is slightly deformed, except towards the southern limit, where there is evidence of dislocation in several mineral blocks embedded in shear zones with the black chert host rock with schistosity and graphite in fault planes.

The copper and gold concentration are homogeneous throughout its entire length, unlike other bodies, Maximus orebody presents specific Cu values above 20% and equally specific gold values, up to 30 ppm in the same strips of chalcopyrite, which suggests a concentration of both metals associated with a high content of chalcopyrite and pyrite in the same area, probably associated with a high temperature pathway. The figure 7.6 show Schematic Cross section of the Maximus orebody.

Figure 7.6 Schematic Cross Section of the Maximus orebody, El Roble Deposit

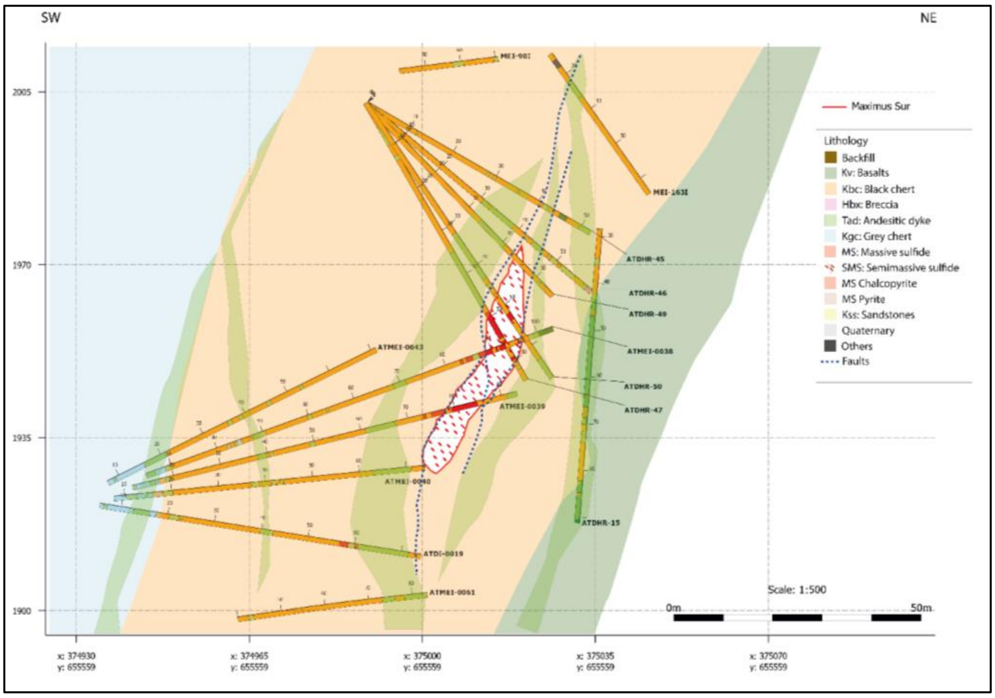


7.3.4. Maximus Sur Ore Body

It is an extension to south-west of Maximus orebody that extends from level 1920 to 1980 masl. It has a maximum width of 12 meters and length of 56 meters, both on level 1940 masl. It extends throughout fault traces heading to NW-SE trend. The fault zones constitute shear zones with schistosity, gouge presence, and very fractured zones, including host rock and mineral zone. Andesite intrusions cut the orebody in both contacts, and control the boundaries of the orebody, thus dikes are associated with the current deformation event that affect the mineral blocks. The mineralization is in several isolated blocks whose have high deformation, and the host rock has a presence of disseminated pyrite. The chalcopyrite is in the lower part of the orebody, below 1935 masl, and it is in patches inside the replaced limestones, and pyrite extends from lower to upper zone of the orebody as a dissemination and massive sulfide blocks inside the shear zones.

There is not a representative copper concentration along the extension of the orebody, there are some spots on level 1930 masl with 14% copper and 9 ppm gold concentration on level 1940 masl. There is a high dilution by the host rock and shear zones that cut the orebody, and it is possible to have an extension of this orebody below, as show in some drillholes below 1920 to 1870 level. The figure 7.7 show Schematic Cross section of the Maximus Sur orebody.

Figure 7.7 Schematic Cross Section of the Maximus Sur orebody, El Roble Deposit



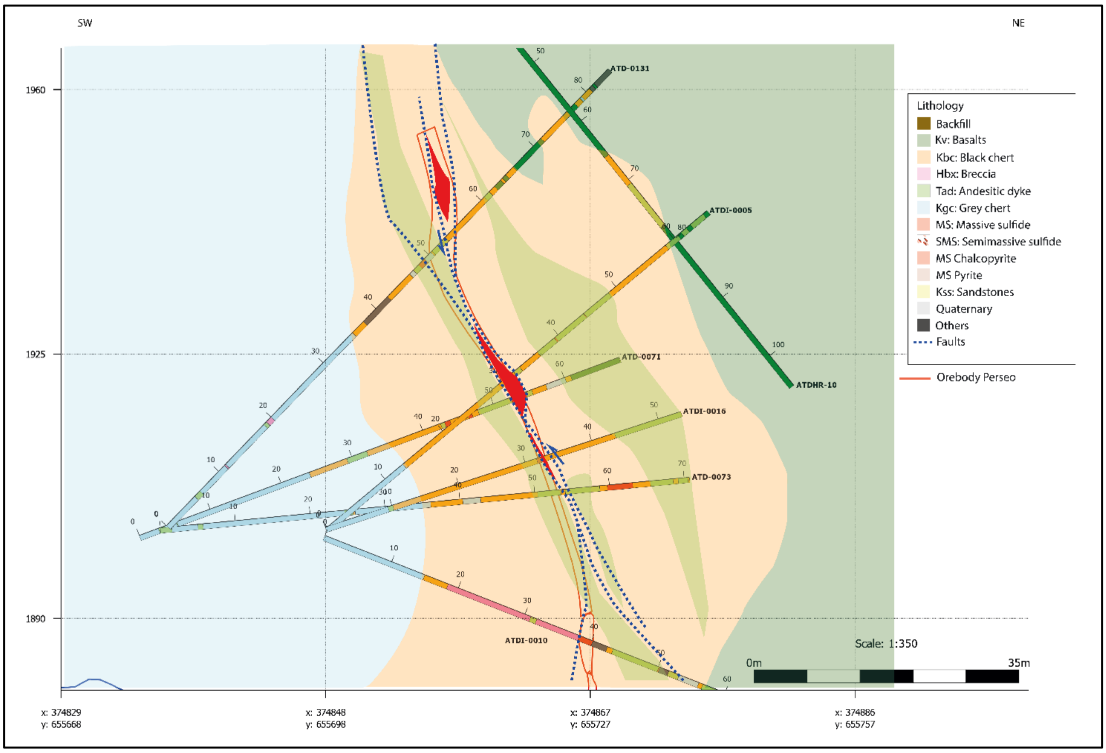
7.3.5. Perseo Ore Body

Perseo orebody does not constitute a single massive sulfide block but is formed by isolated and deformed blocks within sheared contact zones associated with regional transcurrent faults, which is related with an extension of the Zeus body between levels 1890 and 1960 masl.

The mineralized blocks have maximum with of 3 meters and height of 6 meters, they are made up of massive and semi-massive chalcopyrite sulfide, where the grades vary between 7 -13% Cu and high dispersion of gold with values between 0.5 - 4 ppm.

The surrounding black chert zones contain disseminated mineralization and patches of pyrite and chalcopyrite with copper and gold grades below 1% and 1 ppm respectively. The figure 7.8 show schematic cross section of the Perseo orebody.

Figure 7.8 Schematic Cross Section of the Perseo orebody, El Roble Deposit

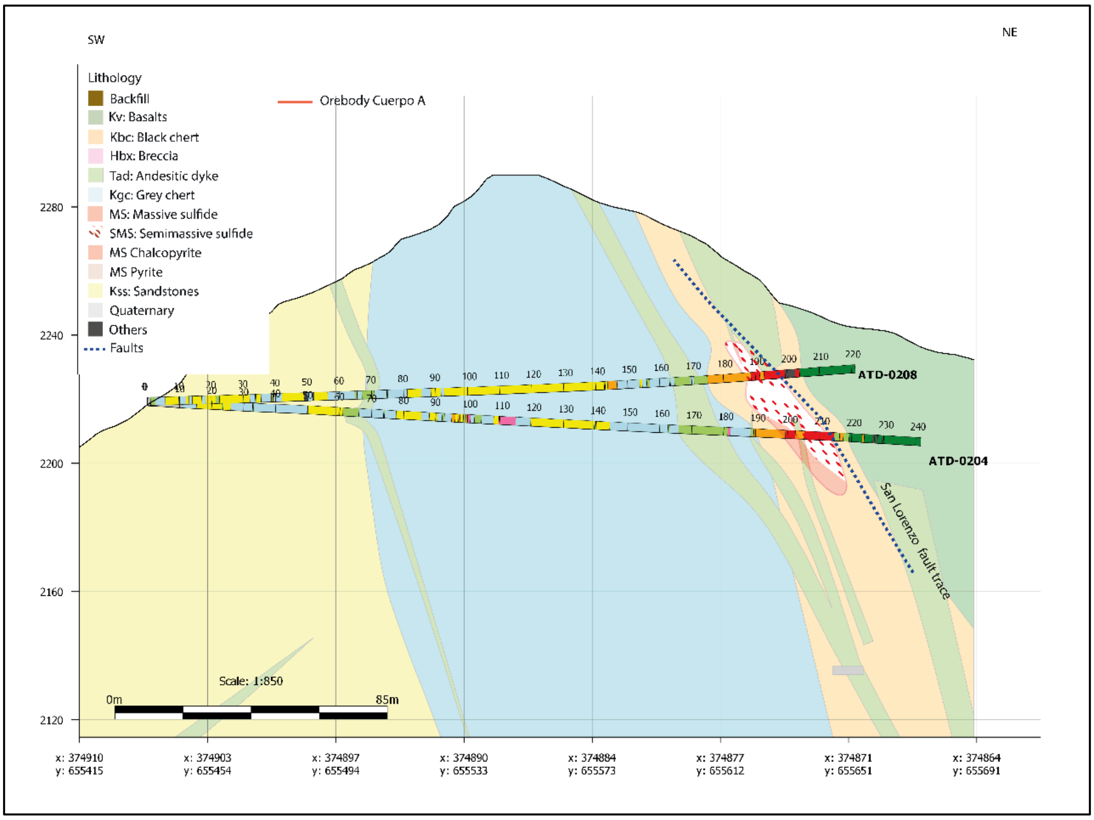


7.3.6. Cuerpo A Ore Body

Cuerpo A extends between levels 2243 and 2175masl, and consists of a thin elongated block, with a maximum width of 20 meters at level 2222 masl, and a maximum length of 72 meters at level 2207masl. It has an approximate inclination of 52 ° with dip direction to north, and a strike direction to N78W. The arrangement of the body results from a stratigraphic control in an area where the entire sequence presents low-medium immersion angles, and there are folds with vergence to the south, which generates an inclination of all the layers towards the north as framed in this mineralized body. The upper part exhibits greater mineralization of 40% pyrite and 20% chalcopyrite, presenting a semi-massive texture with a high silica content in the matrix with carbonates associated with veins of the same composition. In the middle zone, the concentration of pyrite decreases to 35% and that of chalcopyrite increases to almost 50%. At the bottom, the concentration of chalcopyrite decreases to 10% while that of pyrite increases to 45%.

There are no high concentrations bands of copper and gold, however, there are high values punctually towards the middle part of the body where the chalcopyrite content increases to 50% within the body, copper values rise to 10%. Likewise, gold is concentrated in the same central area of the body, with average values of 5ppm and extraordinary values of up to 20% are found for this body associated with intercepts of massive fine pyrite. The figure 7.9 show schematic cross section of the A orebody.

Figure 7.9 Schematic Cross Section of the Cuerpo A orebody, El Roble Deposit

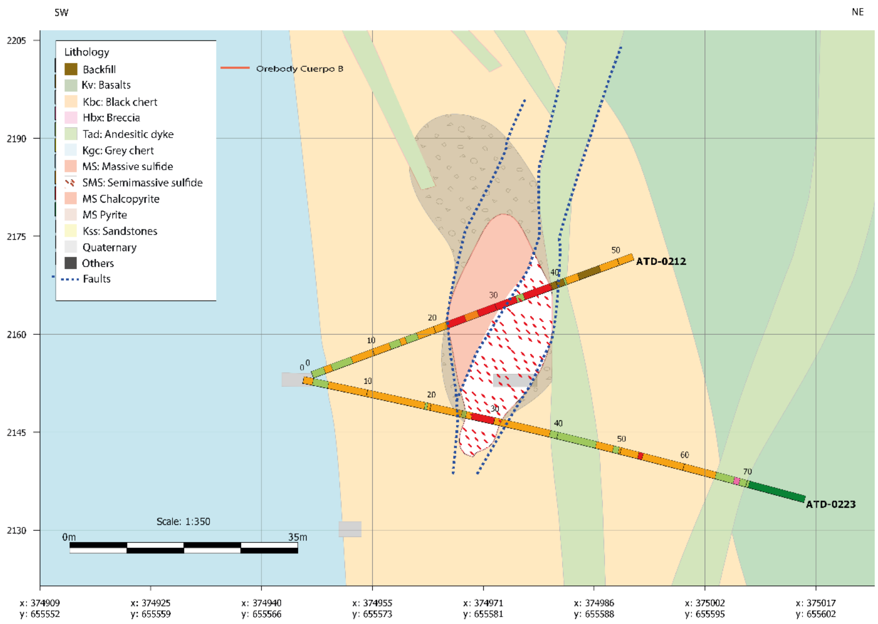


7.3.7. Cuerpo B Ore Body

It extends between levels 2190 and 2135 masl and consists of several deformed blocks of massive sulfide with a trend to N40W and subvertical dips. It is composed of chalcopyrite with interstitial pyrite and to a lesser extent massive pyrite, with black chert drags, dacitic and andesitic intrusion of dikes strongly deformed, and tectonic breccias with a high degree of fracturing and supergene oxidation with the presence of malachite as a secondary alteration. This body has a preferential strike to N30W and a subvertical inclination with contact angles with black chert of 80° - 85°. In the upper part there is mainly massive sulfide of chalcopyrite with a content of 40% and pyrite with 20%. In the intermediate part the concentration of pyrite increases to 50% and chalcopyrite decreases to 30%, and in the lower part the mineral concentrations are like the intermediate part, with a content of pyrite of 50% and chalcopyrite of 20 %. Furthermore, at the bottom there is a fractured area where malachite can be found with a content of 5%.

The copper and gold concentrations are consistent with the content of chalcopyrite and pyrite, and the copper is distributed evenly throughout the massive sulfide blocks with average grades of 4-5%, in contrast, the gold is distributed along the body with average values of 2.5 ppm and is mainly concentrated in the lower center area with values no greater than 10 ppm. The figure 7.10 show schematic cross section of the B orebody.

Figure 7.10 Schematic Cross Section of the Cuerpo B orebody, El Roble Deposit

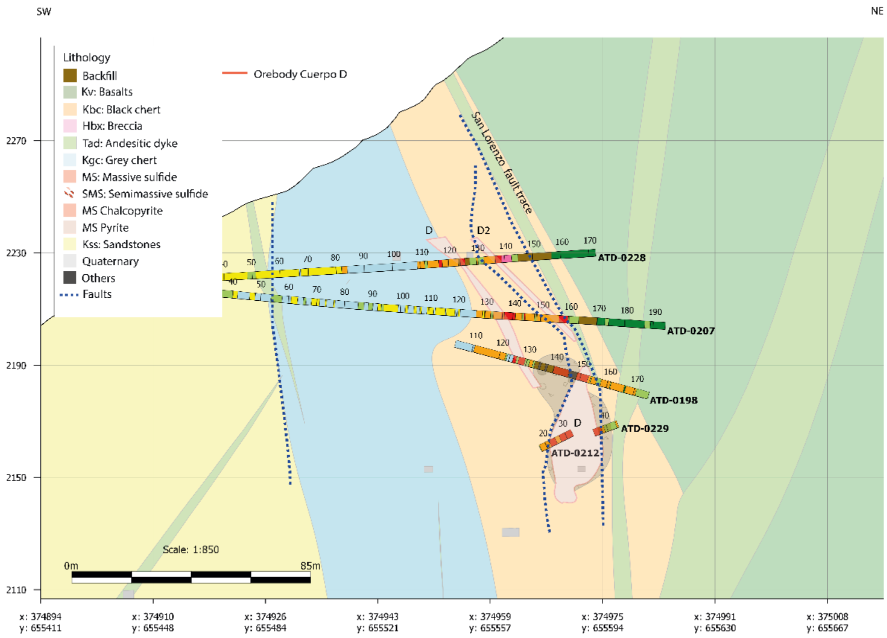


7.3.8. Cuerpo D and D2 Ore Body

Cuerpo D orebody is divided into two tabular blocks (D and D2) that extend from level 2235 to level 2140 masl, with N10W strike and low to medium inclinations with averages of 60° towards the ENE. The largest block has a maximum width of 8 meters at level 2222 masl and a maximum length of 33 meters at level 2213masl. These two blocks are continuous but separated by a layer of black chert without mineralization with an average thickness of 15 meters. In the first body (D) there is a mineralization of 40% pyrite and 20% chalcopyrite. In the intermediate part, the average chalcopyrite content increases to 35% and the pyrite content remains at 20%. At the bottom, chalcopyrite remains at 40% and pyrite at 20%. Furthermore, for D2 block, the upper part of this body, unlike D block, the chalcopyrite content is 75% and the pyrite content is 30%. In the middle part, pyrite remains at 30% and chalcopyrite decreases considerably to 15%. At the bottom, pyrite decreases to 20% and chalcopyrite remains stable between 15% and 20%.

The grades for copper are variable, but in general the body presents an average grade of 4% with specific values above 10% in the northern central zone of both blocks (D+D2). As for gold, there are no average values above 3ppm, and both bodies present averages of 2 to 2.5ppm throughout their entire length. The figure 7.11 show schematic cross section of the D and D2 orebody.

Figure 7.11 Schematic Cross Section of the Cuerpo D, D2 orebody, El Roble Deposit

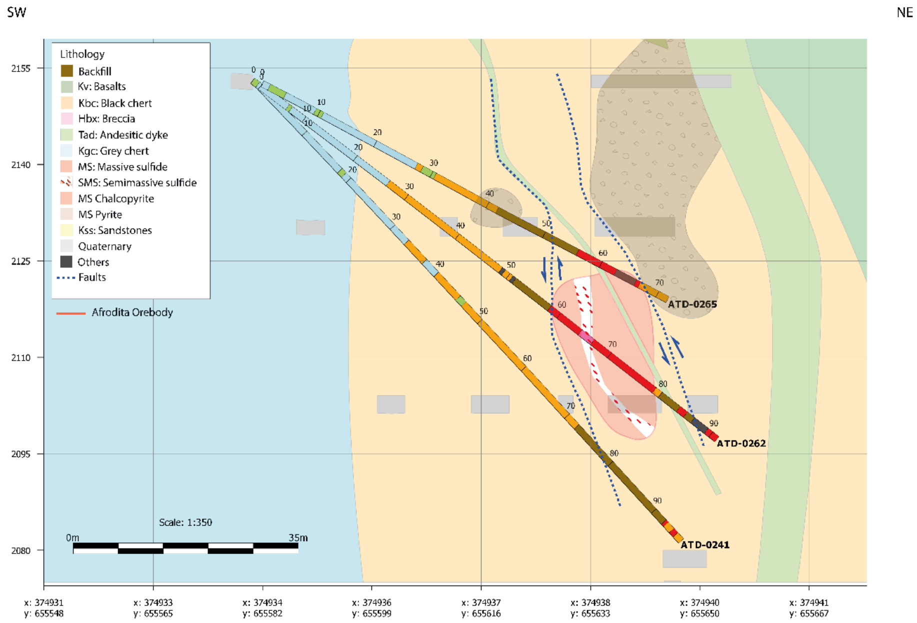


7.3.9. Afrodita Ore Body

This body is located between levels 2096 and 2148masl (52 meters), has a maximum length of 56 meters and a maximum width of 11 meters at level 2110 masl. It has a strike of N35W and an inclination of 70° to the NE. The SW contact with black chert is strongly faulted, with the development of a shear zone of at least 1 meter thick with the presence of gouge and slight supergene oxidation due to filtration of surface water through natural or secondary fractures associated with pre-existing mining works. The sulfide is massive chalcopyrite and interstitial pyrite, cemented by a matrix with high carbonate content. Inside the body there is a mineral breccia zone with black chert blasts and a sulfide content of 20%. The NE contact with black chert has a high degree of fracturing and a thinner andesitic dike intrusion is found.

Concentration of copper and gold is homogeneous throughout the extension with average levels of 3.5% for copper and 4ppm of gold, with specific values of 16% of copper and 23ppm of gold towards the northern central zone of the body at different levels, associated with strips with a higher content of chalcopyrite and fine-grained interstitial pyrite. The figure 7.12 show schematic cross section of the Afrodita orebody.

Figure 7.12 Schematic Cross Section of the Afrodita orebody, El Roble Deposit

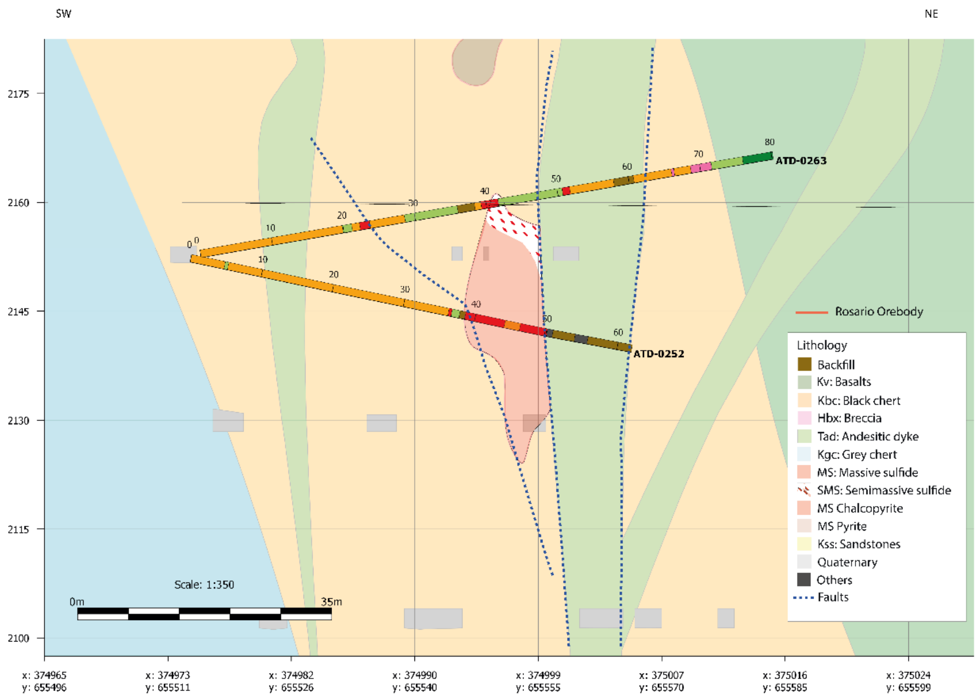


7.3.10. Rosario Ore Body

This body is fragmented from the Cuerpo Principal orebody towards its northern edge and is located between levels 2150 and 2120 masl (30 meters), with a maximum length of 20 meters at level 2145 masl and a maximum width of 10 meters at level 2135masl. This orebody consists of a semi massive sulfide of pyrite with chalcopyrite patchy and concentrated as thin stripes in the upper zone. The matrix is highly hardness siliceous, and, in some strips, it is black chert where the sulfide is interstitial or in patches associated with carbonate veins that cut the body perpendicular to the stratification. The orebody is elongated with a vertical arrangement and is located like a boudin-style lens within the stratification in the N30E direction. It is limited towards the SW contact with black chert and towards the NE with a thicker dacitic dyke that cross the stratigraphic sequence transversely to the preferential strike direction.

Concentrations of copper and gold are homogeneous, and the average is not greater than 2.5% for copper and 2ppm of gold. However, towards the upper southern zone of the body there are specific values of copper of 15% and for gold, specific zones throughout the entire body of up to 16ppm where the pyrite is of fine size and interstitial habit between the siliceous matrix and chalcopyrite patches. The figure 7.13 show schematic cross section of the Rosario orebody.

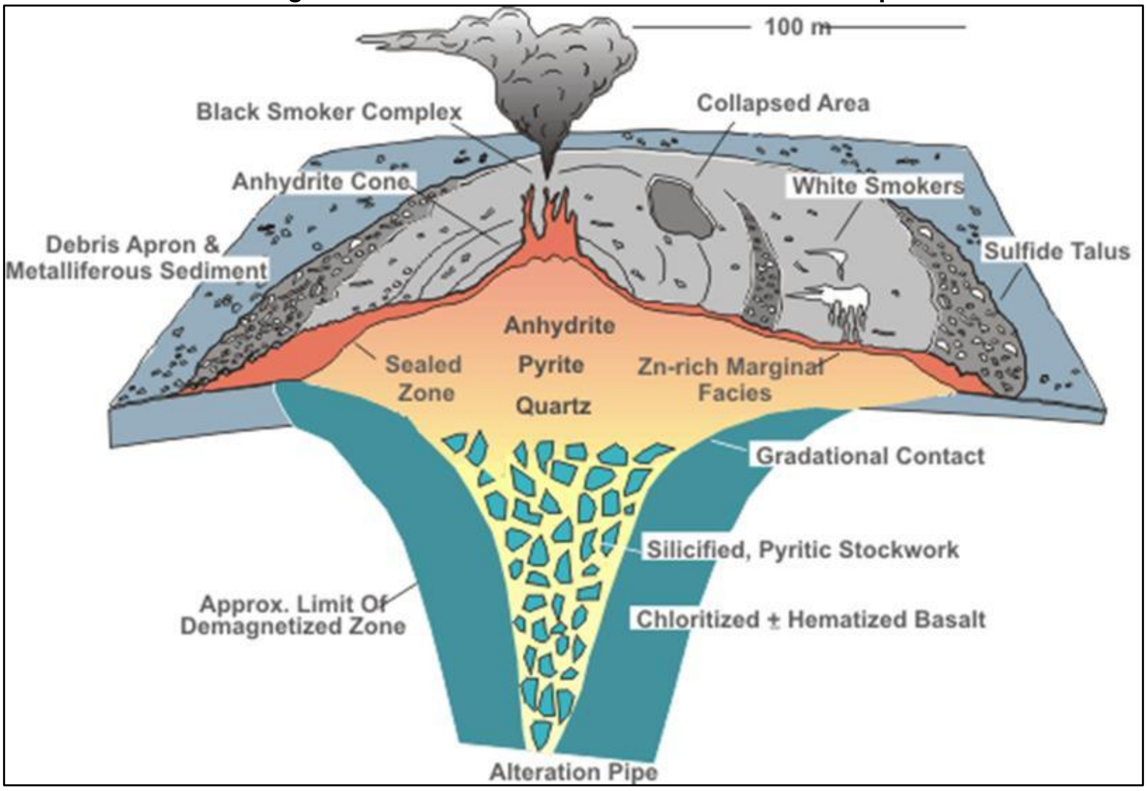
Figure 7.13 Schematic Cross Section of the Rosario orebody, El Roble Deposit



8. Deposit Types

Volcanogenic massive sulphide deposits are defined by Franklin et al., (2005) as "stratabound accumulations of sulphide minerals that precipitated at or near the sea floor in spatial, temporal and genetic association with contemporaneous volcanism." The El Roble massive sulfide mineralization is classified as the 'mafic-type volcanogenic massive sulphide type' These deposits are typified by their association with submarine mafic volcanic rocks, predominantly tholeiite basalts with lesser sedimentary rocks, including chert. Figure 8.1 is a schematic cross section through a VMS deposit taken from Galley et al., 2011.

Figure 8.1 Schematic Cross Section of a VMS Deposit



9. Exploration

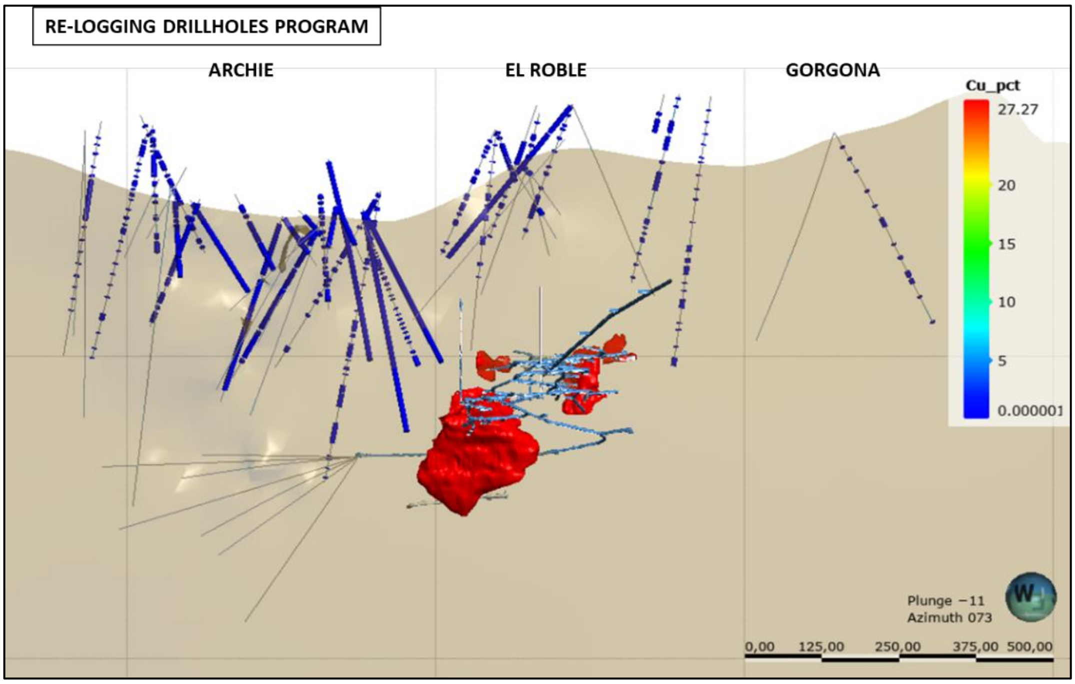
9.1. El Roble Target

The brownfield exploration program began with the review of mine geologic information, review of old mine maps from different level, both upper and lower and the drilling database to determine how the comportment of the mineralized bodies under exploitation and the old high zones, also with emphasis on the information from the upper levels that were mined out during the previous administration of MINER.

Technical data was reviewed regarding different targets around the El Roble Mine – between the mineralized bodies of Zeus, Maximus, Goliat, Perseo, Cuerpo Principal, Cuerpos Norte, Rosario y Afrodita. Mapping and modelling have taken place in three different stages – the first with the change from 2D to 3D of the interior mine maps. The second stage with the digitalization of old maps from upper levels above level 2000, and the third stage with the modeling of dikes and faults in the mineralized body Zeus.

The program of re-logging core that began in 2021 and the sampling of previously unrecognized mineralized core in 2022 added more definition to guiding future exploration drilling in the Archie Target. The figure 9.1 show distribution of drill holes in the El Roble, Archie and Gorgona Target.

Figure 9.1 Distribution of drill holes in the El Roble, Archie and Gorgona targets



Two campaigns of geochemical sampling were completed in El Roble in the principal target, north target, and Gorgona Target. Both rock chip and soil samples were collected. These samples were analyzed in the internal analytical laboratory for Au, Cu, Fe, Zn, and Pb, and subsequently analyzed by XRF for other minor elements.

The sampling campaign was carried out on 25m x 25m grid spacing within an area of 500m x 120m in a prospective zone underlain by black chert.

The sampling campaign on the Gorgona Target was carried out over two grids, a 25m x 25m grid south of El Roble and 50m x 50m in the Gorgona Target within an area of 780m x 250m following the same direction in the prospective zone of black chert.

The soil geochemical results generated geochemical anomalies of Cu, Au, Fe, Pb, Zn and Ba that clearly outlined mineralized bodies recognized in the mine. These results show that the soil geochemical survey is a valuable exploration tool.

The diamond drill program began by testing the main mineralized body as training to recognize and define remnant portions of massive sulfide bodies and to define mined-out portions that produced high grades of Au and Cu.

The main massive sulfide body has 3 defined zones remaining – CP1, CP2, CP3. A total of 44 drill holes intersected the main body - 12 drill holes in CP1, 23 drill holes in CP2, and 9 drill holes in CP3.

In CP1, five (5) drill holes were included in resource modelling with average grades of 1.43 g/t Au and 5.78 % Cu. In CP2, fourteen (14) drill holes were included with average grades of 5.83 g/t Au and 4.11 % Cu. In CP3, five (5) drill holes were included with average grades of 3.11 g/t Au and 4.07 % Cu.

The North Zone contains ore bodies A, B, D, and D2 with previously estimated mineral resources of:

- A: 126,133 t @ 3.60 g/t Au, 1.76 % Cu
- B: 50,001 t @ 1.73 g/t Au, 3.44 % Cu
- D: 25,372 t @ 1.88 g/t Au, 3.73 % Cu
- D2: 8,349 t @ 4.50 g/t Au, 9.82 % Cu

The Rosario ore body was identified and drilled based on old information. Of the 8 drill holes targeting Rosario, 5 were included in the mineral resource model with average grades of 6.16 g/t Au and 4.39 % Cu.

The ore body Afrodita was one of the last to be identified below ore body B thanks to isolated intercepts that continued below level 2150. Of the 12 drill holes targeting Afrodita, 8 were included in the mineral resource model with average grades of 5.48 g/t Au, 3.47 % Cu.

The ore body Zeus has 2 extensions in the upper part and below the mineralization where 6 drill holes testing the zone between levels 1717 and 1907. All drill holes intercepted mineralization. IN the upper part drill hole ATD-0244 intercepted 24.50m @ 2.82 % Cu and 1.32 g/t Au. In the lower part drill hole ATD-0259 intercepted 9.95m @ 2.27 % Cu and 4.49 g/t Au.

Nine drill holes tested the ore body Perseo, three of them intercepted mineralization. Drill hole ATD-0141 returned 1.55m @ 3.19 % Cu and 2.16 g/t Au.

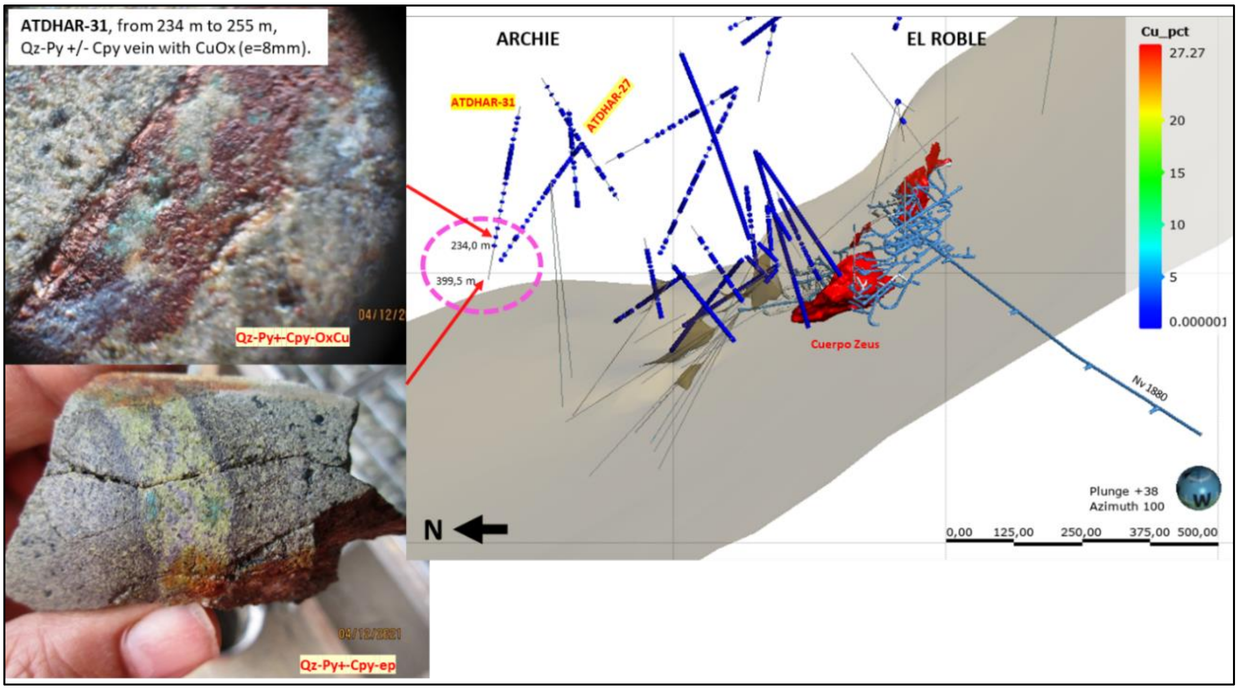
9.2. Archie Target

The brownfield exploration program in the Archie Target began with the review of historic geological information from numerous consultants who had visited the mine and evaluated past drill results as well as mapping and sampling results from both underground and surface campaigns.

The drilling database was updated with geochemical analysis from drill holes targeting the Archie Target. Geochemical anomalies were recognized in a review of drill core assays of Cu, Au, Ag and pathfinder elements Ba, As, Sb, Mo, Bi, Se, Te, Hg, Ga and In. An index of alteration typical of VMS deposits was calculated for chlorite, carbonates, and pyrite.

The initial DDH program completed only 765.5m of the 5,500 meters budgeted. In both areas of interest AOI-1 and AOI-2 none of the proposed drill holes reached their designated depth due to difficult drilling conditions through a fault zone. The figure 9.2 show Veinlets of quartz-calcite-pyrite-chalcopyrite-sphalerite hosted in basalt with strong chlorite alteration overprinting propylitic alteration.

Figure 9.2 Veinlets of quartz-calcite-pyrite-chalcopyrite-sphalerite hosted in basalt with strong chlorite alteration overprinting propylitic alteration. Drill holes ATDHAR-27 and ATDHAR-31



9.3. Archie Deep Target

The drill program proposed for the Archie Deep target in 2022 was designed with 5,500 meters, but only 756.1 meters were completed, representing 13.9% advance of the drill program. The principal cause of the low completion rate was difficult drilling conditions and poor recovery in a fault zone preventing completion of drill holes to their targeted depths in the two priority zones of the Archie Deep Target, AOI-1 and AOI-2. The table 9.1 show Drill program data for holes targeted at AOI-1 and AOI-2, figure 9.3 show Plan view and section of drill holes completed in AOI-1 and AOI-2, Archie Deep and figure 9.4 Strip logs with lithology and assays, ATD-0127A, ATD-0128, ATD-0130

Table 9.1 Drill program data for holes targeted at AOI-1 and AOI-2

TARGET	HOLE ID	SITE ID	EAST	NORTH	ELEVATION	AZIMUTH	DIP	DEPTH
AOI-1	AW2	**ATD-0127A**	374834.5	656112.1	1763,75	320	-73	266,9
		ATD-0127	374834.5	656112.1	1763,75	320	-73	258,1
AOI-2	AE1	**ATD-0128**	3748491,02	656120,80	17663,32	355	-27	78,1
	AE2	**ATD-0130**	374851,02	656153,59	1765,03	25	-33	162
								765,1

Figure 9.3 Plan view and section of drill holes completed in AOI-1 and AOI-2, Archie Deep

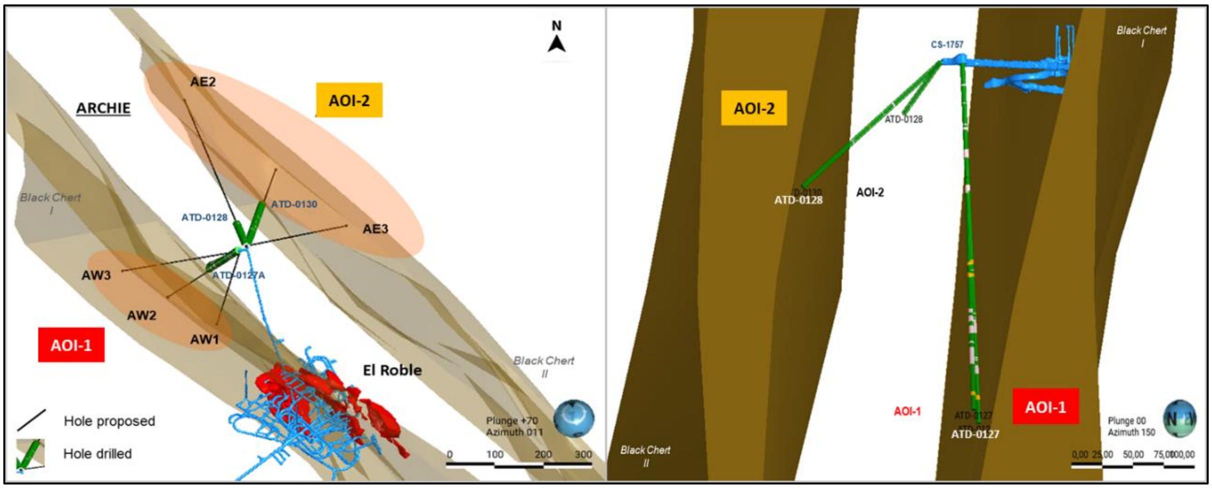
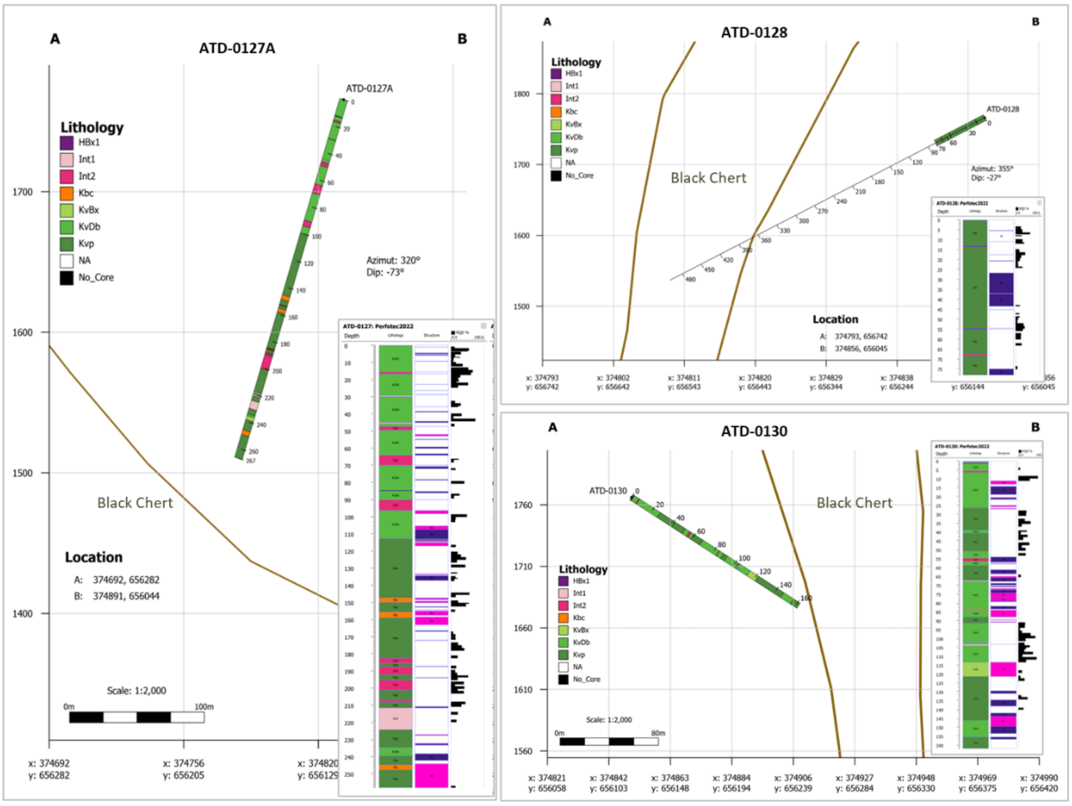


Figure 9.4 Strip logs with lithology and assays, ATD-0127A, ATD-0128, ATD-0130

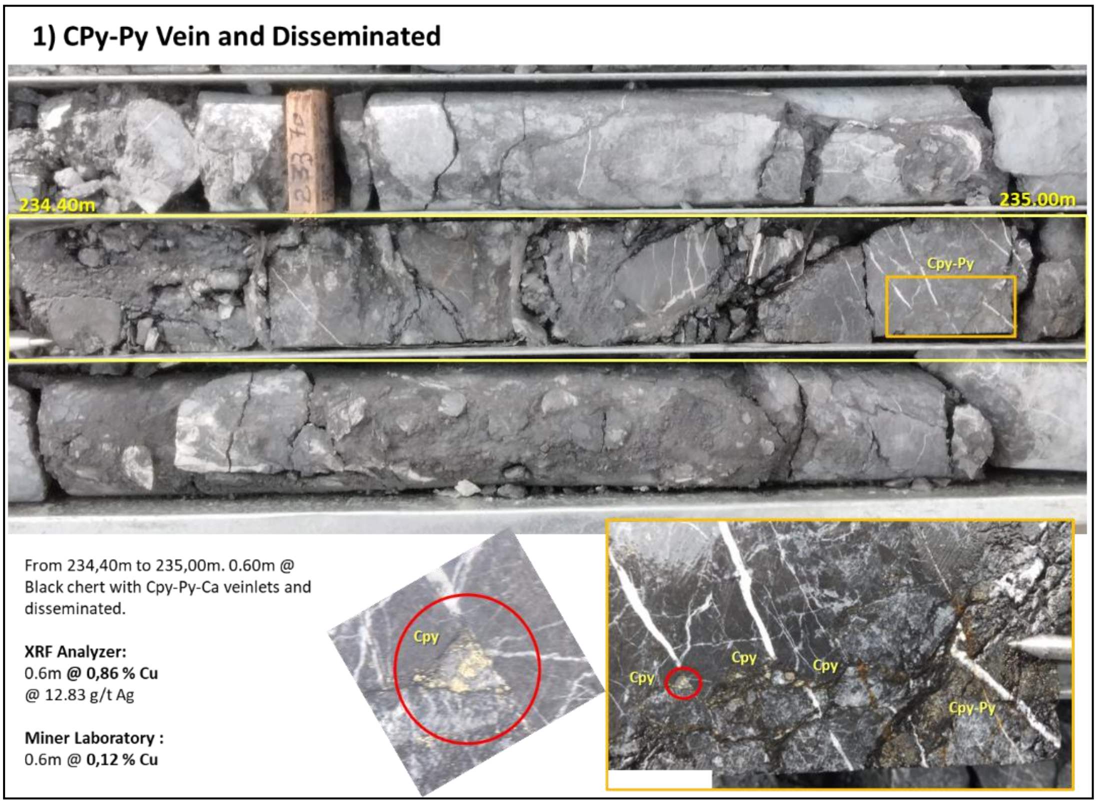


In 2023 the drill campaign continued in pursuit of the Archie Deep Target with two more drill holes, one for each of the AOI-1 and AOI-2 targets. The table 9.2 show drill holes executed in 2023 in target areas AOI-1 and AOI-2

Table 9.2 Drill holes executed in 2023 in target areas AOI-1 and AOI-2

Target	Hole ID	Easthing	Northing	Elevation	Azimuth	Dip	Max depth
AOI-1	ATD-0144	374834.02	656111.54	1766.12	307.06	-78.21	325.50
AOI-2	ATD-0164	374848.99	656119.31	1766.64	0.17	-29.96	154.60
							480.10

Figure 9.5 Mineralized drill core intercept at 234.40 – 235.0 m in drill hole ATD-0144 showing chalcopyrite in veinlets and as dissemination.



9.3.1. Archie Deep, Geological Observation (ATD-0144)

Drill hole ATD-0144 offers three intercepts of prospective interest near the bottom of the hole.

1) From 234.4m to 235.0m: 0.6m of chalcopyrite-pyrite veinlets and dissemination (Figure 9.5)
2) At 256.35m: micro vein of chalcopyrite (Figure 9.7)

Figure 9.6 Lithological section from drill hole ATD-0144 including prospective intercepts with chalcopyrite

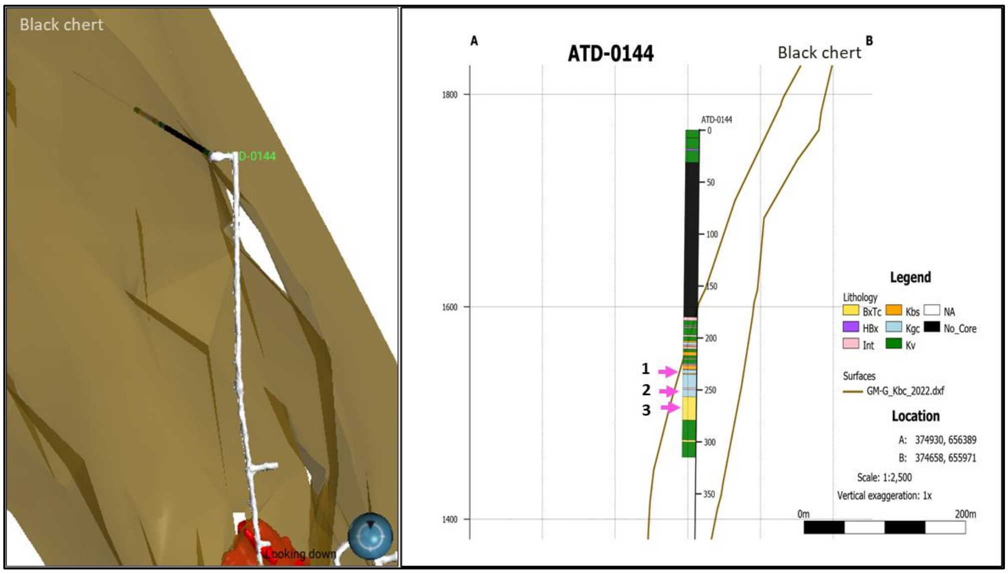
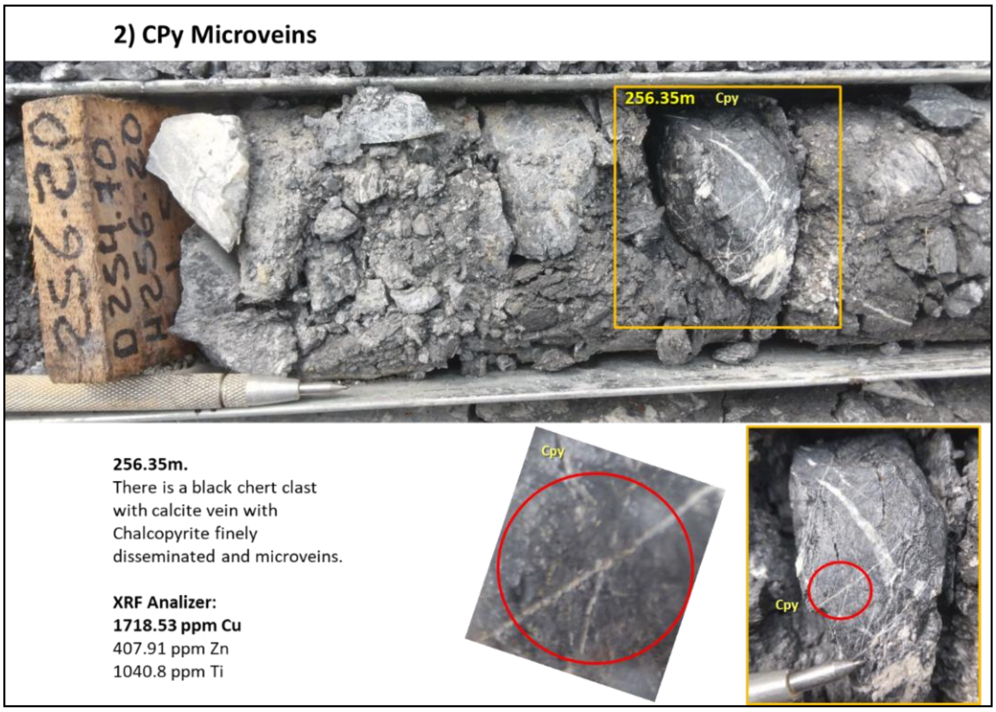


Figure 9.7 Micro-veinlets of chalcopyrite at 256.35, drill hole ATD-0144



9.3.2. Archie Deep, Structural Interpretation (ATD-0144)

The structural analysis of drill hole ATD-0144 led to the identification of two significant fault zones that delineate the contact of the El Roble Block against the Archie Block.

1) F1: 298.30m – 300.30m, 2.0m of fault breccia (BxTc) with basalt clasts, fault gouge and disseminated pyrite – pyrrhotite
2) F2: 314.90m – 324.50m, 9.60m of fault breccia (BxTc) with moderate chlorite alteration with basalt clasts and black chert, disseminated pyrite in black chert clasts. Fault zone that required stabilization by cementation.

Figure 9.8 Structural analysis of drill hole ATD-1044 infers that the hole intersected a reverse fault with sinistral movement indicating relative upward movement of the El Roble Block in relation to the Archie Block

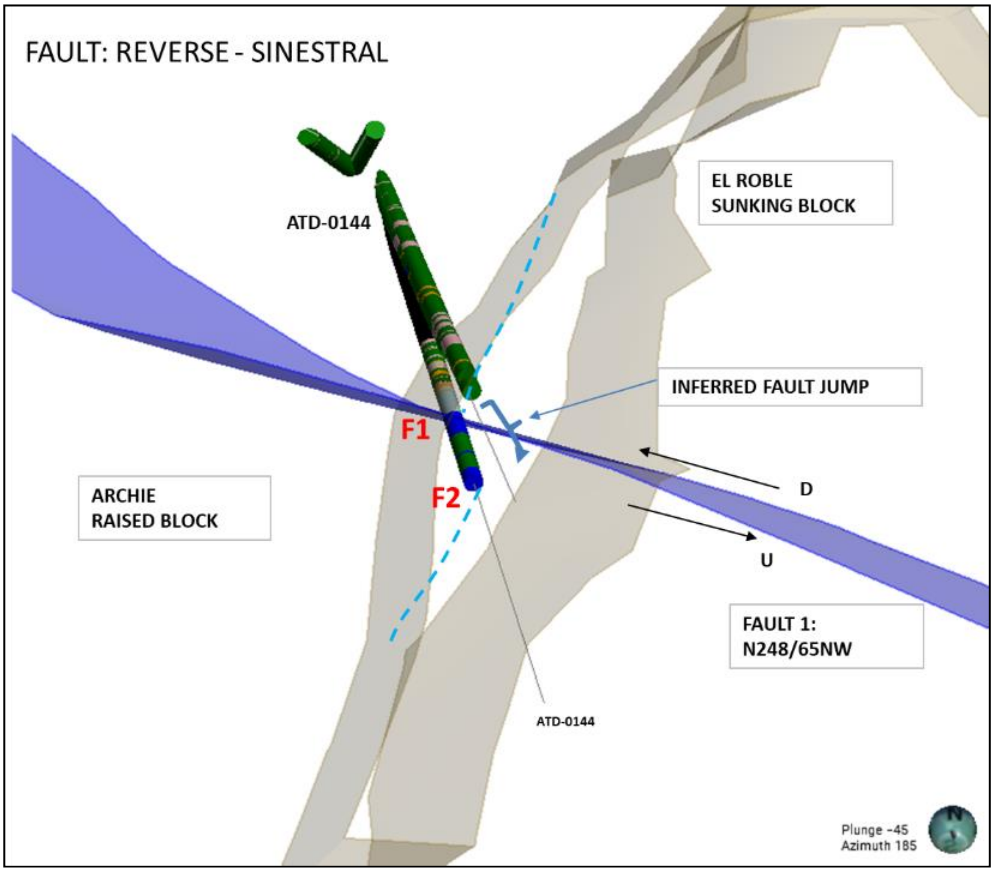
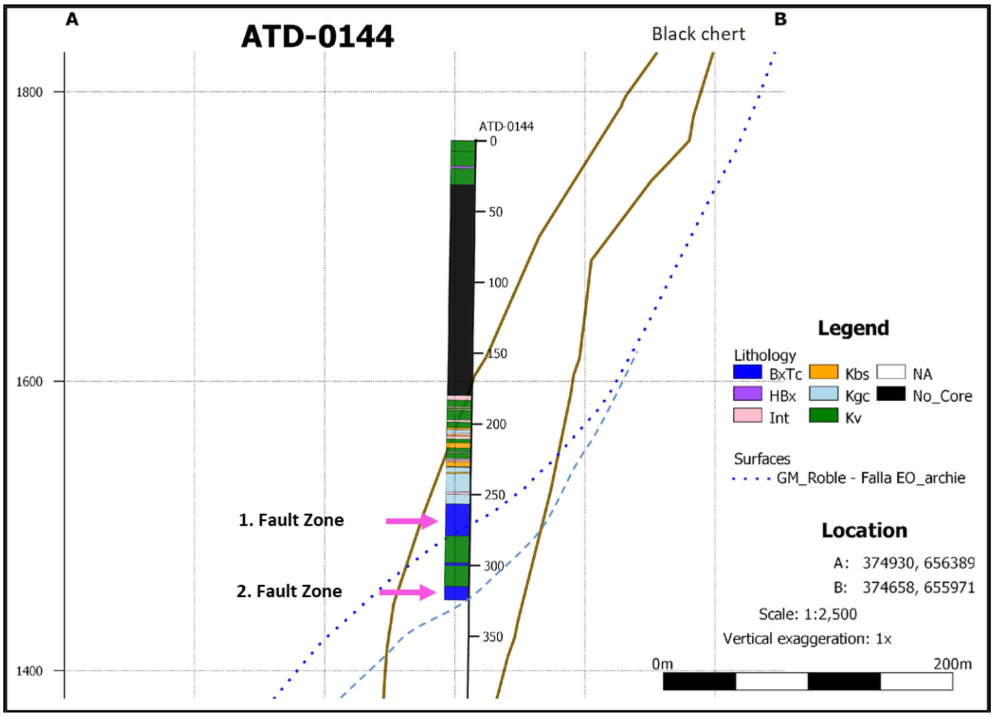


Figure 9.9 ATD-0144 intersected two fault zones, 2m and 9.6m in width, containing basalt and black chert clasts with disseminated pyrite and delineating the contact between the El Roble Block and Archie Block



9.3.3. Archie Target Conclusions

Drill holes ATDHAR-27 and ATDHAR-31 intersected veinlets of quartz, pyrite, chalcopyrite with traces of sphalerite and copper oxides hosted by basalt with pervasive chloritic alteration overprinting propylitic alteration – an alteration pattern suggestive of a telescoped copper porphyry system.

Drill holes ATDHAR-01, ATDHAR-27, ATDHAR-29 and ATDHAR-31 also encountered a zone of faulting in the northern sector of the Archie Target. Indications are that this is a zone of multiple low-angle reverse faults with dips between 30 – 45 degrees.

The 2022 drill program (765.10m) and 2023 drill program (480.10m) initiated drill holes ATD-0127, ATD-0127A, ATD-0128, ATD-0130, ATD-0144 and ATD-0164, but none reached their targeted depths due to difficult drilling conditions in fault zones leading to mechanical issues with the drill rig.

Drill hole ATD-0144 intersected chalcopyrite in veinlets and as disseminations at three levels near the bottom of the hole. This hole also intersected two fault zones, 2m and 9.6m in width, containing basalt and black chert clasts with disseminated pyrite that delineate the contact between the El Roble Block and Archie Block.

9.4. Archie Target Recommendations

- The prospective results from hole ATD-0144 with deep intercepts of chalcopyrite in micro-veinlets and as disseminations (234.40m and 256.35m, respectively) and the definition of a prominent fault zone (9.60m width) that presents difficult drilling conditions suggest that drilling should continue to test the Archie Deep zone but with a drill rig that has greater capacity, able to reach 600 meters in depth.

- Drill holes ATDHAR-27 and ATDHAR-31 intersected veinlets of quartz, pyrite, chalcopyrite and traces of copper oxides in a sector east of Archie, area of interest AOI-2. None of the other drill holes attempted in this area reached their designated depths in spite of hiring two drill contractors (maximum depth reached: 162m). A drill rig with greater depth capacity will be required to continue testing this zone.

9.5. Exploration Conclusions

The drill programs proposed for the years 2022 and 2023 completed only 1,245.20 meters of drilling from six drill holes. The low production was due to difficult drilling conditions through a fault zone and the insuffiscient response by the drilling contractors to meet the challenge.

The drill data that was obtained from the abbreviated holes during these two campaigns highlighted 4 areas of interest (AOI) that warrant further testing by drilling.

AOI-1 Archie Deep: Prospective black chert is located along trend of known mineralization, supported by geochemical anomalies in pathfinder elements Ag, Ba, As, Sb, Bi, Se, Te, Hg, Ga, and positive index of alteration (Ishikawa); and prospective geophysical anomalies in mag, chargeability, and resistivity.

AOI-2 Archie East: Prospective black chert hosting veinlets of quartz-chalcopyrite in basalt; geochemical anomalies in pathfinder elements Ag, Ba, As, Sb, Bi, Se, Te, Hg, Ga, and positive index of alteration (chlorite, carbonate, pyrite); prospective geophysical anomalies in mag, chargeability, and resistivity.

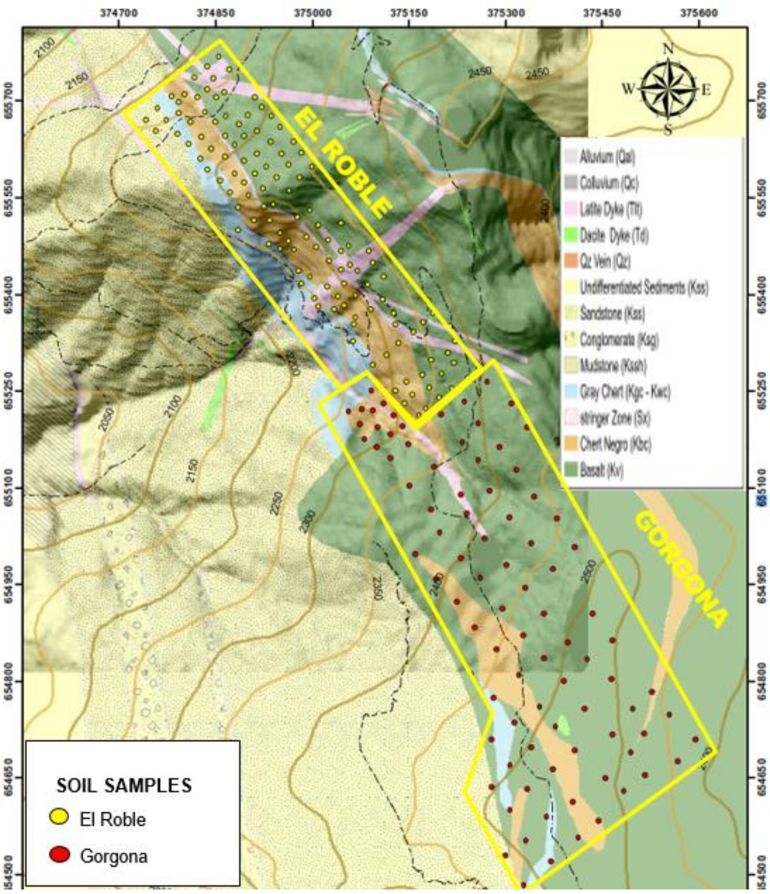
AOI-3 SE of El Roble Mine: Prospective black chert; geochemical anomalies in pathfinder elements Ag, Ba, Sb, Mo, Bi, Se, Te, and Hg; positive index of alteration (chlorite, carbonate, pyrite); prospective geophysical anomalies in chargeability and resistivity.

AOI-4 Prospective basalt; geochemical anomalies in pathfinder elements Ag, Ba, Mo, Bi, Se, Te, Hg; positive index of alteration (Ishikawa); prospective geophysical anomalies in mag, chargeability, and resistivity.

9.6. Soil Sampling Program

During 2023, a soil sampling program was carried out for the El Roble Sur and Gorgona targets, with the objective of determining geochemical anomalies to guide and relate the location of mineralized bodies in the upper part of the El Roble mine and in the area. Gorgona relate them to the exploratory drilling carried out in 2022. Figure 9.10 shows the location of the soil sampling program. In this TR the results of the Gorgona Area are shown since it represents the potential area to discover new mineralized bodies.

Figure 9.10 *. Location of the soil sampling program for the El Roble and Gorgona areas*



A sampling mesh was designed for El Roble of 25 x 25 meters, while for the Gorgona area the mesh was 50 x 50 meters. The samples were taken with the AUGER sampling equipment. The location of the points programmed for soil sampling was determined with a GPS. The point to be sampled was identified, the vegetation layer was removed and the auger was placed perpendicular to the ground and Rotation begins to extract a sample of approximately 20 cm. The samples are placed in a core holder and the AUGER is reintroduced to continue extracting more samples until the saprolite is found or close to a C horizon or in the case of reaching the regolith.

The samples are packed in a plastic bag to avoid contamination and standardized quality control samples are inserted, the sample is labeled with the corresponding code and the initial and final depth is indicated, then a referral is made and sent to the chemical laboratory of the EL Roble Mine.

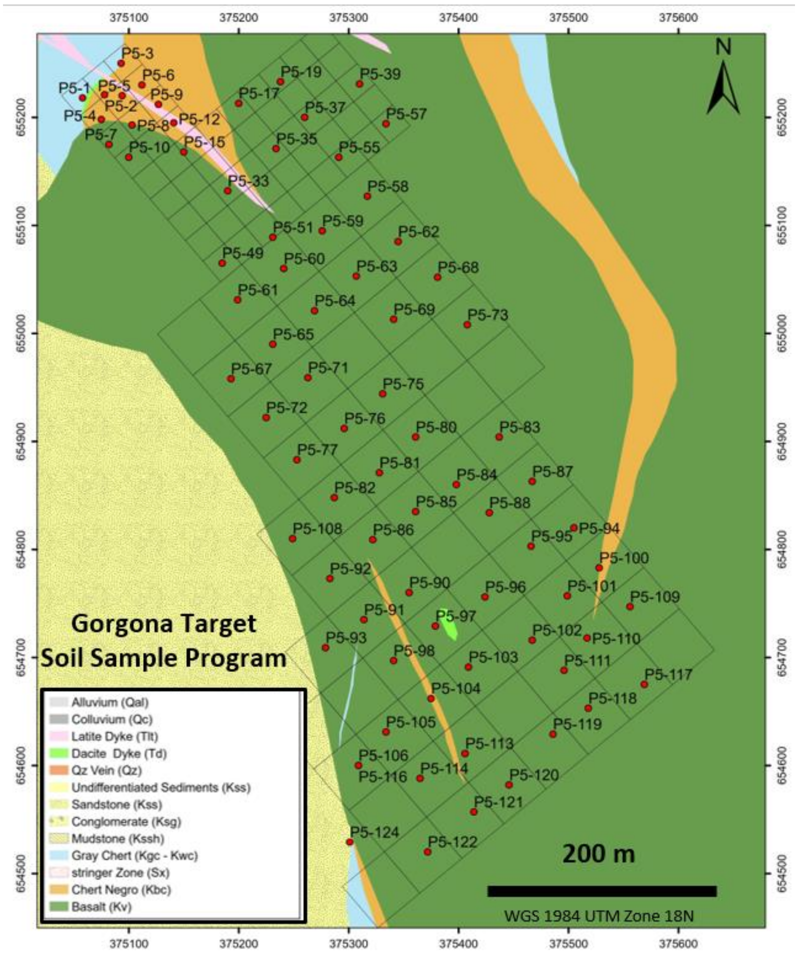
Figure 9.11 ***Soil sampling process: a) Location of the auger in the mesh; b) Insertion of the auger into the soil layer; c) Extraction of the soil sample and its coding for sending to the laboratory.***

In the chemical laboratory of the El Roble mine, the samples go through preparation: spraying, sieving, drying, homogenization, quartering, weighing, melting, digestion, and then being taken to the atomic absorption equipment to determine the content of Cu, Au and Fe. The pulps of the samples were analyzed with the XRF equipment.

9.6.1. Soil Sampling Results – Gorgona

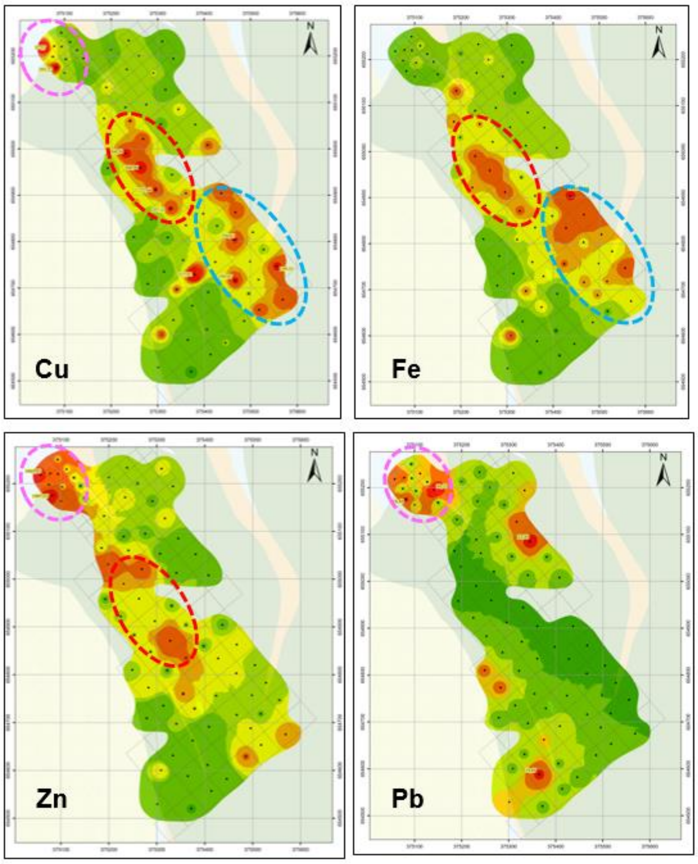
Isovalue maps were generated to represent the distribution of the different elements associated with massive sulfide (VMS) deposits. To obtain trace element data, two different methods were used: El Roble mine laboratory and a portable X-ray fluorescence (XRF) spectrometer. Figure 9.12 shows the location of the soil sampling grid for the El Roble and Gorgona areas.

Figure 9.12 Actual location of the sampled points according to the initial design of the soil sampling program in the Gorgon area.



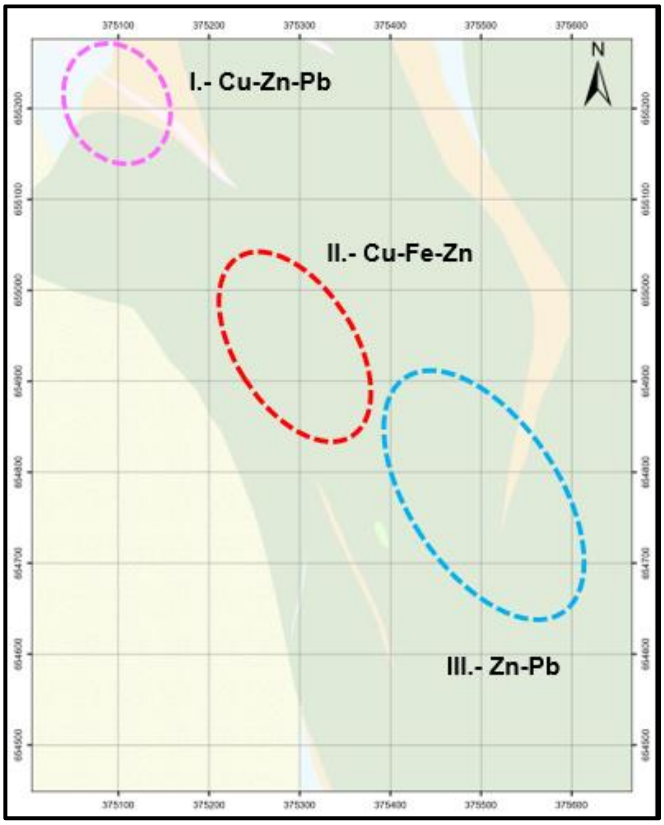
The elements that have performed best with the portable X-ray fluorescence (XRF) spectrometer are; Cu, Pb Zn and Fe. Figure 9.13 shows the isovalues for the main representative elements.

Figure 9.13 Map of isovalues for Cu, Zn, Pb and Fe, these results come from XRF



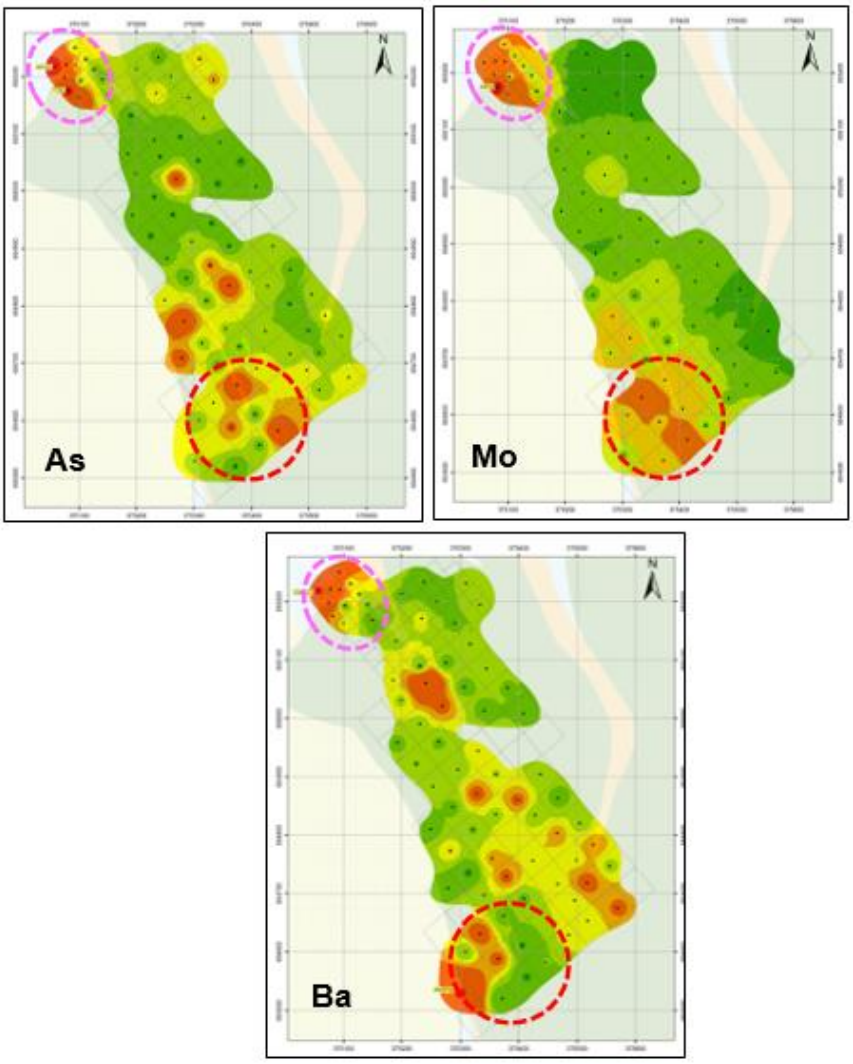
According to the results and the relationships of anomalous values for Cu, Pb, Zn and Fe, 3 prospective areas have been defined; I) Cu-Zn-Pb, III) Cu-Fe-Zn II) Zn-Pb. Figure 9.14 shows the location of the prospective areas.

Figure 9.14 The results of the anomalies of Cu, Zn, Pb and Fe determined 3 prospective areas.



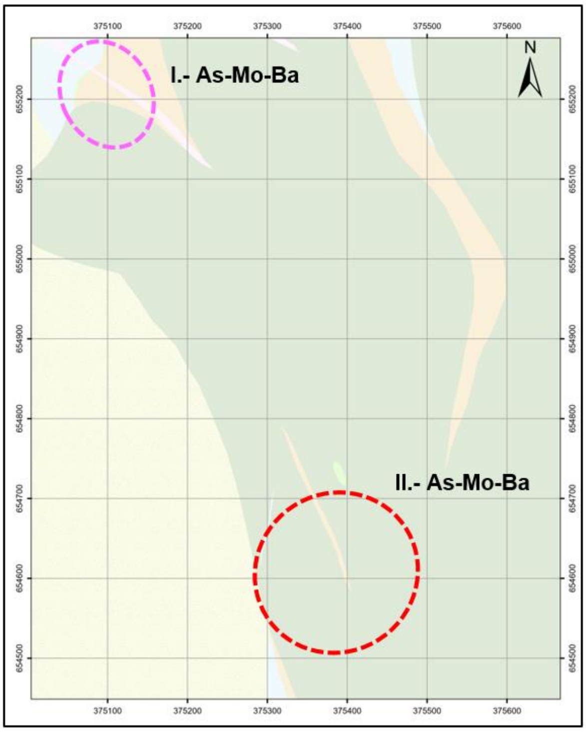
Elements such as Molybdenum, Barium and Arsenic present anomalous values and better results with the portable X-ray fluorescence (XRF) spectrometer. These results were represented in a map of isovalues to determine their concentration and their relationship between elements (Figure 9.15)

Figure 9.15 Isovalue maps for As, Mo and Ba, these elements have better results with XRF



According to the occurrences of As, Mo and Ba, 2 prospective areas were defined (Figure 9.16) that clearly show a very clear and consistent relationship between As, Mo and Ba.

Figure 9.16 Prospective areas according to the relationship of As, Mo and Ba.



A northwest-southeast corridor can be clearly identified and formed by the correlation of Cu-Zn-Fe-Ba anomalies; this could be indicating some direction of mineralization flow associated with the occurrence of massive sulfide bodies. Therefore, a large area was generated to carry out interpretations and relate them to the exploratory drilling carried out in that area.

10. DRILLING

Between the years 1998 and 2010, MINER conducted surface and underground drill programs in the El Roble Mine with the objective of guiding and guaranteeing the continuation of development and production in the mine, especially concentrated on the section of mine between levels 1900 and 2200 m.a.s.l. where MINER completed 164 drillholes.

ATICO designed an exploration drill program during the period 2011 to 2013 with the expectation of discovering new zones of massive sulfide mineralization below the 1900 level. This program discovered four new massive sulfide zones – Zeus, Maximus, Goliat, and Perseo. During 2015 to 2017, an infill drilling program was completed with the aim of establishing a mineral resource in these four zones. From 2018 to 2022, exploration drilling was completed on targets defined by the ATICO exploration team – Calera, Favorita, Archie, Gorgona, Carmelo, San Lorenzo, and Santa Anita. Concurrently with the exploration drilling, ATICO conducted definition drilling on massive sulfide zones undergoing production at that time and completed an infill drill program on the mineralized zones Maximus Sur and Perseo. During 2022 the geologic interpretation of the mined-out zone was concluded. A database derived from historical work and the ongoing ATICO drill programs guided an exploration drill program focused on a zone between levels 2100 and 2200 that was carried out between February and August 2023 and followed up by an infill drill program between August 2023 and March 2024. Figure 10.1 shows the location of undeveloped zones of massive sulfide mineralization not exploited by previous operators.

Table 10.1 summarizes the sample data from drilling and channel sampling in El Roble Mine listed by company and year. From 2011 to 2024, all drilling and channel sampling programs were designed and supervised by ATICO and executed by MINER.

Table 10.1 Summary of El Roble drilling and channel sample data by type, company, and year

Year	Surface Core Drill Holess			Underground Core Drill Holes			Underground Channel Sampling		
	Company	No. Holes	Meters	Company	No. Holes	Meters	Company	No. Holes	Meters
2010	MINER	3	724.0	MINER	5	393.0			
2011	ATICO	2	611.0	MINER	19	1,114.0			
2012				ATICO	27	4,816.0			
				MINER	14	931.0			
2013	ATICO	5	1,801.9	ATICO	54	6,662.0			
				MINER	3	137.0			
2014				MINER	57	5,024.0	MINER	316	1,090.0
2015				MINER	46	7,233.0	MINER	236	1,296.0
2016	MINER	7	1,807.7	MINER	20	3,181.8	MINER	319	2,298.0
2017	MINER	24	4,619.7	MINER	17	2,154.6	MINER	578	3,056.0
2018	MINER	16	4,706.4	MINER	7	2,893.3	MINER	208	989.0
2019	MINER	25	10,283.0	MINER	13	4,159.0	MINER	316	1,880.0
2020	MINER	6	1,660.0	MINER	3	977.0	MINER	171	1,104.0
2021	MINER	2	811.6	MINER	20	6,156.4	MINER	70	306.2
2022	MINER			MINER	13	1,527.1	MINER	43	150.9
2023	MINER	40	6,147.5	MINER	59	4,729.4	MINER	143	766.1
2024*	MINER	2	316.4	MINER	37	2,858.2	MINER	46	232.0
Total		132	33,489.2		414	54,946.8		2446	13,168.1

** Until March 12th, 2024*

10.1. El Roble Target

The purpose of the El Roble Target drill program was twofold: i) to test brownfield exploration targets that are proximal to zones of production in the mine, supervised by the exploration team, and ii) to define and amplify recognized mineralized bodies in order to increase resources and to guide development and production from the mine.

The results from both of these drilling objectives have been used for the estimation of mineral resources where the drilling was primarily oriented towards ore bodies currently being produced in the Zeus and Maximus zones and also toward historically mined areas named the Principal Ore Body and North Ore Body.

Figure 10.1 Distribution of the ore bodies in the El Roble Mine: Principal Ore Body (CP1, CP2, CP3, A, B, D, D2), Afrodia, Rosario, Maximus, Goliat, Perseo and Zeus. Drill holes are from the drill campaign of 2023-2024.

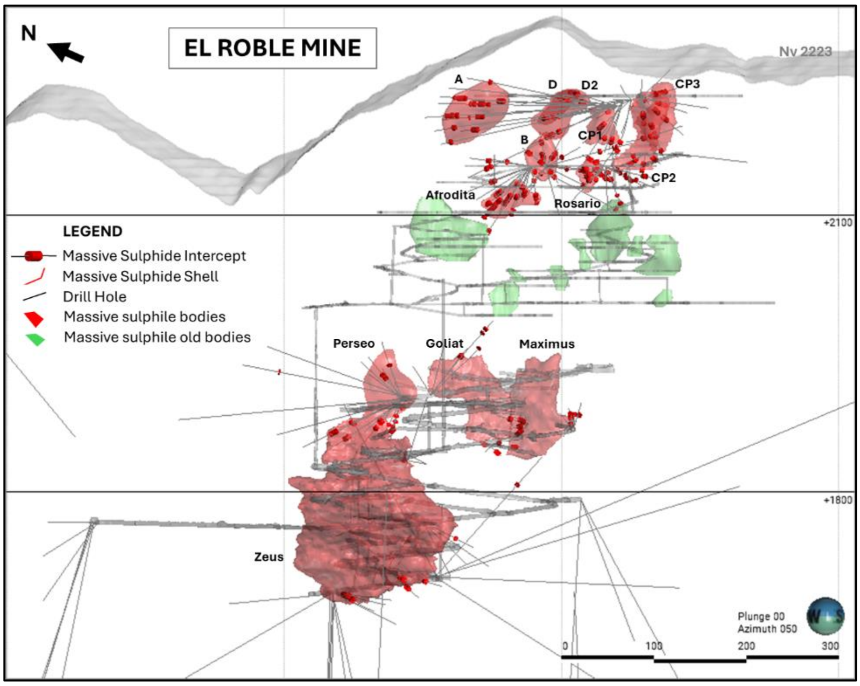
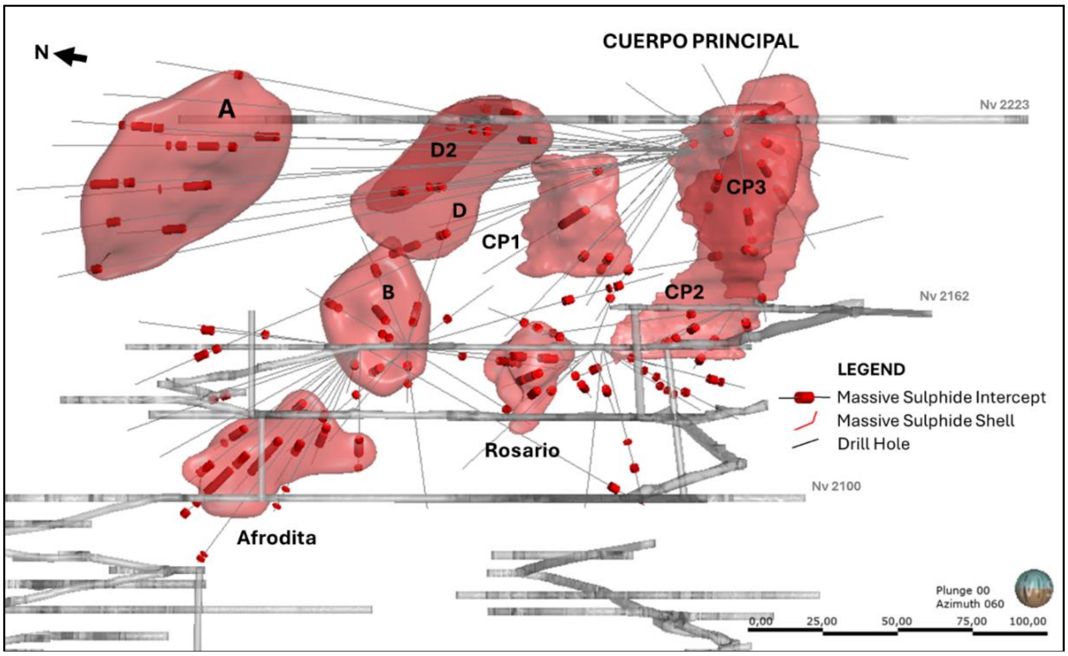


Figure 10.2 Distribution of Principal Ore Bodies (CP1, CP2 and CP3) and North Ore Bodies (A, B, D, D2), Afrodita and Rosario as defined following the drill campaign of 2023-2024



10.1.1. Archie Target

Toward the end of 2021, a program of relogging core was initiated with emphasis on reviewing lithology, alteration, mineralization, and structure in the 30 drillholes testing the Archie Target, 9 drillholes of Gorgona, and 7 drillholes of El Roble. Re-logging has focused on structures identified with copper mineralization in veins hosted in basalt, and in updating sampling drill intercepts of interest from 33 drillholes with a total of 1,360 samples sent to an external analytical laboratory. With this drill information, ATICO will have new areas of interest to correlate with geochemical anomalies.

An underground drill station was located at the end of a 300m-long tunnel-oriented NNW-SSE from the Zeus Zone, Level 1757 to further test the Archie Target as part of the brownfield exploration program.

10.1.2. Archie Deep Target

The drill program proposed for the Archie Deep target in 2022 was designed with 5,500 meters, but only 756.1 meters were completed, representing 13.9% advance of the drill program. The principal cause of the low completion rate was difficult drilling conditions and poor recovery in a fault zone preventing completion of drill holes to their targeted depths in the two priority zones of the Archie Deep Target, AOI-1 and AOI-2.

11. Sample Preparation, Analyses, and Security

11.1. Sample Preparation and shipment to laboratory

11.1.1. Channel Sample Preparation

Channel samples (chip) are taken from the exposed walls or backs of stopes of the underground workings, mainly from active stopes. The process is under the direct supervision of the mine geology department. The location of each channel is determined from an underground mapping program carried out by geologists. The procedure includes surveyed underground reference points and the sample distance relative to the neareast survey point. The channels are taken at 1.5 meters' height from the working floor and sampled horizontally. Channel sample is nominally 20-cm wide and 2-cm deep. Each channel sample is nominally 0.5-m to 2-m long. Before undertaking the sampling, the stope is washed to observe the mineralization. Sampling is carried out using a rotary hammer, dropping the cuttings onto a clean plastic sheet or a clean tarp. Subsequently, the samples are placed in a polyethylene bag, coded with a control card, sealed for shipment to the sample warehouse, where the order and type of sample are verified, the control samples are inserted and finally they are registered in the database and a shipping letter is generated to the MINER laboratory.

11.1.2. Core Handling and Sample Preparation

Drill core is delivered twice a day from the underground drill rigs to the core logging/processing facility, located two kilometers from the 1880 Adit portal. The core is washed, photographed, logged for lithology, alteration, mineralization, and geotechnical attributes including RQD (Rock Quality Designation) and core recovery. Logged attributes are entered into a geological data management system, which was developed in-house.

A mine geologist determines the sections of the core to sampled and marks them on the core. Samples are selected based on lithology and/or mineralization. The minimum sample length is typically 0.5-m with a maximum length of 2-m. The average sample length of the underground core samples is approximately 1.49-m. Samplers remove the marked sections of core from the core box after noting its orientation in the box and split the core along the long axis of the core using a diamond saw. One half of the core is replaced in the core boxes in its original orientation and the other half is broken into pieces that can comfortably fit in a plastic sample bag. The broken half-core is then sealed in a thick-walled polyethylene bag with a sample number ticket and the bags are labelled with the sample number

Geologists determine where to send samples based on the type of analysis and drilling objective; Infill drill cores are sent to a commercial laboratory (ALS, SGS) or MINER's internal laboratory, while exploratory drill cores are sent to ALS or SGS.

11.2. Analysis and sample preparation procedures in laboratories

Core and channels are prepared and analysed by two laboratories, ALS Chemex Laboratories (Medellin and Lima – ISO 9001:2008 and ISO 17025-), and MINER laboratory (mine site). ALS is MINER's primary laboratory for the preparation and analysis of drill core samples. Since the end of 2014, MINER has been operating the El Roble mine assay laboratory primarily analysing underground channel samples and three, daily, mill-head samples.

11.2.1. ALS Chemex

The samples were shipped from the El Roble project site through MINER staff in company trucks and delivered to the ALS Chemex laboratory located in Medellín, Colombia, where the preparation process was carried out, the pulps were sent and analyzed in ALS Chemex laboratory in Lima, Peru. The preparation and analysis process are carried out using the protocols established by ALS, which are indicated in each process.

Preparation of sample (PREP-31):

- Verify the codes of each sample, through the LIMS system (LOG-22), a barcode is generated for monitoring and control in the laboratory.
- The samples are weighed (WEI-21) and dried in an oven at a temperature above 100° C (DRY-21).
- The crushing (CRU-31) is up to 70 percent nominal and passes through a 2-millimeter sieve and the quality control of crushing efficiency is carried out every 50 samples (CRU QC) y finally, cleaning of the equipment (between samples) is carried out with compressed air and sterile material (WSH-21).
- The division of the crushed sample is carried out through a rifle-type divider to produce a nominal subsample of 250 grams (SPL-21).
- The sub-sample is then pulverized (PUL-31) with a ring and puck pulveriser that results in 85 percent of the sample passing > 75 microns and control tests are carried out every 50 samples (PUL QC).

Analysis:

- Gold was initially analysed by Induced Coupled Plasma (ICP) followed by atomic emission spectrometry (AES) using the Au-ICP22 protocol. The preparation requires 50 grams and is carried out with the Fire Assay Fusion method. This method has a detection limit of 0.001 ppm with an over-limit level of 10 ppm.
- Trace elements are determined using the ME-MS61m protocol which is a 48-element procedure featuring ICP methods with a mass spectrometer (MS) analysis that uses four acids to digest the sample. Trace mercury was tested for using protocol Hg-CV41, where the sample was digested with aqua-regia and the cold vapor analysed by AES methods.
- For the chemical analysis of high-grade sample (copper, lead, zinc) the ME-AA62 Protocol is used. The 0.4-gram sample is diluted with 4 acids (HNO3, HClO4-HF-HCl) and the analysis is performed using atomic absorption spectrometry (AAS). This method has limit ranges: 0.01 to 50 percent for copper, 0.01 to 30 percent for zinc and 0.01 to 30 percent for lead.
- Gold samples that exceed 10 ppm are analyzed using the AU-GRA22 protocol, which consists of a fire assay with gravimetric completion. The required weight is 50 grams and its maximum limit is 10,000 ppm.

11.2.2. El Roble Mine Laboratory

Since the end of 2014, MINER has been operating the El Roble mine assay laboratory primarily analyzing underground channel samples and three, daily, mill-head samples in 2018, the acquisition of a new crusher for the geology sample preparation area was carried out, this equipment is the key to have a permanent continuity in the preparation of samples, by expanding the sample preparation area in October 2019, the crusher was properly installed in an exclusive cabin for it.

Preparation of sample

- Verification of codes and sample records according to the referral generated by the mine geology area.
- The samples are weighed, which must be from 1.5kg to 4.5kg. Drying is carried out in the drying oven at a temperature of 105 +/- 5°C and for 2 to 4 hours.
- Crushing is done to reduce the particle size to approximately 2mm, which must pass more than 75% of a #10 mesh.
- The quartering and homogenization are carried out using a Jonas quarterer until an approximate quantity of 250 grams is obtained. The leftover samples are stored, and duplicate samples are prepared 1 every ten samples.
- The pulverized samples must meet the condition that more than 90% of the particles must pass through a #200 mesh. The pulverize is also cleaned between samples with quartz sand and compressed air.

Analysis:

- Gold is analyzed by fire assay methods (aqua regia digestion and AAS finish) using 30-g charges.
- For the determination of copper, lead, zinc, silver and iron, the samples are diluted with nitric acid (> 50%) and hydrochloric acid (> 30%) and the readings are made through an atomic absorption spectrometer.

11.3. Bulk Density

To determine the density of the drilling samples, core lengths of 0.10 m are selected and considering the different types of mineralization within the massive sulfide bodies, other lithologies are also considered on the edges of the massive sulfide. Core samples are sent to the ALS Chemex laboratory using the OA-GRA08a methodology. This test consists of coating the core sample in paraffin wax, measuring the sample weight in air then suspending the sample in water and measuring the weight again. The density is calculated using the following equation:

$$S.G. = \frac{A}{B - C - \left((B - A)/D\right)} \times Density\ of\ water\ at\ temperature\ (°C)$$

Where:

A = weight of sample in air
B = weight of waxed sample in air
C = weight of waxed sample suspended in water
D = density of wax

Since 2018, the MINER laboratory implements the determination of bulk density for geological samples The MINER laboratory determines the densities of the channel samples, which are sampled by the geology technicians and under the supervision of the mine geologists. The process used by the mining laboratory is as follows; i) the sample is dried at a temperature of approximately 105 +/- 5°C and its dry weight (PM) is determined. ii) the container with water (PR) is weighed. iii) the sample is weighed submerged in the container with water (PF). Finally, the density is calculated using the following equation:

$$S.G. = \frac{PM}{\left((PF - PR)\right)}$$

Where:

PM = weight of dry sample
PR = weight of container with water
PF = weight of the container with water and the submerged sample.

11.4. Sample Security

MINER's drill core samples were always in the control of company personnel in sealed, heavy wall plastic bags while at the project site or during transportation to the ALS facilities located in Medellin.

The geology department keeps the custody of the channel and drill core pulps. These are stored in sealed plastic bags in a warehouse located 300-m from the MINER laboratory. The reject samples are stored in a separate warehouse located at the surface apron on the 2000 Level, 200 meters from the main adit of the extraction zones (approximate elevation of 2,000 to 2,050 masl).

The pulps of the drill cores undertaken around the operation are under the custody of the exploration department within the core shack zone, located 500 meters from the tailing's storage facility.

All samples are retained according to the corporate policy to retain samples (Sample Retention Manual, ATICO Mining).

11.5. Historical quality assurance and control programs

MINER has implemented a quality assurance/quality control (QAQC) program which complies with current industry best practices and involves establishing appropriate procedures and the routine insertion of certified reference materials, blanks, and duplicates to monitor the sampling, sample preparation and analytical processes since 2013. The 2017 (SRK Consulting – PERU), 2018 (T. Kelly & A. Cruz) and 2020 (T. Kelly & A. Cruz) technical reports have determined that the evaluation of QAQC programs are acceptable. Table 11.1 shows the insertion ratios of the control samples used in the estimation of mineral resources until March 2020 (Date of outage the data).

Table 11.1 Submission Rate for Historical Control Samples

Sample Type	Quality Control	2013- March 31, 2020		
		Total Samples Analyzed	No. of Control	Submission Rate (%)
Core Drill	SRM[1]	5,841	357	6.1%
	Blanks[2]	5,841	480	8.2%
	Field Duplicates[3]	5,841	234	4.0%
	Reject assays[4]	5,841	388	6.6%
	Check assays[5]	5,841	320	5.5%
Channel	SRM[1]	12,567	615	4.9%
	Blanks[2]	12,567	829	6.6%
	Field Duplicates[3]	12,567	973	7.7%
	Reject assays[4]	12,567	1,564	12.4%
	Check assays[5]	12,567	1,721	13.7%

1. Standard references material, 2. Field blanks, 3. Field duplicate, 4. Duplicate coarse and 5. Duplicate fine.

11.6. Verifications of Analytical Quality Control Data

MINER laboratory carries out the analysis and determination of densities of samples from underground channels and the external laboratory ALS is responsible for carrying out the analysis and determination of density of samples from diamond drillings. The analysis of the qaqc program for channel samples is reported through a monthly report by the mine geology area while for the qaqc programs of the drilling campaigns they are reported at the end of each campaign. In both cases, the results of the control samples inserted in each shipment to the laboratory are monitored. Table 11.2 summarizes the number of control samples from the period April 2020 to March 12, 2024.

Table 11.2 Submission Rate for Control Samples (April 2020 to march 2024)

Sample Type	Quality Control	April 2020 to March 12, 2024		
		Total Samples Analyzed	**No. of Control**	**Submission Rate (%)**
Core Drill	**SRM[1]**	2153	141	6.5%
	Blanks[2]	2153	140	6.5%
	Field Duplicates[3]	2153	92	4.3%
	Reject assays[4]	-	-	-
	Check assays[5]	-	-	-
Channel	**SRM[1]**	2961	97	3.3%
	Blanks[2]	2961	154	5.2%
	Field Duplicates[3]	2961	159	5.4%
	Reject assays[4]	2961	169	5.7%
	Check assays[5]	2961	222	7.5%

11.6.1. Standard Reference Material Performance

MINER inserted six different types of certified standard reference materials (SRM) for the channel samples and five different types of SRM for the drillhole samples. Table 11.3 details the characteristics of the SRMs used in the QAQC program.

Table 11.3 Standard Reference Materials Inserted by ATICO for the El Roble Mine (MINER and ALS laboratories).

Standard	Prepared by	Method	Cu (%)		Method	Au (g/t)	
			Certified value	Std Dev		Certified value	Std Dev
CDN-CGS-30	CDN Resource Laboratories Ltd.	Four acids (ICP or AA)	0.154	0.007	Fire assay (ICP or AA)	0.338	0.048
CDN-ME-1704	CDN Resource Laboratories Ltd.	Four acids (ICP)	0.692	0.028	FA, Instrumental	0.995	0.088
CDN-ME-1706	CDN Resource Laboratories Ltd.	Four acids (ICP)	0.831	0.024	FA, Instrumental	2.062	0.156
CDN-ME-1709	CDN Resource Laboratories Ltd.	Four acids (ICP)	0.138	0.006	FA, Instrumental	0.178	0.016
CDN-ME-2202	CDN Resource Laboratories Ltd.	Four acids (ICP)	0.111	0.005	FA, Instrumental	1.755	0.137
AUOX-38	Smee & Associates Consulting Ltd	-	-	-	FA, AAS	1.15	0.09
CCU-09	Smee & Associates Consulting Ltd	Four acids (ICP or AA)	29.24	0.15	FA, Gravimetric	9.61	0.45
CPB-02	Smee & Associates Consulting Ltd	Aqua regia (AAS)	1.425	0.07	FA, Gravimetric	12.11	0.56
CZN-03	Smee & Associates Consulting Ltd	Aqua regia (AAS)	1.263	0.066	FA, AAS	0.532	0.036
PLSUL-43	Smee & Associates Consulting Ltd	Four acids (ICP or AAS)	4.31	0.21	FA, AAS	0.713	0.042
STRT-03	Smee & Associates Consulting Ltd	Four acids (ICP or AA)	2.124	0.036	FA, AAS	0.606	0.024

The results of the analysis of SRM samples for the shipments of channels and drillholes to the ALS and MINER laboratory are shows in table 11.4

Table 11.4 Results of standards inserted into laboratory shipments of channel drilling samples

Laboratory	Metal	Standard	N° Submitted	N° Fails	Pass % #
MINER	Cu (%)	AUOX-38	19	-	
		CCU-09	9	4	56%
		CPB-02	5	0	100%
		CZN-03	22	0	100%
		PLSUL-43	18	0	100%
		STRT-03	24	1	96%
		Total	**78**	**5**	**94%**
	Au (g/t)	AUOX-38	19	7	63%
		CCU-09	9	0	100%
		CPB-02	5	0	100%
		CZN-03	22	3	86%
		PLSUL-43	18	7	61%
		STRT-03	24	5	79%
		Total	**97**	**22**	**77%**
ALS	Cu (%)	CDN-CGS-30	24	0	100%
		CDN-ME-1704	38	0	100%
		CDN-ME-1706	37	0	100%
		CDN-ME-1709	33	0	100%
		CDN-ME-2202	9	0	100%
		Total	**141**	**0**	**100%**
	Au (g/t)	CDN-CGS-30	24	0	100%
		CDN-ME-1704	38	0	100%
		CDN-ME-1706	37	0	100%
		CDN-ME-1709	33	0	100%
		CDN-ME-2202	9	0	100%
		Total	**141**	**0**	**100%**

For the evaluation of the accuracy, the results obtained in the chemical analyzes of the standards were analyzed using the limit conventionally accepted by the industry: all samples outside the range of the Best Value ± 3 Standard Deviation (Action line) are considered as "Failures". Accuracy problems are considered to exist when the percentage of acceptable samples is less than 90%.

The evaluation of the SRMs sent to the MINER internal laboratory shows that the CCU-09 standard presents low precision for copper, while for gold the analyzed standards show low precision in the AUOX-38, PLSUL-43, STRT- 03. Pass rates reported for standards submitted to MINER's laboratory with channel samples for gold is 77 percent and copper is 93 percent.

The evaluation ratio for the SRMs delivered to the ALS laboratory is 100 percent for gold and 100 percent for copper, therefore the precision levels for gold and copper are considered acceptable.

11.6.2. Blank Performance

The insertion of blanks samples in channel shipments presents a ratio of 1:15 and for the drillhole sample 1:18 and according to the protocols established by MINER, a blank sample is inserted at the beginning of each batch sent to the laboratory. The acceptance criterion to determine contamination is based on the analysis of the values presented by the blank samples (gold = 0.001 ppm and copper = 10 ppm) for which the following limits are used: i) Pass: < 5x LDL; ii) Warning: > 5x LDL, <10x LDL; iii) Failure: > 10x LDL.

Table 11.5 Summary of results for blank samples

Laboratory	Metal	N°Analyzed (Accumulated Total)	N° Fails	Pass % #
MINER	Au	154	4	97%
MINER	Cu	154	0	100%
ALS	Au	140	0	100%
ALS	Cu	140	30	79%

Blank samples analyzed in the MINER laboratory show that there is no contamination for gold and copper. For the ALS laboratory, there are 30 samples that are above 10 times the copper value of the blank sample, which represents 21% of samples with this deviation, but for gold, 100% of the samples analyzed do not present contamination.

11.6.3. Duplicate Performance

The precision of sampling and analytical results can be measured by re-analyzing the same sample using the same methodology. The variance between the original and the duplicate assays is a measure of the assays' precision. Precision is affected by mineralogical factors such as grain size and distribution and inconsistencies in the sample preparation and analysis processes.

Ranked half absolute relative difference (HARD) of samples plotted against their rank % value. The HARD is calculated using the following equation:

$$HARD = \frac{(O - D)}{(O + D)}$$

Where

O = value of original sample

D = value of duplicate sample

Duplicates were submitted with channel samples and drill core samples. If both the original and duplicate results returned a value less than ten times the detection limit the result was disregarded for the HARD analysis due to distortion in the precision levels at very low grade close to the limits at which the instrumentation can measure. These very low values are not seen as material and can distort more meaningful results if they are not removed.

A description of the different types of duplicates used by ATICO is provided in Table 11.6

Table 11.6 Duplicate Types Used by MINER

Duplicate	Description
Field	Sample generated by another sampling operation at the same collection point. Includes a second channel or core sample taken in the same place to the first or the second half of channel or core sample and submitted in the same or separate batch to the same (primary) laboratory.
Reject Assay	Second sample obtained from splitting the coarse crushed rock during sample preparation and submitted blind to the same or different laboratory that assayed the original sample.
Duplicate Assay	Second sample obtained from splitting the pulverized material during sample preparation and submitted blind at a later date to the same laboratory that assayed the original pulp.
Check Assay	Second sample obtained from the pulverized material during sample preparation and sent to an umpire laboratory for analysis.

Half absolute relative difference (HARD) results for duplicates of core drill and channel samples used to assess the ALS and MINER laboratory are displayed in Table 11.7

Table 11.7 Duplicate Results for Core Drilling and Channel Samples

Laboratory	Type of Duplicate	Metal	No. of duplicates analyzed	*HARD value at 90th percentile
MINER	Field Duplicate[1]	Au (ppm)	120	90
		Cu (%)	148	80
	Check Assay[3]	Au (ppm)	162	86
		Cu (%)	203	95
	Reject Assay[2]	Au (ppm)	115	90
		Cu (%)	154	94
ALS	Field Duplicate[1]	Au (ppm)	61	67
		Cu (%)	91	76

**HARD = Half Absolute Relative Difference*

1. Acceptable HARD value for field duplicates is < 30%

2. Acceptable HARD value for duplicate coarse is < 20%

3. Acceptable HARD value for duplicate fine is < 10 %

Duplicate samples sent to the MINER laboratory generally show acceptable precision. Duplicates of rejects and pulps from the carcass samples were sent to the same internal MINER laboratory; this procedure is performed every 3 months.

For the duplicate samples from diamond drill holes, the analysis of the results indicates that gold has 33 percent of samples that have low precision. The low precision samples contain 4 groups with average gold values of 0.02ppm, 0.10ppm, 0.35ppm and 5.06 ppm for the original samples and for the duplicate samples 0.03pmm, 0.0ppm, 0.49 and 5.02ppm.

Copper has 24 percent of samples with low precision according to the HARD analysis, of which they show 3 groups with average values of 47.4ppm, 384ppm and 13033 for the original samples and average values of 44.95ppm, 593.76ppm and 14385.00ppm.

In the author's opinion, it is necessary to review the protocols of QAQC programs, mainly in the insertion of control samples and the assignment of duplicate samples. Furthermore, he has not evidenced reports and/or analyzes regarding the results of the monthly and quarterly qaqc programs between the mine geology area and MINER's internal laboratory. The insertion ratio is within the range established in the protocols.

12. Data Verification

Data used for mineral resources estimation are stored in two data bases, one data base relating to the channels results and the other for storage of drilling results. Both databases are in Access database format.

El Roble mine site staff adhere to a stringent set of protocols for data storage and validation, performing verification of its data on a monthly basis. The operation employs a Database Administrator who is responsible for oversight of data entry, verification and database maintenance.

Members of ATICO geology staff perform on a regular basis (3 months) an internal audit, which consists of the revision of inconsistencies regarding the channel and drill core data stored in the BD (collar, survey, assay, lithology, mineralization, etc.). This audit consists of reviewing and verifying the following:

- Sampling of drill-core and channel samples procedures, and the storing of drill-core and channel sample chips;
- Mine site assay laboratory (operated by MINER), and the QAQC procedures in the areas of sample preparation and the insertion of QAQC samples;
- Randomly selecting assay data from the databases and comparing the stored grades to the original assay certificates
- Procedures implemented relating to the capture and download of data, as well as the validation, modification, and database storage.
- A small percentage of inconsistencies have identified and these pertain mostly to recoverable and correctable errors in “from-to” data and in coding of lithologies.

12.1. Core and Channel Sample Data

The sample data that has been used to estimate the Mineral Resources, that are the subject of this Technical Report, were obtained by ATICO as either underground diamond core or underground channel samples.

Diamond drill core assays represent well over 28 percent of the data used to estimate Mineral Resources for the various VMS bodies.

Data from these samples were used, in addition to the underground core samples, to estimate Mineral Resources. The underground channel samples represent 72% (12,386 corresponds to Zeus) percent of the samples that were used to estimate Mineral Resources.

13. Mineral Processing and Metallurgical Testing

The existing processing plant at El Roble has a rated nominal throughput capacity of 815-dmt per day. The processing methods consist of conventional crushing, grinding, and flotation to produce a copper-gold concentrate.

Grinding is to 80 percent passing 200 mesh for flotation feed. Four banks of six flotation cells each generate concentrates which are subsequently thickened, filtered and stored on site for shipping via highway truck to the Pacific coast port of Buenaventura. Process tailings are deposited in an impoundment facility situated along the banks of the Rio Atrato located downstream of the processing plant. Process waste water is filtered in a tailings dam and then released (at a pH between 7.48 to 8.45) into the Rio Atrato.

The process recovery in the last 12 months (January 2023 through December 2023) averaged 91.67 percent for copper and 59.74 percent for gold. Concentrate grades for the last 12 months averaged 18.41 percent Cu and 9.67 grams per tonne Au. The only penalty metal known to the Qualified Person responsible for this portion of the Technical Report that occasionally exceeds maximum limits is mercury. Current smelter charges are US$88 per dry metric tonne. Refining charges are US$0.088per payable pound of copper, 0.75 percent of gold price subject to a minimum of US$8.00 per payable ounce of gold, and US$0.35 per payable ounce of silver. Payables are specified in the concentrate sales contract as the copper content minus 1.1 percent, 95 percent of the contained gold and 95 percent of the contained silver.

The current sales contract specifies that copper concentrate grades must be maintained between 18 and 24 percent Cu, gold grades between 4 and 20 grams per tonnes, and silver grades between 5 and 60 grams per tonne. Concentrates high in mercury are mixed with concentrates low in mercury to make an acceptable level of mercury in the shipped concentrate.

American Minerals Testing & Consulting LLCC (American Metals or AM) was contracted for ATICO to perform closed circuit metallurgical tests in El Roble's internal laboratory, with samples from the following ore bodies: Principal, A, B, B, D, D2, Afrodita and Rosario, with average mill head grades of 2.48 percent for copper and 2.39 grams per tonne for gold. The results obtained by American Minerals as processing recovery averaged 93.0 percent for copper and 63 percent for gold, concentrate grades averaged 18.76 percent for copper and 12.26 grams per tonne for gold.

During 2022 and 2023, alternative reagents to the collectors were evaluated at the laboratory level. After several evaluations and working with one of the reagent suppliers Atico found XD5002 that can partially replace A-3418.

The P80 in the Overflow of the cyclones has also been progressively increased from 75 um to 120 um, which has allowed improved performance in the PDR stage without harming the degree and recovery of Cu and Au.

Additionally, Atico is developing the CO_2 addition project to stabilize the pH in the flotation at the required value, reducing the variability, thereby improving the recovery of Au, since that of Cu is at a very acceptable level.

14. Mineral Resource Estimates

14.1. Introduction

The Mineral Resource estimate has been updated considering channel samples for the Zeus body and samples from the diamond drilling program executed between 2022 and 2024 (Zeus and Maximus). Additionally, this update shows the estimate of mineral resources of the mineralized bodies located between the 2100 and 2200 level, which were carried out with the samples of diamond drilling executed between January 2023 and March 12th, 2024.

The resource estimation was carried out by Antonio Cruz, FAIG (CP, Number 7065) an appropriate "qualified person" as this term is defined in National Instrument 43-101. The effective date of the resource statement is March 12th, 2020.

This section describes the resource estimation methodology and summarizes the key assumptions considered by MINER. The resource evaluation reported herein is a reasonable representation of the global copper and gold Mineral Resources hosted at the El Roble at the current level of sampling. The Mineral Resources have been estimated in conformity with generally accepted CIM "Estimation of Mineral Resource and Mineral Reserves Best Practices" guidelines and are reported in accordance with the Canadian Securities Administrators' National Instrument 43-101.

14.2. Sample Data

The Qualified Person responsible for this section was given access to the digital drill hole and channel sample data for the El Roble deposit. These data (drill hole collars, down-hole surveys, assays, lithology, density, etc.) were provided in ASCII and CSV formats. The underlying Microsoft Access databases, one for diamond drill holes and another for the channel samples were also provided. The drill hole and channel sample files were imported into Datamine® software, a commercial geological modelling and mine planning software package.

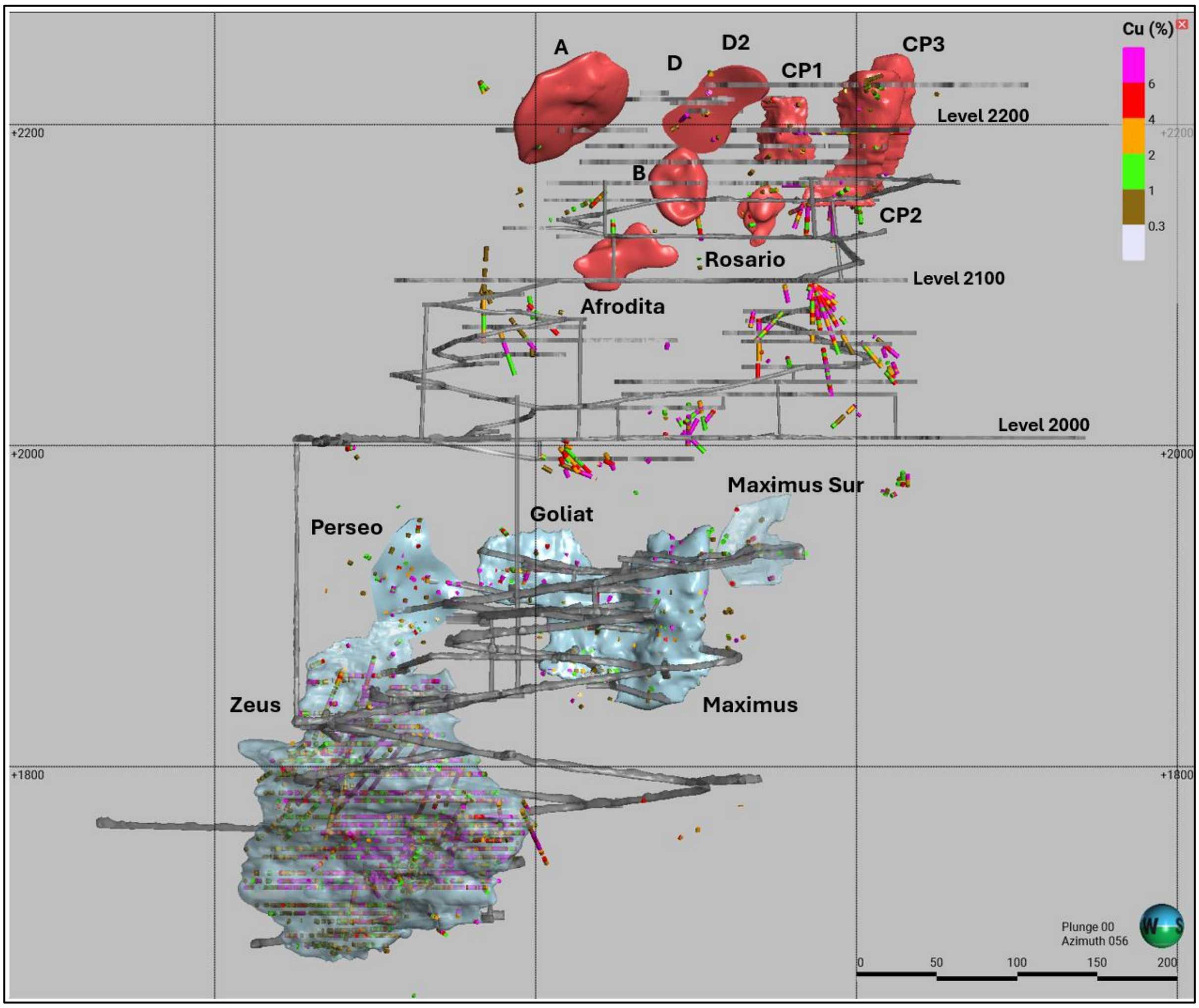
14.3. Geological Interpretation and Domaining

MINER carried out a process through which the geological domains were determined, based on the lithology and mineralization logged in the drill holes. MINER defined and grouped four lithological domains in the El Roble mine: i) Basalt (Kv), comprising basaltic volcanic rocks representing the bedrock of the sequence; ii) Black Chert (Kbc), this domain defines the black chert, deposited on the bedrock within the sequence; iii) Grey Chert (Kgc): this domain consists of grey chart, deposited above the black chert within the sedimentary sequence and; iv) Sedimentary Sequence (Kss), consisting of terrigenous sediments that are the uppermost part of the sequence.

The mineralized bodies are within the lithological domain referred to as Black Chert. The bodies consist of pyrite and chalcopyrite and locally, accessory magnetite and pyrrhotite.

The wireframe of the mineralized bodies was modeled considering samples from channels and drill holes, for which the Leapfrog Geo v.2023 software (Leapfrog) was used. The geological contacts of the mineralized bodies are not always clear and therefore, MINER developed the modeling solids based on two criteria; 1) a geological criterion; all mineralized bodies must be within the Black Chert and the drill hole interval or the mapped area must have a sulphide content greater than 10 percent by volume, 2) the minimum Au or Cu cut-off grade must be 0.5 g/t or 0.5%, respectively. Figure 14.1 shows the location of the modeled bodies in the El Roble mine.

Figure 14.1 Location of the massive sulfide bodies, in red the mineralized bodies above the 2100 level and in light blue the mineralized bodies below the 2000 level.



14.4. Exploration Data Analysis

For the estimation process, only the drill core and/or channel samples within solids of the mineralized bodies were considered. Various statistical analyses of the drill core and channel sample data of four VMS mineralized bodies at the El Roble mine were evaluated by MINER to determine their validity. Basic length weighted assay statistics for copper and gold are tabulated in Table 14.1.

Table 14.1 Statistics of Raw Assay Data by Mineralized Body

Mineralised Body	Grade	Count	Minimum	Maximum	Mean	Variance	Std. Dev.	Coef. Var.
Goliat	Cu	1,116	0.0020	27.61	4.46	27.40	5.23	1.17
	Au	1,116	0.0010	62.96	2.05	12.28	3.50	1.71
Maximus	Cu	1,726	0.0020	31.86	3.76	27.13	5.21	1.38
	Au	1,726	0.0010	250.00	5.13	159.73	12.64	2.46
Maximus Sur	Cu	224	0.0020	15.53	1.10	7.49	2.74	2.50
	Au	224	0.0010	10.63	1.83	5.78	2.40	1.32
Zeus	Cu	15,561	0.0020	23.86	4.00	20.83	4.56	1.14
	Au	15,561	0.0010	80.03	2.24	8.39	2.90	1.29
CP1	Cu	42	0.0600	22.30	5.42	17.52	4.19	0.77
	Au	42	0.2000	4.43	1.21	1.28	1.13	0.94
CP2	Cu	59	0.0714	20.20	4.65	19.65	4.43	0.95
	Au	59	0.3000	35.90	5.82	55.98	7.48	1.29
CP3	Cu	49	0.0740	14.03	4.07	11.85	3.44	0.85
	Au	49	0.0880	18.70	3.11	8.48	2.91	0.94
A	Cu	74	0.0130	12.70	1.87	7.72	2.78	1.49
	Au	74	0.0550	28.70	3.55	24.02	4.90	1.38
B	Cu	59	0.0640	15.38	3.56	10.61	3.26	0.92
	Au	59	0.0750	9.47	2.00	5.58	2.36	1.18
D	Cu	30	0.1370	13.00	3.96	12.21	3.49	0.88
	Au	30	0.0940	7.57	2.41	4.92	2.22	0.92
D2	Cu	7	0.7050	18.18	10.27	52.47	7.24	0.71
	Au	7	0.7050	18.18	10.27	52.47	7.24	0.71
Afrodia	Cu	77	0.2270	12.70	3.49	7.50	2.74	0.79
	Au	77	0.0400	23.36	5.56	24.09	4.91	0.88
Rosario	Cu	55	0.0158	18.44	4.50	15.27	3.91	0.87
	Au	55	0.1150	18.63	6.31	29.82	5.46	0.87
Perseo	Cu	264	0.0040	22.19	2.81	22.04	4.69	1.67
	Au	264	0.0800	20.81	1.96	10.69	3.27	1.67

14.5. Extreme Value Treatment

MINER examined cumulative probability plots of the original sample data in determining reasonable capping limits for copper and gold for each orebody. Whenever the domain contains an extreme grade value, this extreme grade will overly influence the estimate grade. The shape of the distribution curves is influenced by the inclusion of lower grade material, mainly around the lower limit used in the delimitation of the mineralized bodies (see item before). Whenever the domain contains an extreme grade value, this extreme grade will overly influence the estimate grade. The shape of the distribution curves is influenced by the inclusion of lower grade material, mainly around the lower limit used in the delimitation of the mineralized bodies. Table 14.2 summarizes the grade capping limits that were established.

Table 14.2 Grade Capping Limits by VMS Body.

Mineralized Body	Au (g/t)	Cu (%)
Goliat	7.0	-
Maximus	30.0	20.0
Maximus Sur	9.0	4.0
Zeus	12.0	14.0
CP1	3.2	12.9
CP2	18.8	12.1
CP3	7.3	9.9
A	15.0	11.0
B	-	10.0
D	-	11.0
D2	-	-
Afrodita	16.0	-
Rosario	-	11.0
Perseo	5.5	10.0

14.6. Compositing of Assay Intervals

The compositing of samples according to length is based on assumption that a similar sample support is required when conducting the estimation. The compositing is done in both the channel samples and the drill holes samples within the modelled ore body solid.

The sizes defined for the composition of samples along the sampling direction for the different mineralized bodies are: a) 2 meters for the Goliat, Maxmus, Maximus Sur, Zeus, CP1, CP2, CP bodies. b) 1 meter for bodies A, B, D, D2, Apfrodita, Rosario. c) 0.5 meter for Perseo. MINER determined that composites would be most suitable for estimating block grades for the various VMS bodies. Table 14.3 provides a statistical description of Au and Cu for the ore bodies.

Table 14.3 Statistical Description of Composites by Element and Body of El Roble Mine

Mineralized Body	Grade	Count	Minimum	Maximum	Mean	Variance	Std. Dev.	Coef. Var.
Goliat	Cu	427	0.002	22.22	4.44	19.54	4.42	0.99
	Au	427	0.001	31.81	2.00	6.52	2.55	1.28
Maximus	Cu	753	0.002	31.45	3.75	21.85	4.67	1.25
	Au	753	0.001	206.41	5.13	110.17	10.50	2.05
Maximus Sur	Cu	82	0.002	10.53	1.10	5.47	2.34	2.13
	Au	82	0.029	9.36	1.89	4.75	2.18	1.15
Zeus	Cu	7,140	0.002	22.12	4.00	16.95	4.12	1.03
	Au	7,140	0.001	62.37	2.24	6.40	2.53	1.13
CP1	Cu	34	0.408	17.66	5.38	14.31	3.78	0.70
	Au	34	0.046	3.58	1.15	1.02	1.01	0.87
CP2	Cu	45	0.142	17.20	4.62	14.06	3.75	0.81
	Au	45	0.400	25.36	5.78	42.32	6.51	1.12
CP3	Cu	27	0.550	12.01	4.07	8.43	2.90	0.71
	Au	27	0.232	8.61	3.11	4.40	2.10	0.67
A	Cu	94	0.013	12.70	1.87	7.02	2.65	1.42
	Au	94	0.060	28.54	3.55	22.37	4.73	1.33
B	Cu	73	0.160	12.00	3.56	8.69	2.95	0.83
	Au	73	0.093	9.40	2.00	4.80	2.19	1.10
D	Cu	35	0.422	12.67	3.96	11.25	3.35	0.85
	Au	35	0.226	7.33	2.41	4.75	2.18	0.91
D2	Cu	8	0.758	17.94	9.90	48.76	6.98	0.71
	Au	8	0.861	8.75	4.44	7.93	2.82	0.63
Afrodita	Cu	87	0.227	11.47	3.48	6.26	2.50	0.72
	Au	87	0.490	23.22	5.55	22.15	4.71	0.85
Rosario	Cu	63	0.016	13.80	4.45	12.62	3.55	0.80
	Au	63	0.115	18.63	6.23	27.77	5.27	0.85
Perseo	Cu	391	0.000	22.19	2.58	19.95	4.47	1.73
	Au	391	0.000	20.81	1.80	9.38	3.06	1.70

14.7. Massive Sulphide Variography

Continuity analysis refers to the analysis of the spatial correlation of a grade value between simple pairs to determine the major axis of spatial continuity. The variograms tended to be a poor in quality, for this reason all the composited data was transformed into a normal score distribution for continuity analysis. Continuity analysis confirmed that Maximus Sur has insufficient data to allow variogram modelling.

MINER generated a number of grades variograms for the various El Roble massive sulphide zones. Table 14.4 summarizes key variogram parameters as interpreted by MINER for thirteen of the VMS mineralized bodies for which reasonable variograms could be generated.

Table 14.4 Variogram Parameters by VMS Body

Mineralized Body	Metal	Major axis orientation	C0	C1	Ranges	C2	Ranges	C3	Ranges
Goliat	Cu	133°	0.3	0.20	8,6,6	0.20	51,9,8	0.2	54,14,10
	Au	136°	0.2	0.20	1,1,6	0.50	11,4,10	0.2	50,10,12
Maximus	Cu	250°	0.2	0.80	30,27,15	-	-	-	-
	Au	324°	0.5	0.30	33,9,8	0.20	53,42,26	-	-
Zeus	Cu	55° → 234°	0.2	0.30	19,16,13	0.50	90,78,40	-	-
	Au	55°→90°	0.2	0.40	13,11,19	0.40	64,56,53	-	-
CP1, CP2, CP3	Cu	155°	0.2	0.38	17, 36, 12	0.41	30, 38, 20	-	-
	Au	155°	0.0	0.55	5, 20, 5	0.45	50, 30, 15	-	-
A	Cu	300°	0.103	0.584	(10, 8, 4)	0.313	(35, 25, 8)	-	-
	Au	300°	0.103	0.584	(10, 8, 4)	0.313	(35, 25, 8)	-	-
B	Cu	150°	0.103	0.584	(10, 8, 4)	0.313	(35, 25, 8)	-	-
	Au	150°	0.103	0.584	(10, 8, 4)	0.313	(35, 25, 8)	-	-
D	Cu	345°	0.103	0.584	(10, 8, 4)	0.313	(35, 25, 8)	-	-
	Au	345°	0.103	0.584	(10, 8, 4)	0.313	(35, 25, 8)	-	-
D2	Cu	320°	0.103	0.584	(10, 8, 4)	0.313	(35, 25, 8)	-	-
	Au	320°	0.103	0.584	(10, 8, 4)	0.313	(35, 25, 8)	-	-
Afrodita	Cu	330°	0.103	0.584	(10, 8, 4)	0.313	(35, 25, 8)	-	-
	Au	330°	0.103	0.584	(10, 8, 4)	0.313	(35, 25, 8)	-	-
Rosario	Cu	190°	0.103	0.584	(10, 8, 4)	0.313	(35, 25, 8)	-	-
	Au	190°	0.103	0.584	(10, 8, 4)	0.313	(35, 25, 8)	-	-
Perseo	Cu	310°	0.015	0.518	(8, 12, 7)	0.466	(35, 17, 8)	-	-
	Au	310°	0.015	0.518	(8, 12, 7)	0.466	(35, 17, 8)	-	-

Note: the variances have been normalized to a total of one; the ranges for major, semi-major, and minor axes, respectively; structures are modelled with a spherical model.

C0: nugget, C1, C2 & C3: components of nested structure models. Sill=C1 + C2 + C3

An example of a normalized variogram plots for gold shown in Figure 14.2. Major (direction 1), semi-major (direction 2), and minor axis (direction 3) variogram plots are shown along with contoured variance of the major axis vector in each of the figures.

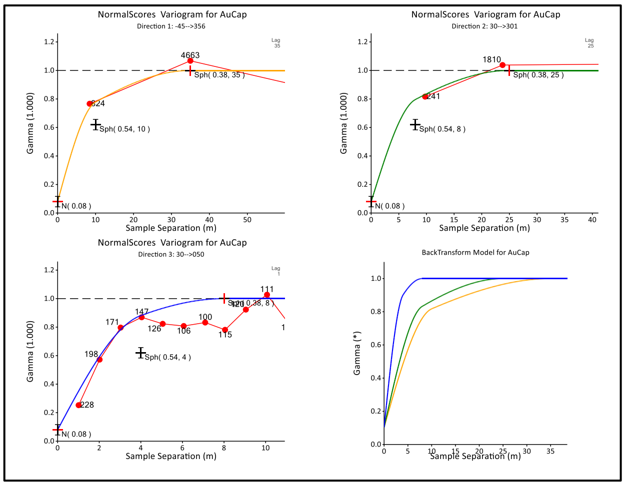


Figure 14.2 A body gold variograms

14.8. Block Model Grade Estimation

MINER constructed nine individual block models in Datamine software for each of the currently identified VMS body. Those models were rotated so the new Y-axis of the model approximated the strike azimuth of the steeply plunging VMS bodies. Rotation about Z is clockwise in Datamine software.

Table 14.5 tabulates the orientation of the various Datamine software block models and show that MINER used the 2.0 m x 2.0 m x 2.0 m block size in all the orebody block models. Block size was selected mainly based on mineralized domain geometry and the mining method; each orebody has been block-modelled separately with care taken to ensure that overlapping blocks do not exist.

Table 14.5 El Roble Block Model Orientations

Mineralized body	Rotation	Direction	Minimum	Maximum	Size (m)
Goliat	45	X	374,907	374,968	2
		Y	655,634	655,704	2
		Z	1,847	1,950	2
Maximus	60	X	374,950	374,995	2
		Y	655,570	655,642	2
		Z	1,835	1,955	2
Maximus Sur	35	X	374,985	375,025	2
		Y	655,525	655,580	2
		Z	1,915	1,980	2
Zeus	65	X	374,801	374,930	2
		Y	655,652	655,852	2
		Z	1,666	1,868	2
CP1, CP2, CP3	65	X	374,958	375,078	2
		Y	655,547	655,613	2
		Z	2,138	2254	2
A		X	374,834	374930	2
		Y	655,618	655696	2
	30	Z	2,164	2258	2

Mineralized body	Rotation	Direction	Minimum	Maximum	Size (m)
D, D2	50	X	374917	374985	2
		Y	655568	655624	2
		Z	2180	2238	2
B Afrodita Rosario	60	X	374925	375059	2
		Y	655645	655673	2
		Z	2094	2190	2
Perseo	45	X	374,817	374,897	2
		Y	655,729	655,775	2
		Z	1,868	1966	2

14.9. Sample Search Parameter

MINER completed a quantitative kriging neighborhood analysis (QKNA) on the various El Roble VMS bodies in order to determine optimal search parameters for estimating block grades. Those studies resulted in the following generalized observations:

A search range of approximately 10 to 35 meters along strike and down dip were indicated with a shorter (5 to 15 meters) search perpendicular to strike;

The search ellipsoid used to define the extents of the search neighborhoods tend to have the same orientation as the continuity vectors observed in modeling variograms.

MINER elected to use a three-pass estimation strategy that used successively longer search ellipsoid. Once a block was estimated it was flagged and ineligible to be estimated by subsequent passes. Ordinary kriging and inverse distance (third power and second power) estimation methods were used by MINER. Table 14.6 summarizes which estimation method was used for each of the VMS bodies. Only in the Zeus mineralized body MINER estimated the gold and copper grade using ordinary kriging.

Table 14.6 Estimation Methods by VMS Body

Mineralized Body	Au (g/t)	Cu (%)
Goliat	Inverse Distance (power = 3)	Inverse Distance (power = 3)
Maximus	Inverse Distance (power = 3)	Inverse Distance (power = 3)
Maximus Sur	Inverse Distance (power = 3)	Inverse Distance (power = 3)
Zeus	Ordinary Kriging	Ordinary Kriging
CP1, CP2, CP3	Inverse Distance (power = 2)	Inverse Distance (power = 2)
A	Inverse Distance (power = 2)	Inverse Distance (power = 2)
B	Inverse Distance (power = 2)	Inverse Distance (power = 2)
D	Inverse Distance (power = 2)	Inverse Distance (power = 2)
D2	Inverse Distance (power = 2)	Inverse Distance (power = 2)
Afrodita	Inverse Distance (power = 2)	Inverse Distance (power = 2)
Rosario	Inverse Distance (power = 2)	Inverse Distance (power = 2)
Perseo	Inverse Distance (power = 2)	Inverse Distance (power = 2)

The estimation parameters (ranges, min/max number of composites, etc.) for each estimation pass are summarized for copper in Table 14-7 (Range refers to the search radius).

Table 14.7 Cu Estimation Parameters by VMS Body

Mineralized Body	Direc.	First Search			Second Search			Third Search			Min Octant	Max Comps per Octant	Max Comps per hole
		Range (m)	Min Comps	Max Comps	Range (m)	Min Comps	Max Comps	Range (m)	Min Comps	Max Comps			
Goliat	1	35	3	7	70	3	9	105	3	14	3	3	2
	2	20	3	7	40	3	9	60	3	14	3	3	2
	3	15	3	7	30	3	9	45	3	14	3	3	2
Maximus	1	20	3	7	40	3	9	60	3	12	3	3	2
	2	20	3	7	40	3	9	60	3	12	3	3	2
	3	15	3	7	30	3	9	45	3	12	3	3	2
Maximus Sur	1	25	3	6	50	3	9	100	3	12	3	3	2
	2	20	3	6	40	3	9	80	3	12	3	3	2
	3	15	3	6	30	3	9	60	3	12	3	3	2
Zeus	1	25	3	6	50	3	9	75	3	14	2	3	2
	2	25	3	6	50	3	9	75	3	14	2	3	2
	3	20	3	6	40	3	9	60	3	14	2	3	2
CP1, CP2, CP3	1	10	4	12	20	2	8	30	1	4	-	-	2
	2	15	4	12	30	2	8	35	1	4	-	-	2
	3	5	4	12	12	10	8	15	1	4	-	-	2
A	1	17.5	5	8	35	3	12	70	2	12	-	-	2
	2	12.5	5	8	25	3	12	50	2	12	-	-	2
	3	4	5	8	8	3	12	26	2	12	-	-	2
B	1	17.5	5	8	35	3	12	70	2	12	-	-	2
	2	12.5	5	8	25	3	12	50	2	12	-	-	2
	3	4	5	8	8	3	12	26	2	12	-	-	2
D	1	17.5	5	8	35	3	12	70	2	12	-	-	2
	2	12.5	5	8	25	3	12	50	2	12	-	-	2
	3	4	5	8	8	3	12	26	2	12	-	-	2
D2	1	17.5	5	8	35	3	12	70	2	12	-	-	2
	2	12.5	5	8	25	3	12	50	2	12	-	-	2
	3	4	5	8	8	3	12	26	2	12	-	-	2
Afrodita	1	17.5	5	8	35	3	12	70	2	12	-	-	2
	2	12.5	5	8	25	3	12	50	2	12	-	-	2
	3	4	5	8	8	3	12	26	2	12	-	-	2
Rosario	1	17.5	5	8	35	3	12	70	2	12	-	-	2
	2	12.5	5	8	25	3	12	50	2	12	-	-	2
	3	4	5	8	8	3	12	26	2	12	-	-	2
Perseo	1	10	4	12	20	2	8	30	1	4	-	-	3
	2	8	4	12	16	2	8	24	1	4	-	-	3
	3	4	4	12	8	2	8	12	1	4	-	-	3

The estimation parameters (ranges, min/max number of composites, etc.) for each estimation pass are summarized for gold in Table 14.8 (Range refers to the search radius).

Table 14.8 Au Estimation Parameters by VMS Body

Mineralized Body	Direc.	First Search			Second Search			Third Search			Min Octant	Max Comps per Octant	Max Comps per hole
		Range (m)	Min Comps	Max Comps	Range (m)	Min Comps	Max Comps	Range (m)	Min Comps	Max Comps			
Goliat	1	35	3	7	70	3	9	105	3	14	3	3	2
	2	20	3	7	40	3	9	60	3	14	3	3	2
	3	15	3	7	30	3	9	45	3	14	3	3	2
Maximus	1	20	3	7	40	3	9	60	3	12	3	3	2
	2	20	3	7	40	3	9	60	3	12	3	3	2
	3	15	3	7	30	3	9	45	3	12	3	3	2
Maximus Sur	1	25	3	6	50	3	9	100	3	12	3	3	2
	2	20	3	6	40	3	9	80	3	12	3	3	2
	3	15	3	6	30	3	9	60	3	12	3	3	2
Zeus	1	25	3	6	50	3	9	75	3	14	2	3	2
	2	25	3	6	50	3	9	75	3	14	2	3	2
	3	20	3	6	40	3	9	60	3	14	2	3	2
CP1, CP2, CP3	1	10	4	12	20	2	8	30	1	4	-	-	2
	2	15	4	12	30	2	8	35	1	4	-	-	2
	3	5	4	12	12	10	8	15	1	4	-	-	2
A	1	17.5	5	8	35	3	12	70	2	12	-	-	2
	2	12.5	5	8	25	3	12	50	2	12	-	-	2
	3	4	5	8	8	3	12	26	2	12	-	-	2
B	1	17.5	5	8	35	3	12	70	2	12	-	-	2
	2	12.5	5	8	25	3	12	50	2	12	-	-	2
	3	4	5	8	8	3	12	26	2	12	-	-	2

Mineralized Body	Direc.	First Search			Second Search			Third Search			Min Octant	Max Comps per Octant	Max Comps per hole
		Range (m)	Min Comps	Max Comps	Range (m)	Min Comps	Max Comps	Range (m)	Min Comps	Max Comps			
D	1	17.5	5	8	35	3	12	70	2	12	-	-	2
	2	12.5	5	8	25	3	12	50	2	12	-	-	2
	3	4	5	8	8	3	12	26	2	12	-	-	2
D2	1	17.5	5	8	35	3	12	70	2	12	-	-	2
	2	12.5	5	8	25	3	12	50	2	12	-	-	2
	3	4	5	8	8	3	12	26	2	12	-	-	2
Afrodita	1	17.5	5	8	35	3	12	70	2	12	-	-	2
	2	12.5	5	8	25	3	12	50	2	12	-	-	2
	3	4	5	8	8	3	12	26	2	12	-	-	2
Rosario	1	17.5	5	8	35	3	12	70	2	12	-	-	2
	2	12.5	5	8	25	3	12	50	2	12	-	-	2
	3	4	5	8	8	3	12	26	2	12	-	-	2
Perseo	1	10	4	12	20	2	8	30	1	4	-	-	3
	2	8	4	12	16	2	8	24	1	4	-	-	3
	3	4	4	12	8	2	8	12	1	4	-	-	3

The VMS wireframes, model blocks, and drill hole samples were sub-divided into two parts, reflecting hangingwall and footwall domains. It has been long recognized that higher grade mineralization within the El Roble VMS bodies is often localized along either the footwall and/or hangingwall contacts. MINER incorporated that sub-domaining into the grade estimation plan which allowed blocks located along the main contacts to be informed by composites located along the same contact area.

14.10. High-Grade Copper and Gold Zones

MINER assessed the distribution of anomalous values for both copper and gold within the Zeus orebody and could determine that the high-grade zones are split. For that reason, MINER deems appropriate to apply a methodology that will make it possible to restrict high grades to specific sectors, where treatment of anomalous grades may be more permissible.

The method considers generating indicator values, which allow the delimitation of anomalous sectors based on likelihood. For high grade sectors, any sample with a grade greater than the "grade indicator" receives the value 1, and any sample with a lower grade is set to 0. The likelihood is defined between both values, depending on the contact analysis, the aim of which is to confirm that the sample population with average grade and high grade are completely different and their respective influence throughout the mineralized body.

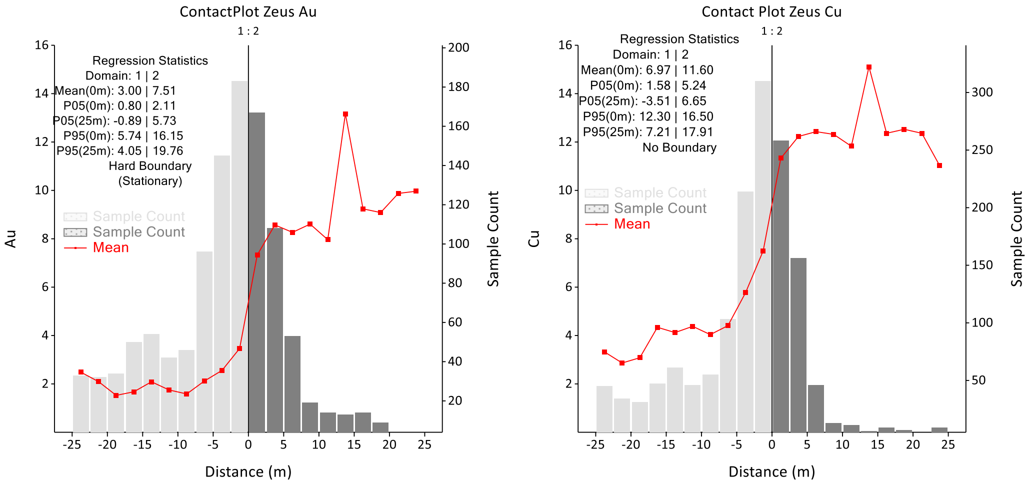
The methodology used to select the acceptable level of likelihood was validated through contact analysis. Table 14.9 shows the grade indicator, the likelihood used and the top cut to be used in samples from this sector for both Au (g/t) and Cu (%), based on which a likelihood interval is defined for the Zeus body.

Table 14.9 Indicator Parameters for Au and Cu in Zeus Mineralized Body

Mineralized Body	Au (g/t)			Cu (%)		
	Grade Indicator	Top Cut	Probability	Grade Indicator	Top Cut	Probability
Zeus	14	30	0.45	15	25	0.50

Figure 14.3 shows the contact analysis conducted among the samples located in the low grade (LG) and high grade (HG) areas for Au (g/t) and Cu (%) in the Zeus ore body. As can be seen, the average grade of the samples in the HG domain is higher than in the LG domain.

Figure 14.3 Contact Plot for Threshold Low-grade (1) and High-grade (2) in Zeus Mineralized Body



By applying this methodology, MINER seeks to restrict the high-grade sectors and not to overestimate the Au and Cu grades. Table 14.10 shows the search neighborhoods used in the estimation of Au and Cu within the high-grade areas for both variables.

Table 14.10 Au and Cu Estimation Parameters for Indicator Estimation in Zeus Mineralized Body

Element	Direc.	First Search			Second Search			Third Search			Min Octant	Max Comps per Octant	Max Comps per hole
		Range (m)	Min Comps	Max Comps	Range (m)	Min Comps	Max Comps	Range (m)	Min Comps	Max Comps			
Au (g/t)	1	20	3	6	40	2	9	60	3	12	3	3	2
	2	20	3	6	40	2	9	60	3	12	3	3	2
	3	15	3	6	30	2	9	45	3	12	3	3	2
Cu (%)	1	20	2	6	40	3	9	60	3	12	3	3	2
	2	20	2	6	40	3	9	60	3	12	3	3	2
	3	10	2	6	20	3	9	30	3	12	3	3	2

14.11. Density

For the Mineral Resources update as of March 14, 2024, density testing has not increased values for the Goliat, Maximus, Maximus Sur, and Zeus bodies. Therefore, for the update the values and averages used in the report of December 28, 2018 will be used. For the bodies CP1, CP2, CP3, A, B, D, D2, Afrodita and Perseo the density tests were sent for the ALS laboratory and the densities in the block model were assigned using IDW2 interpolation and for the Perseo body an average density value was assigned.

Table 14.11 summarizes the statistics of the samples measured by ALS, SGS, and the sample measurements in MINER.

Table 14.11 Statistics for Density Measurements by Laboratory

Laboratory	Mineralized Body	No of Samples	Mean	Minimum	Maximum	Variance
ALS	Goliat	33	3.49	2.59	4.3	0.24
	Maximus	83	3.60	2.62	4.72	0.28
	Maximus Sur	3	3.25	2.65	3.59	0.27
	Zeus	248	3.57	2.53	4.86	0.30
	CP1	14	3.48	2.90	4.13	0.14
	CP2	19	3.90	3.10	4.37	0.12
	CP3	15	3.50	2.90	4.36	0.17
	A	38	3.50	3.01	4.23	0.08
	B	22	3.57	3.02	4.13	0.09
	D	12	3.57	3.08	3.99	0.07
	D2	4	3.80	3.26	4.2	0.09
	Afrodita	24	3.72	3.04	4.65	0.10
	Rosario	16	3.76	2.76	4.69	0.16

Laboratory	Mineralized Body	No of Samples	Mean	Minimum	Maximum	Variance
SGS	Zeus	41	3.71	2.77	4.49	0.48
Miner	Goliat	86	3.28	2.32	4.24	0.22
	Maximus	178	3.45	1.44	4.65	0.27
	Maximus Sur	26	3.26	2.44	4.56	0.38
	Zeus	1,452	3.52	2.07	5.56	0.28
	Perseo	18	3.45	3.16	4.14	0.06

Due to insufficient spatial coverage of density measurements, density estimation was considered inappropriate for the bodies Goliat, Maximus, Maximus Sur, Zeus and Perseo. However, for bodies A, B, D, D2, Afrodita, Rosario, CP1, CP2 and CP3, the densities were estimated with the inverse of the distance and powers 2. Table 14.12 shows the density assigned to the block model per mineralized body. (Weight average between ALS and Miner measurements).

Table 14.12 Density Assigned for each mineralized body

Mineralized Body	Density (t/m3)
Goliat	3.34
Maximus	3.50
Maximus Sur	3.26
Zeus	3.53
Perseo	3.35

14.12. Model Validation

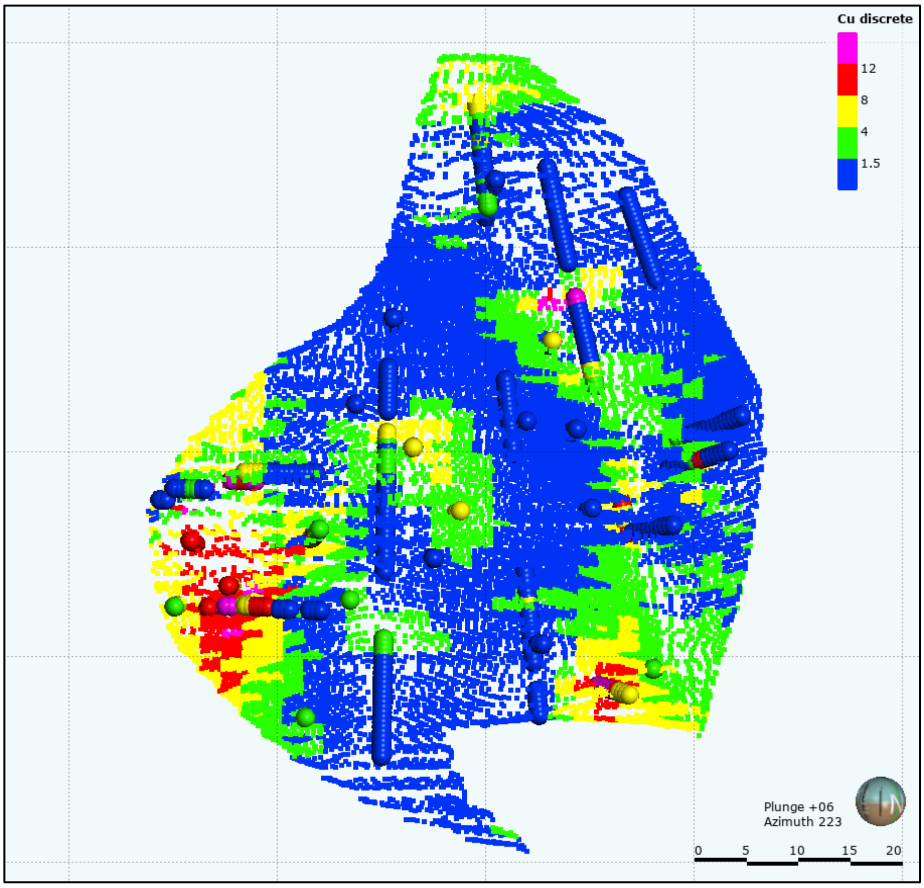
The techniques for validation of estimated tonnes and grades included visual inspection of block model and samples in section or plan; cross validation; global bias and local estimate validation through the generation of slice validation (swath) plots.

14.12.1. Visual Validation

The first validation was a plan view and cross-section visual assessment to ensure that the distribution of grades in the blocks is consistent with the average grade of the composites. This ensures that the data used for the estimation has a direct bearing on the local variance of the estimated grades.

Figure 14.4 shows the distribution of the Cu grade (%) in both the channels and the block model of the Perseo body.

Figure 14.4 Visual Validation Cu (%) in Perseo Mineralized Body



14.12.2. Global estimation validation

Nearest neighbour models for copper and gold, were generated by MINER. These models were used to validate the grade model and to check for possible grade biases in the block model. The ordinary kriged and nearest neighbour grades were compared for all estimated blocks inside of the Zeus wireframe at a zero-cut-off grade. In the other mineralized bodies, the grade was estimated by inverse distance power 3 and power 2. Table 14.13 compares MINER's ordinary kriging grades or IDW against their nearest neighbour grade (NN).

Table 14.13 El Roble Global Bias Check

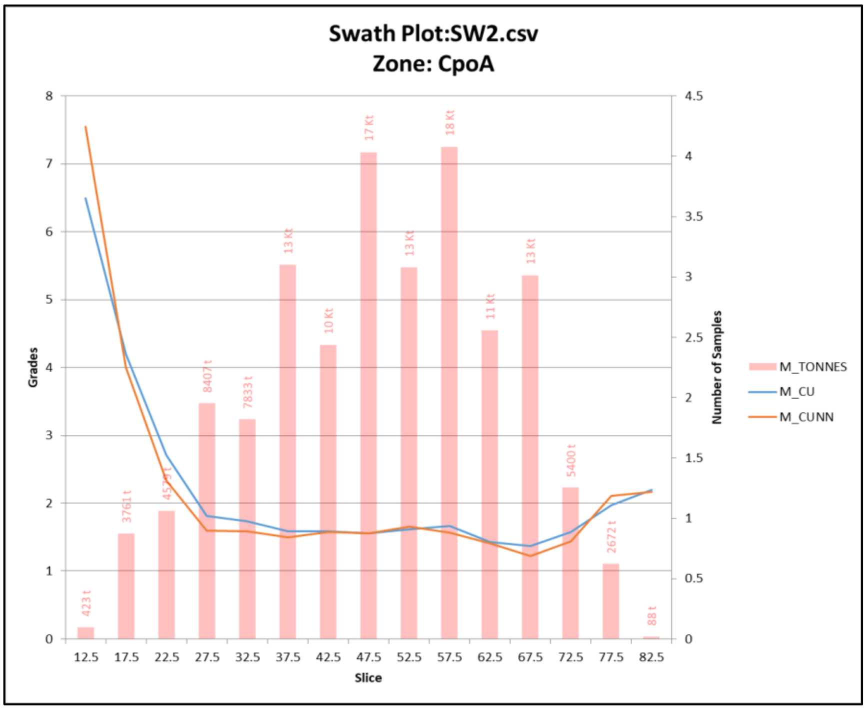
	Au (g/t)			Cu (%)		
Ore Body	IDW/OK	NN	% diff	IDW/OK	NN	% diff
Goliat	1.98	2.01	1.49	3.10	3.07	-0.93
Maximus	4.05	4.01	-0.80	4.03	4.07	0.93

	Au (g/t)			Cu (%)		
Ore Body	**IDW/OK**	**NN**	**% diff**	**IDW/OK**	**NN**	**% diff**
Maximus Sur	2.15	2.03	-5.64	1.06	0.95	-11.58
Zeus	2.16	2.15	-0.47	3.47	3.46	-0.29
CP1	1.12	1.15	2.98	4.93	4.88	-0.91
CP2	5.53	5.92	6.50	4.06	4.09	0.80
CP3	2.80	2.74	-2.00	4.29	4.30	0.16
A	3.54	3.40	-0.04	1.72	1.65	-0.05
B	1.73	1.67	-0.03	3.44	3.56	0.04
D	1.88	1.81	-0.04	3.73	3.57	-0.04
D2	4.50	4.90	0.09	9.82	9.59	-0.02
Afrodita	4.70	4.82	0.03	3.41	3.53	0.03
Rosario	6.47	5.82	-0.10	3.96	3.81	-0.04
Perseo	1.56	1.47	-0.06	2.48	2.44	-0.02

14.12.3. Local estimation validation

MINER checked for local biases by creating a series of slices or "swaths" through MINER's grade models by columns (eastings), rows (northings), and levels (elevations) comparing the ordinary kriging and nearest neighbour grades. Figure 14.5 is an example of a swath plot that shows the local variation in grade between the ordinary kriging and nearest neighbour copper models at a zero-cut-off grade by elevation.

Figure 14.5 A body Block Model Copper Swath Plot



The swath plots show that there is a reasonable comparison between the inverse distance and nearest neighbor grades. Usually where the two grades vary significantly there are a limited number of blocks.

Based on a visual examination and comparisons with a nearest neighbors' model, the MINER's grade models are globally unbiased and represents a reasonable estimate of undiluted in-situ resources.

14.13. Mineral Resource Reconciliation

The ultimate validation of the block model is to compare actual grades to predicted grades using the established estimation parameters. Table 14.14 shows the comparison of mineral in situ against block model and the percentage error between tonnes and grade.

Table 14.14 Reconciliation of the Mineral Resources Estimate Against Mineral In-situ Extracted Through March 12, 2024

Mineralized Body	Mineral In situ			Block Model			% Error		
	Tonnes (t)	Cu (%)	Au (g/t)	Tonnes (t)	Cu (%)	Au (g/t)	Tonnes	Cu	Au
Goliat	79,836	3.47	1.84	82,002	3.85	1.89	-3	-11	-2
Maximus	195,911	3.35	4.13	217,056	4.14	4.57	-11	-24	-11
Maximus Sur	1,260	0.66	1.40	1,224	0.74	1.48	3	-12	-6
Zeus	1,965,894	3.70	2.19	1,958,378	3.74	2.18	0	-1	0
Total	**2,242,901**	**3.66**	**2.35**	**2,258,660**	**3.78**	**2.40**	**-1**	**-3**	**-2**

The results suggest that the estimates are providing a good representation of what is being encountered underground during production. The tonnes average difference for all the mineralized bodies is 1%, for the copper grade the differences are -3% and for gold grade the differences is -2%; however individual measurements vary from -14% to -11%.

The difference in tonnage and grade for the Goliat and Maximus bodies is a consequence of the recovery of collapsed areas. However, there are areas in both mineralized bodies that can still be considered for adequate mining.

14.14. Mineral Resources Depletion

The mine planning team at the El Roble Mine is responsible for maintaining current all data pertaining to underground development in the mine.

The author has excluded mined-out areas from any reports of tonnages and grades in this technical report, as is appropriate. The author considers that the methodology of representing these depleted zones in this report is adequate.

14.15. Mineral Resource Classification

To carry out the classification of the estimated resources, MINER considers the evaluation of the following key aspects:

- How representative the data used for the estimation is.
- Lithological and structural controls, as well as the mineralization continuity.
- Proximity of the composites to the blocks to estimate.
- Estimation quality.

Representativeness and quantity of the data used for the estimation

For the resource estimation, MINER used channels and drill holes data. MINER carries out both (mostly) underground drilling and surface drilling in the mine. During years 2012 and 2013, MINER performed drillings with a strike parallel to the Goliat, Maximus, Maximus Sur and Zeus orebody, after this and after developing the bottom ramp, MINER carried out drillings perpendicular to the four mineralized bodies (Zeuz, Maximus, Goliat and Maximus Sur) during 2014 and 2016. MINER also performs the channel sampling inside the bodies and at various levels within each body.

Between 2018 and 2020 no drilling was carried out and the information used to update the Mineral Resources was from the channel sampling of the Zeus and Goliat mineralized bodies. The mineralized bodies CP1, CP2, CP3, A, B, D, D2, Afrodita and Rosario were identified with the drilling program carried out by the MINER between January 2023 and March 12, 2024. These bodies are located in the upper area of the El Roble mine (see figure 1.1)

Lithological and Structural Controls

These controls delimit both the extension and the geometry of the mineralized bodies, MINER prepared the three-dimensional model of the Black Chert layer, which contains massive sulphides.

All mineralized bodies are properly recognized and their limits have been determined both in extension and elevation. In this way it is 90% certain of the limits of each body.

The copper and gold mineralization continuity were evaluated with variograms. The variogram modelling help define the directions and scopes with major continuity, based on parameters obtained it is possible to direct and define the size of the studied surroundings.

Proximity of composites to blocks to be estimated

Evaluation of the distance of the composites towards the blocks to estimate, the ordinary kriging and the cubic inverse distance used for this process, determine weights based on the separation between the composite and the block. MINER considers the distance of the nearest composite to the block since the latter will have a higher weight relative to another composite located within the neighbourhood studied.

Estimation Quality

This is directly related to the variogram, the estimation scale and composite arrangement around the block. MINER evaluates the data quality through the regression slope estimation (ZZ) in each block. The process used begins generating a longitudinal section of each body taking the ZZ value and comparing it with the position of the composites used for estimation.

Classification

MINER categorized the resources in the ore bodies Goliat, Maximus, Maximus Sur y Zeus of El Roble project based on three criteria. a) The first criterion considers the number of composites used in the estimation of each block. b) The second criterion is the distance from the centroid to the nearest composite. c) The third criterion evaluates the quality of the estimation through the regression slope (ZZ).

This value is estimated in each block and mainly evaluates the optimization condition of the lagrangian and how large or small is in relation to the Kringing variance and block variance. The absolute value of a large lagrangian indicates that there is a significant bias for the arrangement of composites around the point to be estimated; for example, when the absolute value of the lagrangian is small in relation to the block variance and kriging variance, the ZZ value approaches 1.

Conducted an evaluation of the regression slope (ZZ) in each model block of the Zeus body in order to use a guide for the definition of categories.

Table 14.15 shows the initial considerations used to estimate the resource category. Based on these criteria, also performed a manual delimitation of the sectors considered as measured, indicated and inferred resources, to avoid inconsistencies when categorizing.

Table 14.15 Classification Criteria for MINER Mineralized Bodies

Category	Number of composites	Distance to nearest sample	Slope of regression (ZZ)
Measured	>6	<0.4 Major axis range	0.80 - 1
Indicated	>4	<0.8 Major axis range	0.60 - 0.8
Inferred	>2	All estimated blocks	0.30 - 0.60

For bodies A, B, D. D2, Afrodita, Rosario, CP1, CP2, CP3 and Perseo, the classification criteria are shown in Table 14.16.

Table 14.16 Methodology for categorizing bodies A, B, D. D2, Afrodita, Rosario, CP1, CP2, CP3 and Perseo

Category	Min. N° of Drill Hole per estimated	Extrapolation	Ex. Of Grid Spacing (m)	Closest samples to Estimated Block	
				1 St Hole	2nd hole
Measured	3	Minimal	15	Within 1/2 grid Spacing	Within 1/2 grid Spacing diagonal
Indicated	2	Minimal	30	Within 1/2 grid Spacing diagonal	Withing grid spacing side

Irregular grid: add 10% to above distances

14.16. Mineral Resource Statement

The mineral resource estimate statement was reported using an equivalent copper cut based on recoveries from the year prior to reporting obtained from the metallurgical balance sheet, payable metal recovery value and long-term metal prices.

MINER determined 3 cut-off values because the mineralized bodies were grouped according to mining methods and metallurgical recoveries.

The price of metals was defined by the ATICO finance department based on standard industry long term predictions. The proposed prices were validated and reviewed by the Independent Qualified Persons and are as follows:

- Cu = 4.12 US$/lb or 0.0091 US$/g
- Au = 1,991 US$/oz or 64 US$/g

Table 14.17 shows the calculation of the equivalent copper for the ore bodies Zeus, Goliat, Maximus, Maximus Sur and Perseo.

Table 14.17 Calculation of equivalent copper for ore bodies Zeus, Goliat, Maximus, Maximus Sur and Perseo

		Recovered Price	
Cu Price US$/Lb	$4.12	3.78	
Cu Price US$/g (C5)	0.0091	0.01	
Au Price US$/oz	$1,991	1189.19	
Au Price US$/g (C7)	64.00	38.23	
Cu Met Recov (D9)	91.67%	86.38%	
Au Met Recov (D10)	59.74%	53.24%	
Cu Payable Recov	94.23%		
Au Payable Recov	89.12%		
		CuEq% = Cu%+ Au g/t(X)	
		Where X = (C7/C5) X (C10/C9) =	**0.43**

Table 14.18 shows the calculation of the equivalent copper for the ore bodies CP1, CP2, CP3, A, B, D, D2, Afrodita and Rosario

Table 14.18 Calculation of equivalent copper for ore bodies CP1, CP2, CP3, A, B, D, D2, Afrodita and Rosario

		Recovered Price	
Cu Price US$/Lb	$4.12	3.83	
Cu Price US$/g (C5)	0.0091	0.01	
Au Price US$/oz	$1,991	1254.12	
Au Price US$/g (C7)	64.00	40.32	
Cu Met Recov (D9)	93.00%	87.63%	
Au Met Recov (D10)	63.00%	56.15%	
Cu Payable Recov	94.23%		
Au Payable Recov	89.12%		
	CuEq% = Cu%+ Au g/t(X)		
		Where X = (C7/C5) X (C10/C9) =	**0.45**

MINER defined 3 cut-off values for the declaration of the estimate of mineral resources, which are based on the average of the total costs for the year 2023, for the Mine, Geology and Laboratory budgets.

Table 14.19 shows the cut-off value for the declaration of the mineral resource estimate of the ore body Zeus.

Table 14.19 Cut-off value for ore body Zeus

	Variable Cost	-	-
Mine	US$/dmt 47.58		
Plant	US$/dmt 23.32		
General Services & Administration	US$/dmt 1.69		
Direct operating cost	**US$/dmt 72.59**		
	Total Cost		
Commercialization cost	US$/dmt 7.39	US$/lb 0.003353	
Cu Met Recov	91.67%		
Au Met Recov	59.74%		
Cu Price	US$/dmt 9,090	US$/lb 4.12	
Cu Price	US$/onz 1,991		

$$Cut\ off = \frac{(\text{Direct operating cost}) \times 100}{[(MetalPrice - CostCommerc.) \times Rec.Met \times 2204.6]}$$

Cut-off =	***0.87 %Cu-eq***		

Table 14.20 shows the cut-off value for the declaration of mineral resource estimation for the ore body Goliat, Maximus, Maximus Sur, Perseo.

Table 14.20 Cut-off value for the ore body Goliat, Maximus, Maximus Sur, Perseo

	Variable Cost	-	-
Mine	US$/dmt 26.04		
Plant	US$/dmt 23.32		
General Services & Administration	US$/dmt 1.69		
Direct operating cost	**US$/dmt 51.05**		
	Total Cost		
Commercialization cost	US$/dmt 7.39	US$/lb 0.003353	
Cu Met Recov	91.67%		
Au Met Recov	59.74%		
Cu Price	US$/dmt 9,090	US$/lb 4.12	
Cu Price	US$/onz 1,991		

$$Cut\ off = \frac{(\text{Direct operating cost}) \times 100}{[(MetalPrice - CostCommerc.) \times Rec.Met \times 2204.6]}$$

Cut-off = 0.61 %Cu-eq

Table 14.21 shows the cut-off value for the declaration of mineral resource estimation for the ore body CP1, CP2, CP3, A, B, D, D2, Afrodita and Rosario.

Table 14.21 Cut-off value for the ore body CP1, CP2, CP3, A, B, D, D2, Afrodita and Rosario

	Variable Cost	-	-
Mine	US$/dmt 47.58		
Plant	US$/dmt 23.32		
General Services & Administration	US$/dmt 1.69		
Direct operating cost	**US$/dmt 67.02**		
	Total Cost		
Commercialization cost	US$/dmt 7.39	US$/lb 0.003353	
Cu Met Recov	93.00%		
Au Met Recov	63.00%		
Cu Price	US$/dmt 9,090	US$/lb 4.12	
Cu Price	US$/onz 1,991		

$$Cut\ off = \frac{(\text{Direct operating cost}) \times 100}{[(MetalPrice - CostCommerc.) \times Rec.Met \times 2204.6]}$$

Cut-off = 0.86 %Cu-eq

The statement of the mineral resource estimate of the mineralized bodies in the El Roble mine is summarized in Table 14.22. Mineral resources are reported undiluted and in situ in areas identified as accessible for underground production.

Table 14.22 Statement of the estimate as of March 12th, 2024

Category	Ore body	Tonnes (000)	CuEq (%)	Cu (%)	Au (g/t)	Cu Lbs (000)	Au oz (000)
Measured	Goliat	40.6	4.82	4.01	1.97	3,587	2.6
	Maximus	47.4	5.47	3.64	4.25	3,802	6.5
	Maximus Sur	16.6	2.61	1.41	2.78	517	1.5
	Zeus	319.7	4.36	3.42	2.28	24,113	23.5
	Perseo	5.2	3.35	2.68	1.57	307	0.3
	Cuerpo A	53.8	3.31	1.65	3.70	1,950	6.4
	Cuerpo B						
	Cuerpo D						
	Cuerpo D2						
	Afrodita						
	Rosario						
	Cuerpo Principal	16.0	6.65	5.16	3.30	1,816	1.7
Total Measured Resources		**499.3**	**4.39**	**3.28**	**2.64**	**36,092**	**42.5**
Indicated	Goliat	0.0	4.39	4.34	0.13	1	0.0
	Maximus	18.7	6.47	4.35	4.93	1,798	3.0
	Maximus Sur	3.0	2.66	1.48	2.75	99	0.3
	Zeus	38.1	3.91	3.12	1.93	2,618	2.4
	Perseo	4.4	2.71	2.01	1.63	193	0.2
	Cuerpo A	67.8	3.44	1.87	3.50	2,789	7.6
	Cuerpo B	46.4	4.19	3.40	1.76	3,477	2.6
	Cuerpo D	25.2	4.58	3.72	1.91	2,067	1.5
	Cuerpo D2	8.1	11.82	9.78	4.51	1,756	1.2
	Afrodita	35.8	5.46	3.37	4.65	2,660	5.4
	Rosario	18.9	6.97	4.05	6.49	1,689	4.0
	Cuerpo Principal	114.9	6.01	4.24	3.94	10,738	14.5
Total Indicated Resources		**381.5**	**5.11**	**3.55**	**3.48**	**29,884**	**42.7**
Total Med + Ind		**880.7**	**4.70**	**3.40**	**3.00**	**65,976**	**85.2**

Where:

- *Mineral Resources are as defined by CIM definition Standards on Mineral Resources and Mineral Reserves 2014.*
- *Mineral Resources have an effective date of March 12, 2024. Antonio Cruz, an ATICO employee, is the Qualified Person responsible for the Mineral Resource estimate.*
- *Mineral Resources are Inclusive of Mineral Reserves.*
- *Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.*
- *There is no certainty that all or any part of the Mineral Resources estimated will be converted into Mineral Reserves.*
- *Mineral Resources are reported to 0.87% CuEq cut-off for Zeus ore-body. 0.61% CuEq cut-off for Goliat, Maximus, Maximus Sur and Perseo ore-body. 0.86% CuEq cut-off for A, B, D, D2, Afrodita, Rosario and Principal ore-bodyl.*
- *CuEq for each block was calculated by multiplying one tonne of mass of each by block grade by its average recovery, metal payable recovery and metal price. If the block is higher that CuEq cut-off, the block is included in the resource estimate.*
- *Metal prices used were US$1,991.00/troy ounce Au and US$ 4.12/lb Cu.*
- *Metallurgical recoveries have been considered based on historical results as of 2023. For the mine designated as low zone (Zeus, Maximus, Maximus Sur, Goliat and Perseo ore bodies) Cu recovery is 91.67% and Au recovery is 59.74%. For the mine designated as high zone (Principal, A, B, D, D2, Afrodita and Rosario orebodies) Cu is 93% and Au is 63%.*

- *Metal payable recovery used 92.40% for gold and 94.03% for copper (2023 commercialization basis).*
- *Mineral Resources, as reported, are undiluted.*
- *The average density for the ore-body was designated as follows; Goliat = 3.34t/m3, Maximus = 3.50t/m3, Maximus Sur = 3.26t/m3, Zeus = 3.53t/m3 and Perseo = 3.35t/m3. for A, B, D, D2, Afrodita, Rosario and Principal ore body the density was estimated using IDW.*
- *Mineral Resource tonnage and contained metal have been rounded to reflect the accuracy of the estimate and numbers may not add up.*

14.17. Comparison to Previous Estimate

During the period April 1st, 2020 and March 12th, 2024, a total production of 914 kt was reported (96% from Zeus, 3% from Maximus and 1% Goliat). For bodies below the 2000 level, no new resources were increased. The contribution of new resources comes from the mineralized bodies located above the 2100 level, which represents 392 kt between measured and indicated.

Table 14.23 shows compare the cut-off estimate as of September 30th, 2020 and the estimate as of March 12th, 2024.

Table 14.23 Comparison Between Actual and Previous Mineral Resources

Year	Category	Tonnes (000)	Cu Eq. (%)	Cu (%)	Au (g/t)	Contained Metal	
						Cu Lbs (000)	Au oz (000)
2024	Measured	499.2	4.39	3.28	2.64	36,092	42.5
	Indicated	381.5	5.11	3.55	3.48	29,884	42.7
	Measured + Indicated	**880.7**	**4.70**	**3.40**	**3.00**	**65,976**	**85.2**
	Inferred						
2020	Measured	1039.2	4.34	3.31	2.29	75,745.7	76.5
	Indicated	135.2	4.06	2.89	2.62	8,597.7	11.4
	Measured + Indicated	**1174.4**	**4.30**	**3.26**	**2.33**	**84,343.3**	**87.9**
	Inferred	17.1	2.03	0.49	3.41	186.4	1.9

15. Ore Reserve Estimation

15.1. Introduction

The CIM Definitions Standards (CIM 2014) define a mineral reserve as follows:

A Mineral Reserve is the economically mineable part of a Measured or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified.

The CIM Definitions Standards (CIM 2014) further state that:

Mineral Reserves are those parts of Mineral Resources which, after the application of all mining factors, result in an estimated tonnage and grade which, in the opinion of the Qualified Person(s) making the estimates, is the basis of an economically viable project after taking account of all relevant Modifying Factors. Mineral Reserves are inclusive of diluting material that will be mined in conjunction with the Mineral Reserves and delivered to the treatment plant or equivalent facility. The term "Mineral Reserve" need not necessarily signify that extraction facilities are in place or operative or that all governmental approvals have been received. It does signify that there are reasonable expectations of such approvals.

Mr. Thomas Kelly, RM-SME (Registered Member 1696580), owner of Andes Colorado Corp., is a Qualified Person as defined by NI 43-101 and is an independent advisor to Atico Mining Co.

The Mineral Reserve estimate for the El Roble Mine, Carmen de Atrato, Chocó Province, Colombia was completed in accordance with NI 43-101 protocols and based on all data available as of March 12th 2024. Ore is processed at the El Roble process plant facility; the plant has a nominal capacity of 850 dmt ore per day.

The El Roble operation established a number of industry-standard practices for reporting mineral resources when the project was acquired by Atico in 2013, among them independent QA/QC for all laboratory analytic results, reconciliation of metals from the smelter back to the mineral resource in the block model, drill core handling/logging procedures and other policies and procedures. The practices have produced three previous NI 43-101 compliant mineral resource estimates; this report contains the third mineral reserve estimate completed for El Roble. It is noted that previous owners completed several non-NI 43-101 compliant estimates of reserves for earlier operations, none of these reports or the data used to perform mineral reserve estimates in those reports is included in this report.

The Mineral Resources estimate reported in Chapter 14 are the basis for the Mineral Reserve Estimate. The Mineral Resources have been reported in three categories, Measured, Indicated and Inferred. Only Measured and Indicated Resources are deemed to have sufficient confidence to be used for the Mineral Reserve estimate. Measured Resources are the basis for the estimate of Proven Mineral Reserves and Indicated Resources are the basis for the estimate of Probable Mineral Reserves.

The conversion to mineral reserves depends upon the material in the two resource classifications (Measured and Indicated Resources) meeting certain conditions such as each block average grade meeting or exceeding the break-even cut-off grade. After checking that each block met the grade and other conditions the blocks were added to the mine plan. The summation of the Measured and Indicated Resources within active mining areas and in areas adjacent to active mining areas for which mining is planned was then aggregated to become the Proven and Probable Mineral Reserve. An operations/financial model using actual El Roble technical inputs (process plant recoveries, productivities, etc.) and costs was then prepared; the financial model used the mine plan containing the Proven and Probable Mineral Reserve blocks from the block model and showed that the project was profitable. This meets NI 43-101 standards.

15.2. Mineral Reserve Estimation Methodology

The Mineral Reserve estimation methodology used for the El Roble Mineral Reserve estimate follows the steps below:

- Review of the geology and grade distribution within the Measured and Indicated Resource blocks in the El Roble block model and confirmation that the present mining method is a suitable method going forward;
- Review of past metal reconciliations of mineral resources from the smelter back to the block model;
- The break-even cut-of grade (US$/dmt) is estimated using the actual operation costs for mining, processing, general and administrative costs and sales costs;
- Identification of Measured and Indicated Mineral Resource blocks in the block model that may be mined using the present methodology; permanent pillars, inaccessible areas within the block model and other areas where no mining is planned in the future are also identified;
- Measured and Indicated Resource blocks that will not be mined for any reason are removed from the block model to be used for reserve estimation, along with all Inferred Resource blocks;
- A dilution factor is estimated and the dilution is applied to the block model blocks left in the ore reserve block model;
- A value for each block remaining in the ore reserve block model is estimated using the diluted tonnage and grade for that block; value estimation also includes projected metals prices, metallurgical recovery of metal to concentrate and the commercial terms under which the concentrate is sold;
- A three-dimensional mineable shape (stope outline) is placed around each block in the block model;
- A recovery factor is estimated for each block within the ore reserve block model utilizing the mineable shape for each block; the recovery factor is then applied to each block;
- The break-even cut-off grade is applied to each block within the diluted and recoverable blocks within the ore reserve block model. If the block value exceeds the break-even cut-off grade value the block is added to the ore reserve block model as a mineable reserve in either the Proven or Probable category, depending upon it's resource classification;
- The ore reserve block model is reviewed and any blocks deemed non-mineable are removed. Blocks may exceed the break-even cut-off grade and not be included in the ore reserve if they are outside reasonable mining shapes or other reasons;
- The mining sequence for all of the blocks is planned and a production schedule is made from the sequence;
- A financial model is made utilizing the production sequence and schedule, the operations costs, capital spending estimates, commercial terms for the concentrate sales and other inputs;
- If the financial model shows the mine sequence is profitable the blocks within the ore reserve block model used to project the financial model cash flow are considered ore reserves and included in the Ore Reserve Statement.

- Copper equivalency (CuEq) for each block was calculated by multiplying one tonne of mass of each block-by-block grade for both Au and Cu by their average recovery, metal payable recovery and metal price. If the block is higher that CuEq cut-off, the block is included in the reserve estimate.

15.3. Mineral Resources Used to Estimate Mineral Reserves

The Mineral Resources reported in Chapter 14 are divided into three categories: Measured, Indicated and Inferred. Table 14-20 shows the three categories as they have been estimated for four deposits (Zeus, Goliat, Maximus, Maximus Sur, Perseo, A, B, D, D2, Afrodita, Rosario and Principal) at El Roble. During the last two years, it has been possible to recover zones left aside due to inaccessibility in the Goliat and Maximus deposits; enough reliable geologic information exists to consider them in the estimation of mineral reserves.

Only mineralised blocks classified as Measured or Indicated from the Zeus, Maximus, Maximus Sur, Perseo, Goliat, Principal, A, B, D, D2, Rosario and Afrodita block model and Goliat block model have been used in estimating the El Roble Mineral Reserve.

Tables 15.1, 15.2, 15.3, 15.4, 15.5, 15.6, 15.7, 15.8, 15.9, 15.10, 15.11 and 15.12 show the Zeus, Goliat, Maximus, Maximus Sur, Perseo, A, B, D, D2, Afrodita, Rosario and Principal Mineral Resources, respectively as of March 12, 2024.

Table 15.1 Zeus Mineral Resources

Category	Orebody	Tonnes (000)	Cu_eq (%)	Cu (%)	Au (g/t)	Cu lb (000)	Au oz (000)
Measured	Zeus	320	4.36	3.42	2.28	24,113	23.5
Indicated	Zeus	38	3.91	3.12	1.93	2,618	2.4
Total Measured and Indicated		358	4.31	3.39	2.24	26,731	25.9

Table 15.2 Goliat Mineral Resources

Category	Orebody	Tonnes (000)	Cu_eq (%)	Cu (%)	Au (g/t)	Cu lb (000)	Au oz (000)
Measured	Goliat	41	4.82	4.01	1.97	3,587	2.6
Indicated	Goliat	0	4.39	4.34	0.13	1	0.0
Total Measured and Indicated		41	4.82	4.01	1.97	3,587	2.6

Table 15.3 Maximus Mineral Resources

Category	Orebody	Tonnes (000)	Cu_eq (%)	Cu (%)	Au (g/t)	Cu lb (000)	Au oz (000)
Measured	Maximus	47	5.47	3.64	4.25	3,802	6.5
Indicated	Maximus	19	6.47	4.35	4.93	1,798	3.0
Total Measured and Indicated		66	5.75	3.84	4.44	5,600	9.5

Table 15.4 Maximus Sur Mineral Resources

Category	Orebody	Tonnes	Cu_eq	Cu	Au	Cu	Au
		(000)	(%)	(%)	(g/t)	lb (000)	oz (000)
Measured	Maximus Sur	17	2.61	1.41	2.78	517	1.5
Indicated	Maximus Sur	3	2.66	1.48	2.75	99	0.3
Total Measured and Indicated		20	2.62	1.42	2.78	615	1.8

Table 15.5 Perseo Mineral Resources

Category	Orebody	Tonnes	Cu_eq	Cu	Au	Cu	Au
		(000)	(%)	(%)	(g/t)	lb (000)	oz (000)
Measured	Perseo	5	3.35	2.68	1.57	307	0.3
Indicated	Perseo	4	2.71	2.01	1.63	193	0.2
Total Measured and Indicated		10	3.06	2.37	1.60	500	0.5

Table 15.6 A Mineral Resources

Category	Orebody	Tonnes	Cu_eq	Cu	Au	Cu	Au
		(000)	(%)	(%)	(g/t)	lb (000)	oz (000)
Measured	A	54	3.24	1.61	3.63	1,905	6.3
Indicated	A	69	3.39	1.83	3.46	2,793	7.7
Total Measured and Indicated		123	3.32	1.73	3.53	4,698	14.0

Table 15.7 B Mineral Resources

Category	Orebody	Tonnes	Cu_eq	Cu	Au	Cu	Au
		(000)	(%)	(%)	(g/t)	lb (000)	oz (000)
Measured	B	0	0.00	0.00	0.00	0	0.0
Indicated	B	45	4.20	3.42	1.73	3,369	2.5
Total Measured and Indicated		45	4.20	3.42	1.73	3,369	2.5

Table 15.8 D Mineral Resources

Category	Orebody	Tonnes	Cu_eq	Cu	Au	Cu	Au
		(000)	(%)	(%)	(g/t)	lb (000)	oz (000)
Measured	D	0	0.00	0.00	0.00	0	0.0
Indicated	D	24	4.58	3.73	1.89	1,991	1.5
Total Measured and Indicated		24	4.58	3.73	1.89	1,991	1.5

Table 15.9 D2 Mineral Resources

Category	Orebody	Tonnes (000)	Cu_eq (%)	Cu (%)	Au (g/t)	Cu lb (000)	Au oz (000)
Measured	D2	0	0.00	0.00	0.00	0	0.0
Indicated	D2	8	11.83	9.80	4.51	1,776	1.2
Total Measured and Indicated		8	11.83	9.80	4.51	1,776	1.2

Table 15.10 Afrodita Mineral Resources

Category	Orebody	Tonnes (000)	Cu_eq (%)	Cu (%)	Au (g/t)	Cu lb (000)	Au oz (000)
Measured	Afrodita	0	0.00	0.00	0.00	0	0.0
Indicated	Afrodita	31	5.47	3.37	4.66	2,307	4.6
Total Measured and Indicated		31	5.47	3.37	4.66	2,307	4.6

Table 15.11 Rosario Mineral Resources

Category	Orebody	Tonnes (000)	Cu_eq (%)	Cu (%)	Au (g/t)	Cu lb (000)	Au oz (000)
Measured	Rosario	0	0.00	0.00	0.00	0	0.0
Indicated	Rosario	18	6.98	4.05	6.50	1,569	3.7
Total Measured and Indicated		18	6.98	4.05	6.50	1,569	3.7

Table 15.12 Principal Mineral Resources

Category	Orebody	Tonnes (000)	Cu_eq (%)	Cu (%)	Au (g/t)	Cu lb (000)	Au oz (000)
Measured	Principal	17	6.54	5.12	3.17	1,933	1.7
Indicated	Principal	122	5.99	4.23	3.91	11,355	15.3
Total Measured and Indicated		139	6.06	4.34	3.82	13,288	17.0

15.4. Recovery of Mineral Resources within the Mineral Reserve Estimate

The recovery of measured and indicated mineral resources within the block model has been estimated considering several technical aspects including continued use of the drift-and-fill mining method, mine design requirements, geotechnical considerations and historic performance of the mining system within the Zeus deposit. For recovery in the Maximus, Maximus Sur, Perseo and Goliat bodies, the sublevel caving method results (as practiced at El Roble) have been used along with historical information documented in practice and sampling carried out during the mining cycle in the Goliat and Maximus bodies. And for recovery in the Principal, A, B, D, D2, Afrodita and Rosario bodies, the cut-and-fill mining method.

The historic performance is well documented through continuous surveys of the stopes, continuous and reasonable geologic mapping and sampling practices and records, the application of geotechnical policies to limit wall failures and dilution and comparison of planned versus actual stope plans to improve safe recovery of mineral while limiting dilution.

The resource estimation geologist also completes a monthly reconciliation of smelter metal recoveries back through the process plant, mine plan and the block model.

Mining recovery of the mineral resource in the Zeus deposit has been impacted by three main aspects:

- A total of 23,288 dmt were removed from the Mineral Resources as they form horizontal safety pillars between the blocks of working stopes and the blocks that are part of the safety pillars in the infrastructure developed within the deposit that cannot be extracted;
- A total of 75,220 dmt were removed from the Mineral Resource as the tonnes are in inaccessible and not economic areas;

Table 15.13 shows the tabulation of tonnage removed for each of the aspects mentioned above.

Table 15.13 Resource Tonnage Removed from Zeus Resource Block Model

Mineral Resource Tonnage Deducted – Zeus Resource Block Model	
Horizontal safety pillars and infrastructure pillars	23,288 dmt
Inaccessible and uneconomic	75,220 dmt
	98,508 dmt

The present mining method is well understood, adapts to the minor changes in Zeus geometry and provides very high recovery of resources within the mineable shapes projected by the mine planning group. No other tonnage deductions are necessary to estimate the recovery of mineral resources to mineral reserves. From table 15.1 to table 15.12 shows the tonnage of mineral resources available for mineral reserve estimation purposes after the deductions mentioned above and the percentage recovery of mineral resources to mineral reserves.

The Zeus deposit has been the main mineral generating source for recent production, this body is in phase-out and according to the mining plan it will be replaced by the other bodies that have a schedule of mining,

The excellent results of mineral extraction in the Goliat and Maximus deposits offer greater expectations for continued mining in the other deposits, that are similar in method.

A conversion rate of 88% of Measured and Indicated resources to Proven and Probable reserve categories over the current resource estimate.

15.5. Dilution

Dilution in the Zeus deposit is of several types:

- Stope Access and Primary Stope Block dilution, associated with the ends of stope accesses and primary stope blocks overshooting the contact with the black chert host rock;
- Secondary Stope dilution, associated with rockfill and/or shotcrete falling into active stopes during the mucking cycles and reporting to the process plant along with the mineralized material.

- Tertiary dilution is associated with a slight increase in the presence of cemented detrital rock fill of the primary and secondary stopes and support elements when extracting bridges and recovering pillars;
- The dilution by sublevel caving method for the recovery of the identified zones in the Goliat and Maximus deposits is caused by the contamination of the mineral during draw down while mixing with detrital rock fill exposed in the upper part of the block and by black chert present in the contact zones of the mineralised deposit.

15.5.1. Stope Access and Primary Stope Block Dilution

Stope access dilution results from the stope access crossing the contact between the black chert and the massive sulfides with the Zeus deposit. Dilution at the ends of the deposit resulting from the advance of stoping is also considered, and a mixture of black chert with high concentration massive sulphide mineralisation may occur at these ends, with extraction for processing being salvageable if at least twenty-five per cent of the entire block contains high grade sulphide concentrations. Consequently, one or two rounds from each stope access drift may carry high dilution rates; however, the overall dilution rate remains low.

Shotcrete from ground support work occasionally falls into active stopes and is mucked with the ore. Additionally, some spall of cemented rock fill from the cemented stopes adjacent to the stope(s) being mined results in dilution. Both of these dilution sources are considered minimal in primary stopes.

Dilution due to mucking rock fill along with the ore is considered to be minimal as the mucking gradient is controlled by survey lines. Mucking below the elevation of the surveyed stope floor is strictly controlled, resulting in smooth stope floors with little or no trenching of the rock fill accompanied by resultant dilution.

Dilution from stope access and primary stope block dilution is estimated to be approximately three and a half per cent overall. The dilution is estimated from stope surveys, estimates of shotcrete loss and other practices such as stope block grade reconciliations.

15.5.2. Secondary Stope Block Dilution

Secondary stope block diltion results spalling of fill from the primary stopes as well as filled adjacent secondary stopes falling into active stope blocks. Additional dilution from failing shotcrete is also a source of dilution in the secondary stopes. The El Roble staff also believes additional dilution is warranted in secondary stopes near the upper contact of the deposit to address the potentially weaker condition of the black chert in the contact area after primary stopping has been completed. This is a reasonable assumption.

Dilution due to mucking rock fill along with the ore is considered to be minimal as the mucking gradient is controlled by survey lines. Mucking below the elevation of the surveyed stope floor is strictly controlled, resulting in smooth stope floors with little or no trenching of the rock fill accompanied by resultant dilution.

Overall diltuion in secondary stopes is estimated by the El Roble staff to be approximately seven per cent. The dilution is estimated from stope surveys, estimates of shotcrete loss and other practices such as stope block grade reconciliations.

15.5.3. Tertiary Stope Block Dilution

Tertiary stopes are the blocks found in the horizontal bridge pillars and pillars that act as protective shields to the internal infrastructure of each level. There is slightly more dilution than the dilution of the secondary stopes; due to the presence of the cemented rock fill in the floor and ceiling (and sometimes walls) of the tertiary stopes being mined and from the spalling of shotcrete caused by the blasting during stoping. There is also additional minor dilution due to the intersection between the stopes and the contact with the black chert surrounding the mineralised deposit.

Dilution due to contamination of the mineral with rock fill, shotcrete and black chert in contact areas occurs during haulage of the material exposed by the advance of stope faces.

Dilution due to mucking rock fill along with the ore is considered to be minimal as the mucking gradient is controlled by survey lines. Mucking below the elevation of the surveyed stope floor is strictly controlled, resulting in smooth stope floors with little or no trenching of the rock fill accompanied by resultant dilution.

Overall, dilution in tertiary stopes is estimated at about thirteen and a half percent. The dilution is estimated from stope surveys, estimates of shotcrete loss and other practices such as stope block grade reconciliations.

15.5.4. Dilution in the Maximus and Maximus Sur Deposits

Dilution is considered reasonable based upon results of the mining method used to recover the ore blocks found in the Maximus deposit. Dilution results from ore contamination by the country rock existing along the contacts, mixing with the ore and floor of the ore blocks that have been identified for recovery. Additional dilution is caused by the presence of black chert in the contact areas with the ore blocks at the time of mining.

The dilution caused by the mining method is reasonable because of the strict control carried out in long hole drilling (survey-controlled), good blasting practices and grade control during ore haulage and extraction.

In general, the estimated dilution for mining in areas identified by the sublevel caving method is approximately fifty percent. The dilution is estimated from stope surveys, estimates of shotcrete loss and other practices such as stope block grade reconciliations.

15.5.5. Dilution in the Goliat and Perseo Deposits

Dilution results from ore contamination by the country rock found along the contacts and in mixing of ore with country rock in the active cave and floor of the ore blocks identified for recovery. Additional dilution occurs during mining at the intersection of the ore block with the black chert.

The dilution caused by the mining method is reasonable because of the strict control carried out in long hole drilling (survey-controlled), good blasting practices and grade control during ore haulage and extraction.

In general, the estimated dilution for mining in areas identified by the sublevel caving method is approximately twenty-two percent. Dilution is estimated from stope surveys, estimates of shotcrete loss and other practices such as stope block grade reconciliations.

15.5.6. Dilution in the Principal, A, B, D, D2, Afrodita y Rosario Deposit

The dilution is the consequence of the contamination of the mineral with the cement that will be used as a fill cap and by the contact rocks which have very poor quality. A high dilution has been assumed considering the analysis of the geomechanical study done by the engineering consultancy 'DCR Ingenieros'; the Under-Cut-and-Fill method has approximately 21 percent dilution.

15.6. Reconciliation Methodology

Since 2014 El Roble has practiced detailed monthly metal reconciliation from estimated resources to metal shipped to smelters. The work of accumulating information and data to be used in the reconciliations is performed by professional, trained staff personnel. Work includes defining sample areas in stope faces, stope backs and stope walls, taking the samples under supervision of a geologist to conform to quality control standards and best practices, measuring excavated volumes with standard three-dimensional survey equipment to estimate volumes accurately, detailed sampling of surface stockpiles of ore, detailed process plant controls (sampling and weighing), and detailed control of material reporting to the concentrate stockpile and the tailings impoundments. In addition, an independent quality control/quality assurance program checks the accuracy and reliability of all metal analyses and the site analytical laboratory to maintain a high level of confidence in the results.

The general flow of the reconciliation methodology is as follows:

1. In situ material is estimated in the block model using only Measured and Indicated resources, this is compared to mineralized material planned for mining in stopes and stope access within Zeus to confirm that all material planned for mining is also contained in the Measured and Indicated Resources;
2. The mined material is compared to the material planned for mining in both tonnage and grade mined;
3. Mined material is compared to transported material (material delivered to stockpile areas is held as truck lots until sampled and weighed);
4. Transported material is compared to plant feed (process plant feed is systematically sampled and weighed);
5. Plant feed is compared to concentrate produced and material reporting to the tailings impoundments (metallurgical balance);
6. Metal in concentrate in stockpiles at the process plant is compared to metal in concentrate shipped from the port facility of Atico located at Buenaventura, Colombia.
7. Concentrate at the port is sampled by an independent sampling company and sealed samples are provided to Atico and to the smelter purchasing the concentrate.

As described earlier in this section the work of documenting each step follows standard industry practices and best practices for quality control and quality assurance. El Roble reports that the reconciliation shows an average positive variance of one per cent regarding tonnage, one per cent positive variance in copper grade and two per cent positive variance with gold grade over the twelve-month period over which data was collected to make this mineral reserve estimate. Andes Colorado believes the small variance indicates the resource estimation has been well-done and the information used to estimate the mineral reserve is of good quality.

15.7. Metals Prices

The prices for copper and gold used in the estimate were an arithmetic average of the consensus by S&P Global Market Intelligence Commodities Estimates copper and gold metal price projections through 2027 or longer. Table 15.14 shows the arithmetic average of the prices; this average was used for mineral reserve estimation purposes.

Table 15.14 Consensus Metals Prices Used for Mineral Reserve Estimation

Metal	Average Price
Gold (US$/oz)	1,991.00
Copper (US$/t)	9,083.03
Copper (US$/lb)	4.12

15.8. Metallurgical Recovery

The metallurgical recoveries of gold and copper used for this mineral reserve estimate are the actual results obtained while processing mined material from January 1st 2023 through December 31th 2023, and results obtained by American Minerals consulting as test processing recovery. El Roble routinely collects samples that are reduced, composited and analyzed following industry standard practices. The sample results are then used to calculate a monthly and year-to-date metallurgical balance using standard metallurgical balance techniques. All sample results for head grades, tailings grades and concentrate grades are independently checked by SGS Colombia S.A. and Bureau Veritas, an independent analytical laboratory. Comparative analysis of the results of certified external laboratories (SGS and Veritas) with those of the El Roble laboratory demonstrate a satisfactory level of agreement between the two laboratories; however, El Roble uses the SGS and Veritas results for month-end metallurgical balances as a guarantee of independent analytical quality. Table 15.15 for Zeus, Maximus, Maximus Sur, Goliat and Perseo bodies shows the average metallurgical recovery used for the mineral reserve estimate and table 15.16 for Principal, A, B, D, D2, Afrodita and Rosario orebodies shows the average metallurgical recovery used for the mineral reserve estimate

Table 15.15 Average Metallurgical Recovery Used for Mineral Reserve Estimation (Zeus, Maximus, Maximus Sur, Goliat and Perseo)

Metal	Recovery to Concentrate
Copper	91.67%
Gold	59.74%

Table 15.16 Average Metallurgical Recovery Used for Mineral Reserve Estimation (Principal, A, B, D, D2, Afrodita and Rosario)

Metal	Recovery to Concentrate
Copper	93.00%
Gold	63.00%

15.9. NSR Value

The Net Smelter Return (NSR) values for both copper and gold have been estimated using operations and commercial results over the period January 1st 2023 through December 31th 2023, being twelve months for the estimations. The NSR depends upon a variety of factors such as metals prices, commercial terms, recovery of metals in the smelting and refining processes and other terms. The NSR is the value of the material paid back to the operation after deductions for treatment (smelting and refining charges), transportation to the smelter, insurance and any deductions for penalty elements contained in the shipped and smelted concentrate. It is noted that commercial terms are negotiated annually and will vary from the terms used in this estimate. Given the history of consistent commercial terms at El Roble, it is reasonable to believe that year-on-year terms will not change significantly; the present NSR values are representative of terms going forward.

The NSR values used for the Mineral Reserve estimate are:

- Copper (US Dollars/% Contained Cu) - $64.46
- Gold (US Dollars/Gram Contained Au) - $37.95
- Copper Recovery to Payable Metal from the Smelter is 94.03%

15.10. Operations Costs and Break-Even Cut-Off Grade

El Roble has an accounting system in place that tracks costs by department. The system has been in use for many years and is the basis for reporting quarterly and annual financial results as per prevailing financial reporting standards in Canada and Colombia. Additionally, the accounting system and company finances are audited several times each year by independent auditors who provide an additional layer of reliabitly regarding the accuracy of the financial reporting used to estimate the operations costs for the Mineral Reserve estimate.

Table 15.17 shows the operating costs used in the break-even cut-off grade estimate in the Zeus, Principal A, B, D, D2, Afrodita and Rosario deposit

Table 15.17 Operations Costs

Deposit	Cost Area	Fixed Cost	Variable Cost	Total Cost
Zeus A B D D2 Afrodita Rosario Principal	Mine	US$ 14.14	US$ 47.58	US$ 61.72
	Plant	US$ 8.61	US$ 23.32	US$ 31.93
	General Services	US$ 16.33	US$ 0.46	US$ 16.79
	Administration	US$ 9.77	US$ 1.22	US$ 10.99
	Commercial	US$ 1.28	US$ 7.39	US$ 8.68
		US$ 50.13	US$ 79.98	US$ 130.11

The Break-Even Cut-Off Grade is estimated using the operations costs, the plant recovery and the average estimated metals price:

- Operating Cost per Dry Metric Tonne (US Dollars) - $ 130.11
- NSR Payable Copper per % Copper in Concentrate is US$ 64.46
- Process Plant Recovery Copper (Zeus)– 91.67%
- Process Plant Recovery Copper (Principal, A, B, D, D2, Afrodita and Rosario)– 93.00%
- Process Plant Recovery Gold (Zeus)– 59.74%
- Process Plant Recovery Gold (Principal, A, B, D, D2, Afrodita and Rosario) – 63.00%
- Smelter Payable Copper is 94.03%
- Copper Price - US$ 9,083.03/Dry Metric Tonne Cu Metal or US$ 4.12/Pound Cu metal
- Gold Price - US$ 1,991.00/troy ounce
- The estimated Break-Even Cut-Off Grade is 2.01% Cu Eq

Table 15.18 shows the operating costs used in the break-even cut-off grade estimate in the Maximus, Maximus Sur, Perseo and Goliat deposit, applying the sublevel caving mining method. The data is based on the records compiled and reconciled during the last two mining opportunities. For the purposes of this report, the same average costs used in the Zeus deposit are considered for the Plant, General Services, Administration and Commercial departments.

Table 15.18 Operating Costs

Deposit	Cost Area	Fixed Cost	Variable Cost	Total Cost
Maximus Maximus Sur Perseo Goliat	Mine	US$ 7.78	US$ 26.04	US$ 33.82
	Plant	US$ 8.61	US$ 23.32	US$ 31.93
	Commercial	US$ 1.28	US$ 7.39	US$ 8.68
		US$ 17.67	US$ 56.76	US$ 74.43

The Break-Even Cut-Off Grade is estimated using the operating costs, the plant recovery and the average estimated metals price:

- Operation Cost per Dry Metric Tonne (US Dollars) – $ 74.43
- NSR Payable Copper per % Copper in Concentrate is US$ 64.46
- Process Plant Recovery Copper – 91.67%
- Process Plant Recovery Gold – 59.74%
- Smelter Payable Copper is 94.03%
- Copper Price - US$ 9,083.03/Dry Metric Tonne Cu Metal or US$ 4.12/Pound Cu metal
- Gold Price - US$ 1,991.00/troy ounce
- The estimated Break-Even Cut-Off Grade is 1.15% Cu Eq

This cost is the result of the average of the executed costs resulting from the last two exploitations of the bodies, being both very similar in their mining.

15.11. Mineral Reserves

Mineral Reserves are estimated using the Measured and Indicated Resources and applying the parameters discussed earlier in this chapter of the report. Mineral reserves for the Zeus, Maximus, Maximus Sur, Perseo, Goliat, Principal, A, B, D, D2, Rosario and Afrodita deposits have been estimated and classified using the following criteria:

- Proven Mineral Reserves are the economically viable, mineable portion of the Measured Resource for which, after considering relevant mining information, processing/metallurgical information and other relevant factors, the Qualified Person believes that economic extraction is feasible. There is no guarantee that the Proven Mineral Reserve will be mined;
- This Mineral Reserve has been estimated based upon the economics of the material being mined, hauled from underground, processed at the El Roble process plant, the resultant concentrate shipped to a port and then to a smelter for final processing;
- Reserves have been estimated using the break-even cut-off grade estimated in Section 15.10 above;
- The dilution used in the Mineral Reserves is estimated to be in accordance with section 15.5.
- Overall mining recovery in the Zeus deposit is estimated to be 88 percent;
- Processing recoveries have been considered based on historical results as of 2023. For the mine designated as low zone (Zeus, Maximus, Maximus Sur, Goliat and Perseo ore bodies) Cu recovery is 91.67% and Au recovery is 59.74%. For the mine designated as high zone (Principal, A, B, D, D2, Afrodita and Rosario orebodies) Cu is 93% and Au is 63%, based on operational and metallurgical test data provided by El Roble;

Table 15.19 shows the Mineral Reserve estimate of the El Roble.

Table 15.19 Total Mineral Reserves as of March 12th 2024

Category	Tonnes (000)	NSR (US$/t)	Cu (%)	Au (g/t)	Cu_eq (%)
Proven	528.0	233	2.47	1.92	3.31
Probable	299.5	272	2.54	2.71	3.75
Total	827.5	247	2.49	2.20	3.47

Table 15.20 shows the Mineral Reserve estimate of the Zeus, Maximus, Maximus Sur, Goliat, Perseo, Principal, A, B, D, D2, Rosario and Afrodita deposit.

Table 15.20 Mineral Reserves as of March 12th 2024

Category	Orebody	Tonnes (000)	NSR (US$/t)	Cu (%)	Au (g/t)	Cu_eq (%)
Proven	A	72.2	172.27	1.12	2.54	2.26
	Afrodita	0.8	331.76	2.18	4.83	4.36
	B	1.2	204.38	2.71	0.68	3.02
	D	33.0	165.55	1.98	0.90	2.39
	D-2	15.4	228.81	2.73	1.26	3.30
	Goliat	38.3	241.64	2.90	1.45	3.52
	Maximus	44.4	294.39	2.91	2.82	4.13
	Maximus Sur	19.4	141.88	0.93	2.21	1.88
	Perseo	8.4	117.43	1.31	0.86	1.68
	Principal	53.7	217.74	2.36	1.60	3.08
	Rosario	4.3	213.43	1.56	2.84	2.84
	Zeus	236.9	263.27	2.99	1.89	3.80
Total Proven		**528.0**	**232.91**	**2.47**	**1.92**	**3.31**
Probable	A	62.2	190.71	1.37	2.58	2.53
	Afrodita	34.5	291.42	2.48	3.28	3.95
	B	44.8	223.08	2.60	1.32	3.20
	Maximus	5.3	377.15	3.22	4.53	5.17
	Perseo	5.4	129.59	1.34	1.15	1.83
	Principal	106.5	333.01	3.24	3.06	4.61
	Rosario	18.3	376.01	2.87	4.77	5.02
	Zeus	22.5	206.45	2.31	1.54	2.97
Total Probable		**299.5**	**272.43**	**2.54**	**2.71**	**3.75**
Total		**827.5**	**247**	**2.49**	**2.20**	**3.47**

Notes:

1. *Mineral Reserves are as defined by CIM Definition Standards on Mineral Resources and Mineral Reserves;*
2. *Mineral Reserves are reported as of March 12th 2024;*
3. *There are no known legal, political, environmental or other risks that could materially affect the development and mining of the Mineral Reserves in the Zeus, Maximus, Maximus Sur, Perseo, Goliat, Principal, A, B, D, D2, Rosario and Afrodita deposits;*
4. *Mineral Reserves were reviewed by Mr. Thomas Kelly, RM-SME, president of Andes Colorado Corp., who is a Qualified Person for the estimate and independent of Atico Mining and its subsidiaries;*
5. *Reserves for Principal, A, B D, D-2, Rosario, Zeus and Afrodia ore bodies are based on break-even cut-off grade of 2.01 per cent copper equivalent, which is based on actual El Roble operating costs from January 1st 2023 – December 31th 2023 along with other factors;*
6. *Reserves for the Maximus, Maximus Sur, Perseo and Goliat deposits are based on a break-even cut-off grade of 1.15 per cent copper equivalent, which is calculated by applying the actual operating costs of El Roble, considering a change of the average cost of the Mine department with*

the last two results obtained from exploitation in these bodies (October 2020 to December 2023). El Roble site staff estimate that they will maintain the same costs for their projections.

7. *Reserves were estimated using a Metallurgical recoveries have been considered based on historical results as of 2023. For the mine designated as low zone (Zeus, Maximus, Maximus Sur, Goliat and Perseo ore bodies) Cu recovery is 91.67% and Au recovery is 59.74%. For the mine designated as high zone (Principal, A, B, D, D2, Afrodita and Rosario ore bodies) Cu is 93% and Au is 63%. based on operational and metallurgical test data provided by El Roble;*
8. *Copper price used for this estimate is $4.12/lb copper metal and the gold price used for this estimate of $1,991.00/troy ounce gold; both are based on a basket of estimated futures prices from recognized commodity-price forecasters;*
9. *Figures in the table are rounded to reflect estimate precision; small differences are not regarded as material to the estimate;*
10. *Reserves are estimated based on mining material that can be mined, processed and smelted.*
11. *Inclusion of mineral blocks in the Mineral Reserve does not guarantee that they will be mined.*
12. *CuEq for each block was calculated by multiplying one tonne of mass of each block by block grade for both Au and Cu by their average recovery, metal payable recovery and metal price. If the block is higher than CuEq cut-off, the block is included in the reserve estimate.*

15.12. Comparison and Reconciliation with the Previous Reserve Estimations

Based on the Mineral Reserve Estimate reported on September 30th, 2020 this report has no changes in its methodology, processing and practices that would result in a significant variation for the calculations of conversion factors from Mineral Resource to Mineral Reserve.

This report is the thirdd Mineral Reserve Estimate, updating the best practices with a view to maximizing the exploitation, extraction, processing and commercialization of the mineral classified as Reserve, there being the possibility of mining the mineral blocks previously zoned as horizontal pillars between levels. This practice has yielded positive results in the last 12 months and offers the reliability of including these blocks in the mining plan. Additionally, reserve zones were identified at the Maximus Sur, Perseo, A, B, D, D2, Principal, Rosario and Afrodita deposits with positive results in the two plans that were achieved after the second Mineral Reserve estimate.

Based on such reliability, El Roble assumes that these results will be maintained for the remaining blocks identified in the Maximus Sur, Perseo, A, B, D, D2, Principal, Rosario and Afrodita deposits and therefore includes their extraction in the mine plan over the life of the mine.

The first Mineral Reserve estimate was prepared as of June 30th, 2018, the second Mineral Reserve estimate was prepared as of September 30th, 2020 and was updated as of March 12th, 2024. The following reconciliations have been made with the results obtained.

Table 15.21 shows the reconciliation of mining results up to March 12th 2024, in relation to the block model.

Table 15.21 Reconciliation of the mining results up between October 1st 2020 and March 12th 2024, in relation to the block model

	Reserves Model September 30th,2020			Mine Results to March 12th, 2024			% Dev		
	Tonnes	% Cu	g/t Au	Tonnes	% Cu	g/t Au	Tonnes	%Cu	g/t Au
Reserve	948,410	2.95	1.75	942,765	2.83	2.03	-1%	-4%	+14%

The reconciliation deviation percentage obtained is acceptable and can be applied to demonstrate the use of good practices to adequately estimate Mineral Reserves.

15.13. Comments on Section 15

The Qualified Person considers that:

1. The methodology used for the reserve estimation process was used applying best practices;
2. The mining method is suitable for the deposit and for the reserve estimation process used;
3. The estimated mineral reserve is a reasonable representation of the tonnage and grade of the remaining mineral deposits at El Roble, including Zeus, Goliat, Maximus, Maximus Sur, Perseo, Principal, A, B, D, D2, Rosario and Afrodita deposit.

16. Mining Method

The El Roble Mine consists of an underground mine with surface infrastructure and a processing plant with a nominal capacity of processing 850 dry metric tonnes of ore daily using standard flotation technology. Access is by paved primary and secondary highways from Medellin, Antioquia. The mine produces ores that are processed at the local process plant, concentratres are shipped to Buenaventura, Colombia on the Pacific coast for storage and eventual shipping to overseas smelters.

The workings are all underground. The principal mine adit for the lower ore deposits (Zeus, Maximus, Maxiumus Sur, Perseo and Goliat) is located within a kilometer of the process plant at the nominal 1,850 Level (1,850-m masl) and is referred to as the 1880 Level. The 1880 Level serves as a ventilation intake as well as access for all personnel and materials; additionally, it is the main haulage access to transport ore and waste to the surface. A secondary access is located at the 2000 Level (2,000-m masl), this access is the primary ventilation exhaust for the mine.

The existing mine workings at and above the 2100 Adit are being rehabilitated and reconditioned for mining the upper blocks (Principal, Afrodita, Rosario, A, B, D and D2). The upper mine workings include ramps, levels, cross-cuts, raises, ore passes and other underground infrastructure which can be adapted to use by Atico to mine the upper blocks. The 2100 Level Adit and ramps are being slashed to 4m X 4m cross-section to allow for large equipment to access the new stope blocks.

Ore is hauled from underground in dump trucks and dumped to covered surface stockpiles, the stockpiles are sampled and the material blended to meet the plant feed grade needs. Mine offices, the maintenance facility, warehouse, compressors, electrical substations, dining hall and other infrastructure are all in close proximity on the surface near the adit and process plant.

16.1. Mining Method

Various stoping methods have been used at El Roble in the past. The safest method for ore extraction for each deposit has been selected in consideration of the geomechanical, hydrogeological study parameters and used historically with good past or present performance at El Roble.

Atico elected to develop a new main access at the 1880 Level to address the deeper deposits. The adit was started in August 2013 and intersected the first deposit in January 2014. Since that time, mining has been continuously performed from the 1880 Level, with a declining ramp and raises developed to address the deposit below the 1880 Level horizon.

The 2100 Level Adit and underground workings are being rehabilitated to mine the upper blocks. These workings date to the late 1980s and early 1990s; they will require rehabilitation and, in some cases slashing to make safer access for the larger mining equipment scheduled for use in developing and mining the upper blocks. Remedial rock support and other infrastructure is also being installed.

The drift-and-fill mining method is used in the Zeus deposit. Exploitation of the Maximus, Maximus Sur, Perseo and Goliat deposits has been estimated using the sublevel caving mining method. Underhand Cut-and-Fill is planned in the Principal, A, B, D, D2, Rosario and Afrodita deposits. Positive results on up to have made it possible to consider estimating the mineral contribution of these deposits in the life of mine (LOM) plan.

The Zeus drift-and-fill mining is addressing a large, amorphous volume of massive sulphide material which contains payable metals (Cu and Au). All of the development work to mine the deposits is complete, the only work remaining to complete being the mining of the stope blocks. Some minor infrastructure will be excavated as required for local ventilation and utilities service needs, but this work is not considered to be economically significant.

The other ore bodies will require varying amount of access or are in prodiction now. Because of the past development of mine workings in the upper blocks there are no significant access issues or costs other than rehabilitation costs.

16.1.1. Mining the Zeus Deposit

Zeus is the deepest deposit to be mined at El Roble, approximately 450 meters below the mountain surface topography. Zeus is accessed via a main ramp (nominal section 4.5 m x 4.5 m) departing from the 1880 Level at a decline of nominally 12 percent. All equipment access, haulage, fresh air intake and services are placed in the ramp. There are several Alimak raises that connect the ramp at various elevations to the upper workings on the 2000 Level; these raises serve as exhaust raises to remove spent air from the workings and deliver it to the surface through an adit and workings on the 2000 Level.

Mining is well executed, workplaces are in good order with equipment hung on the walls and roadways clear of debris and graded. All personnel observed underground was using the appropriate safety equipment and there were written workplace instructions posted for each workplace visited.

16.1.2. Zeus Stope Access

The Zeus deposit is accessed at vertical intervals ranging from 45 to 60 meters, using cross-cuts and sub-ramps from the main ramp. These cross-cuts and sub-ramps have a nominal section of 4m X 4m and wide radii of curvature to accommodate large equipment. The main ramp was situated approximately 40-60 meters from the Zeus deposit while the ramp was located in black chert. Basalt was found in the footwall of the deposit and the ramp transitioned to the basalt as it is much more stable than the black chert and requires much less ground support. The ramp in basalt remains a nominal 40 meters from the Zeus contact. The condition of the main ramp was very good andis supported by rock bolts and shotcrete for the entire length of the ramp.

Cross-cuts and sub-ramps are driven with mechanized equipment following normal mechanized development cycles of drilling, blasting, scaling, mucking, mapping (geology and/or geotechnical), installation of ground support and then repeated. Ramps and cross-cuts have a nominal 4.5m x 4.5m cross-section with a graded road bed. Since there is little water present in the mine there is no significant ditch but this does not affect the quality of the road bed surface. Headings are ventilated with ventilation fans taking fresh air from the main ramp and forcing the air into the heading to be ventilated with standard plasticized canvas, flexible ventilation tubing. Vent tube diameter depends upon the active heading and associated equipment fleet; diameters range from 30 inches to 36 inches.

Cross-cuts and sub-ramps are driven from the main ramp to access the Zeus deposit as per the mine design. The deposit is amorphous; the accesses may be located at any reasonable access point depending upon the design needs. The sub-ramps and cross-cuts are designed to swing or pivot, providing one access point from the main ramp for each nest of sub-ramps or combination of cross-cut and sub-ramps. The sub-ramp or cross-cut intersects the deposit at the required elevation, stope development and stoping commence. When the lift is completed and the primary stopes have been backfilled the back of the access is brought down as required to provide access to the next lift upward. The broken rock from the back provides the fill for the roadway, extra swell is hauled to the surface as waste. Once the contact has been reached the normal stope development and mining plan resumes.

As the stope access nears the contact a cut-out is slashed and excavated. The cut-out becomes the access for an ore pass system on that level. The orepass system consists of vertical raises with nominal 3-m x 3-m dimensions, either driven conventionally or using longhole raising techniques. At the bottom of the ore pass system chutes have been installed for loading ore from the ore pas into haul trucks and delivered to the surface stockpiles.

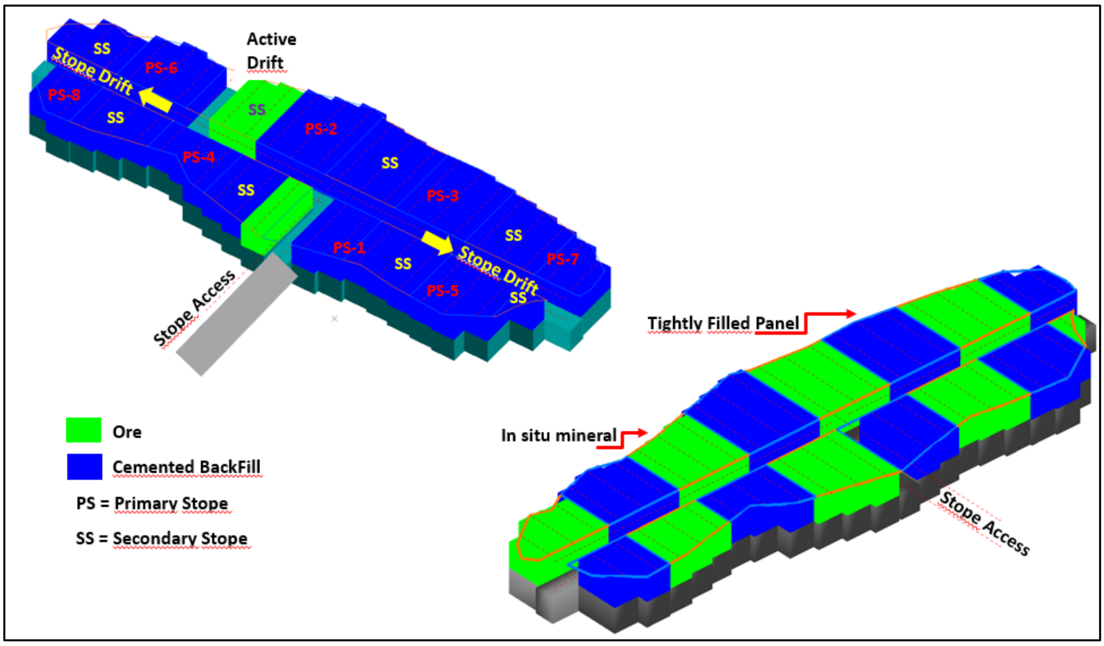
16.1.3. Zeus Stoping

The Zeus deposit has been divided into various blocks, each block separated by a five-meter thick horizontal pillar that covers the entire deposit. The first access to a stope block is from the ramp and accesses the lowest stoping elevation within the stope block. Where deposit geometry and the ramp position permit, the access is driven down the approximate longitudinal axis of the deposit, running from contact to contact. If the ramp and deposit geometry do not permit the longitudinal access a cross-cut along a stope block centerline is developed from the sub-ramp or cross-cut access. This cross-cut is driven until it intersects the theoretical centerline of the longitudinal axis of the deposit. At this point a stope drift is turned perpendicular right and left of the cross-cut to develop the stope access drift along the longitudinal axis of the deposit.

The access is nominally 4.5-m x 4.5m with a nominal five-meter back height. The access is supported with shotcrete and rockbolts as required by the local ground conditions. The mining cycle work is performed utilizing the same equipment used in ramp and cross-cut access work. All scaling is mechanized.

Each block in the deposit has been divided into stope blocks. Stope blocks are classified as primary or secondary. Primary stopes are taken in the first pass of mining through the block. These blocks are nominally 5-m x 5-m in section and run from the stope access along the longitudinal access to the contact between the massive sulfides and the host rock. Groups of three primary stope blocks are mined in three separate panels, normally mining one or two non-adjacent panels, filling those panels with a cemented rockfill and then mining and filling the panel between the first two primary stope blocks with the same cemented rockfill. In this manner primary stope blocks with dimensions of 15-m x 5-m are completed from the access to the contact. Primary stope blocks are alternated with 15-meter wide secondary stope blocks on the same side of the longitudinal access and they are staggered with regard to primary and secondary stope blocks on the opposite of the longitudinal access. A basic checkerboard pattern is thus established. Figure 16.1 shows the pattern.

Figure 16.1 Stope Development Pattern, Zeus Deposit



As the main stope drift proceeds along the approximate longitudinal axis of the deposit the primary stope locations are slashed as the drift passes, establishing faces for two of the three panels in each primary stope block. These faces are the two panels within the block that contact the secondary stope blocks on either side. The third panel, located between the other two panels, is left until the first two panels have been filled with the cemented rockfill. Once the first two panels have been backfilled the middle panel may be excavated as needed.

Primary stope panel faces advance along with the main drift in the stope. As the faces advance they are sampled, mapped for geology and geotechnical purposes and surveyed. The results of the sampling and survey are reconciled with the block model to understand the accuracy of the model, reconcile tonnage and grade and provide grade predictions for the advancing faces as well as the secondary stope blocks to be mined in the second pass of stope mining.

Once an entire level has mined and rockfilled all of the primary stope blocks the main drift is filled with uncemented rockfill. The stope access from the main ramp is pivoted upwards so that the access point is now five meters above the old access point, in the same geometric location but five meters above the previous floor. Breasting is done to re-develop the stope access and stope drift, with ground support advancing with the faces. As the primary stope blocks are passed with the stope drift they are slashed and prepared for advance. Mining then proceeds in the same manner as described for the first floor of mining primary stopes. The only difference from mining the first floor is that the stope drift is filled with a cemented backfill, not the uncemented fill used in the first-floor stope drift fill. This process is repeated until the top of the stope block.

Once the mining of the primary stopes in a block is complete the secondary stopes are mined. The mining cycle is the same except on the first lift the stope access is redeveloped by mucking the uncemented backfill from the original stope access drift. The cemented rockfill from the upper lifts is supported as required with shotcrete and bolts. As the secondary stope panel faces become available, they are slashed in the same way as the primary panels. The two outside panels are slashed and mined first, filled with a weak cemented rockfill and then the remaining interior secondary panel is mined and filled. Once the first level mining is complete the stope access is filled with one to two meters of cemented rockfill followed by nominally three meters of uncemented rockfill. Mining on the next level vertically above begins with breasting across the stope access and stope drift and mining the secondary panels in the same manner as they are mined on the first lift as described above.

Mining of the secondary stopes is performed using the same equipment as the primary stopes. Ground support is with shotcrete and rockbolts. The secondary stopes are sampled, mapped (geologic and geotechnical) and surveyed in the same manner as the primary stopes. These results are reconciled with the block model and with the results reported from the process plant and concentrate shipments.

Mining of the stopes on the horizontal pillars are known as tertiary stopes. These stopes have been evaluated producing positive results for simultaneous exploitation with the primary and secondary stopes; the recommendation for stability is to mine the levels that were horizontal pillars as long as the mining of the upper and lower levels has been previously completed.

All ore mined in all of the stopes in a lift is mucked to the ore pass system located immediately outside the ore in the waste near the contact between the two. The ore in the ore pass system reports by gravity to chutes at the bottom of the system. The chutes load haul trucks which deliver the ore to surface stockpiles

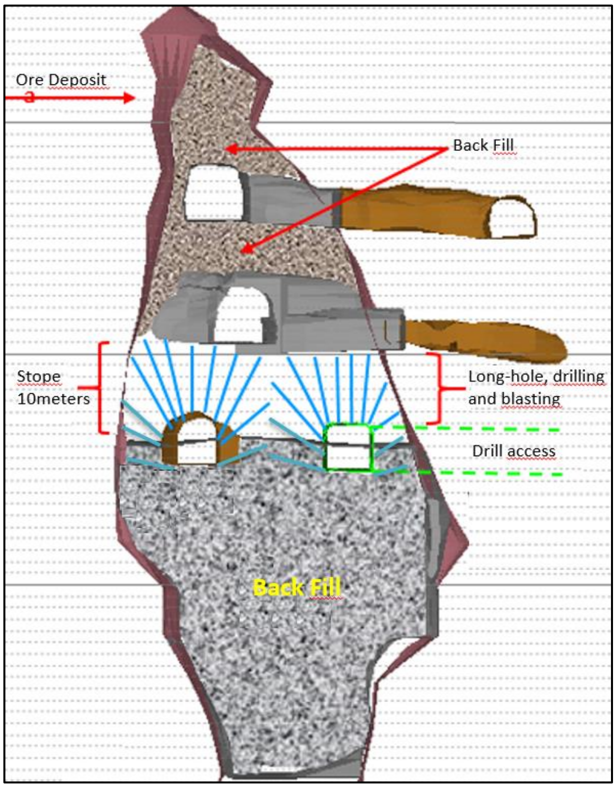
16.1.4. Mining the Maximus, Maximus Sur, Perseo and Goliat Deposits

The access to the areas identified for mining in the Maximus, Maximus Sur, Perseo and Goliat bodies are the same accesses used for the Zeus deposit; therefore, no additional development workings and infrastructure are required to generate the ancillary services for adequate mining. The mining is planned based on long hole drilling, directed according to the dip and inclination of the body to be mined. The process consists of preparing a drift that follows the longitudinal axis of the body, allowing for positioning along a central axis where long hole drilling is completed over the entire area of the body to be mined. Following an evaluation of the open area, backfill is used to safely generate stability and sequencing.

- Initially, a drift is driven along the longitudinal axis of the deposit and supported by steel arches.
- From the drift long holes are drilled upwards and to the sides in a radial pattern. This drilling is done in advance and independently of the blasting.
- Blasting is done on a sequential and retreating basis.
- Mucking is carried out with low-profile LHD remote control loading equipment and, at the same time, the cavities or empty spaces created by the muck removal are filled with the material resulting from the collapse of the host rock and rock fill material exposed at the top and along the exposed sides of the block.

Figure 16.2 shows the mining pattern of the Maximus, Maximus Sur, Perseo and Goliat deposits.

Figure 16.2 Stope Development Pattern, Maximus, Maximus Sur, Perseo and Goliat Deposits



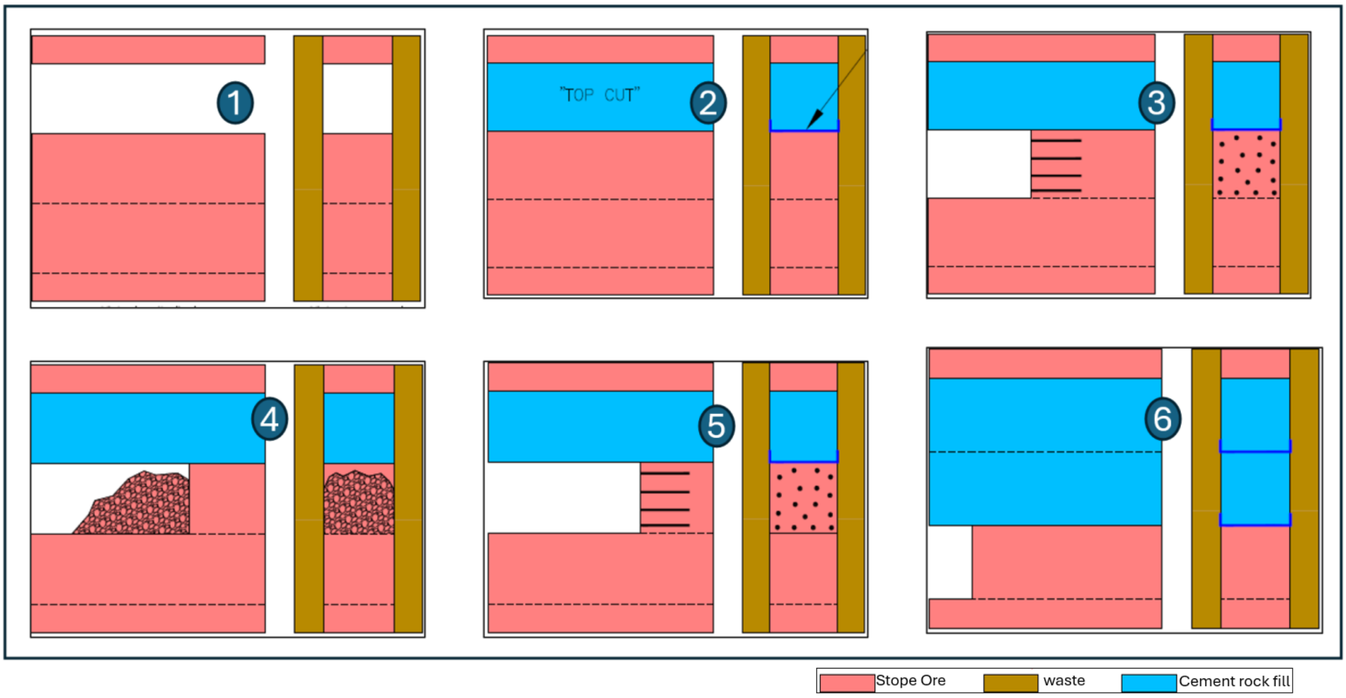
16.1.5. Mining the Principal, A, B, D, D2, Rosario and Afrodita Deposits

The mining plan for the upper blocks is underhand cut-and-fill. The width of each lift is a function of the cemented rock fill (CRF) strength of the stopes; the bigger the width of the stopes, the higher the resistance of the CRF. When the stope widths are at 4-m the CRF must have a minimum compressive strength value of 4 MPa.

In some stopes the hangingwall will be in the black cherts and the footwall will be CRF, As each lift advances ground support will be installed as per recommendations from the geotechnical study. Typical underhand cut-amd-fill ground support will consist of shotcrete with helicoid bolts and welded wire mesh. The blasting will be done using controlled blasting methods in the stope back (in CRF) and the stope walls to maintain ground stability.

Analytical methods have verified that, for cemented backfill resistances of 4 MPa, 4 m span length beams can be exposed, an aspect that has been verified taking into account several failure mechanisms, where bending and shear failure mechanisms are the most critical. Additionally, , the results of the numerical modeling indicate satisfactory stability conditions for the indicated resistance. Figure 16.3 shows the under-cut- and-fill method of mining for the Principal, A, B, D, D2, Rosario and Afrodita deposits.

Figure 16.3 Under-Cut-and-Fill method of mining for Principal, A, B, D, D2, Rosario and Afrodita Deposits,



Description sections:

1. Breasting of the upper cut that will become the top cut is performed (Figure 16.3, number 1). Support must be placed during the construction of the same. Typical support is shotcrete and rock bolts;
2. After the top cut is developed, it is completely filled with CRF to the stope back. This backfill forms a CRF beam (Figure 16.3, number 2);
3. The mining is continued under the CRF by breasting. The CRF in the top cut becomes a beam under which it is safe to work;.
4. The ore is drilled, blasted and mucked in each successive lift or cut in a descending order. Shotcrete and rock bolts are installed as required in each lift to maintain a safe work place (figure 16.3, numbers 3, 4 and 5);.
5. After completing the entire lift, CRF is placed to the stope back (CRF beam above). The next lift is then mined under the CRF beam and so on in a descending manner.

16.1.6. Dilution and Recovery of Ore in Stopes

The Zeus deposit is a large, amorphously-shaped deposit. This allows practically all of the mining to take place within the deposit with little exposure to the contacts with the wall rock. The exposure to dilution from the host rock is therefore small. As each stope panel face approaches the contact, a call is made by the geologist to either stop the face or continue an additional round. This close control minimizes the dilution potential from the wall rock.

Stope mining next to backfill may be diluted from several sources. One source is poor-quality backfill running into the open stope and diluted broken muck. Another source results from over-drilling the ore or using excessive explosive loads and creating overbreak in the rock fill. Neither source is reported to be significant due to tight control.

Underhand cut-and-fill mining is not expected to produce significant dilution. Mining under the rockfill provides a safe beam to work under with little failure of CRF into the stope to cause dilution. Dilution maybe experienced during stope wall failures; the walls will be shotcreted as required to minimize this type of dilution.

The rock fill is routinely monitored at the mix plant to ensure that correct mix proportions and cylinders of each batch are cured and systematically broken to understand the strength of the batch. This applies both to the present rock fill and will apply to the CRF fill material. Additionally, the mine engineering department monitors blast vibration in stope headings and makes on-going recommendations regarding powder factors and other adjustments to the blasting practices to avoid overbreak into the cemented rock fill and the black cherts. The vibration results are kept in a file for presentation during Agencia Nacional de Mineria (ANM) inspections. These measures contribute greatly to minimizing dilution from the rock fill.

Shotcrete can also cause dilution. Shotcrete is carefully applied in an attempt to have the shotcrete stick to the rock surface, avoiding the creation of voids between the rock and the shotcrete that can fall into the broken muck after blasting. The work appears to minimize shotcrete dilution as little dilution is noted in the reconciliations and the process plant does not report excessive concrete, pH variances or other issues in the process chemistry.

When using the sublevel caving method, draw control is very important to monitor dilution due to the high waste rock ore ratio.

16.1.7. Ground Support

El Roble has kept a technical department in place since January 2016 to carry out evaluations of underground mine openings and make recommendations on types of support to help maintain the stability of mining work. Headings are also evaluated regarding their status as permanent or temporary headings and heading sizes are kept to under 6 m x 6 m to minimize the ground support issues. An updated Geotechnical Model is available for mine planning. The Geotechnical Model was prepared based on the classification set out in Bieniawsky 1989 Rock Mass Rating (RMR) and Hoek & Brown 1980, Geological Strength Index (GSI). The underground mine has the following geomechanical classification:

- Poor quality rock mass area, associated with a range of 21 - 30 RMR, poor B, Type IVB, preferentially located at the edges of the various deposits, narrow areas close to contact with host rock and usually very faulted with strong structural controls.
- Low quality rock mass area, associated with a range of 31 - 40 RMR, poor A, IVA rate, preferentially located towards the central area of the deposit, concentrated mainly between levels 1782 and 1717, a complex, faulted area with strong structural controls.
- Regular quality rock mass area, associated with a range of 41 - 50 RMR, Regular B, type IIIB, located mainly at the periphery of the deposits above and below the lower quality areas.
- Better quality, specific areas associated with a range of 51 - 60 RMR, Regular A, Type IIIA, not consistent with continuous areas.

Ground support is mostly applied by mechanized methods; shotcrete is applied with a mechanized pump/spray system and rock bolts are typically installed with a bolting jumbo. Some bolting in temporary openings is with split set-type bolts and occasionally metal sets are installed. Bolts are installed using standard bolt patterns depending upon the quality of the ground and the dimensions of the opening to be supported.

Typical ground support measures include:

- Wet shotcrete with metal fiber, sprayed on surfaces using a Robojet spray system mounted on a Putzmeister pump truck. Pre-mixed, wet shotcrete complete with the fiber and accelerators is delivered via transfer trucks from a surface mixing plant. Shotcrete is applied in virtually all workings, applying an average two-inch thick covering. The shotcrete typically sets up to a nominal 4-Mpa after a two-hour cure time;
- Resin/rebar bolts are installed in permanent openings and some temporary openings, depending upon the quality of the ground. The rebar has typically a 22-mm diameter with a length of seven or eight feet, depending upon the ground quality. Several resin cartridges are applied at the hole bottom, followed by several cartridges of fast-setting cement. The cartridges are shot into the bolt hole and the bolt is then immediately inserted and spun to mix the resin and the cement in the cartridges. The fast setting resin anchors the bolts while the slower setting cement provides strength along the bolt column. Installation is performed using a Sandvik DS311 bolter;
- Split set bolts are installed in temporary openings in good quality ground. The bolts are typical split set-style bolts with a length of seven feet. Jackleg hole diameter is nominally 38-mm;
- In permanent openings welded wire mesh is installed over the resin bolts. Head plates and bolts are used to maintain the mesh tight to the rock mass being supported. The mesh and the shotcrete applied before the mesh installation provide skin support to the opening while the resin bolt provides deep anchoring;
- In workings with very poor quality rock mass of less than 31 RMR and with evidence of loads or stresses greater than the conventional one, Shotfer support is used (concrete structures reinforced with electrowelded meshes and ½”-corrugated rods).
- In very heavy ground areas or when mining through a caved area, steel arched sets are used. The sets consist of W6x20-lb H-Beams with an ASTM rating of A36. Typically, timber lagging is installed in the web of the flanges to provide cover from small rocks falling from above or infiltrating from the walls. Nominal dimensions are 4-m x 4-m inside the sets. The area between the sets, lagging and fresh rock may be backfilled after set installation to prevent further movement.
- In stopes, either rebar bolts or split sets may be used. The decision regarding which bolt to use depends upon ground quality, length of time the excavation will remain open, and other factors as evaluated by the geotechnical personnel.
- The Maximus and Goliat bodies have an average rating with an RMR of 31 to 40. They differ from the Zeus body because of the presence of massive sulphides in blocks or lenses embedded in black chert. Although massive sulphides tend to have a better rock quality, the black chert has a low strength, causing the blocks to be intensely fractured with parallel faults locally at the eastern contact of the deposit. The sublevel caving mining method has been considered for its exploitation by installing metallic formwork in the positioning access for the drillings (long hole), as shown in figure 16.

It should be noted that as of the date of issue of this document, the Maximus and Goliat deposits had already been successfully mined on two occasions (level 1911 and level 1870, respectively).

16.1.8. Ore Flow

As described above, broken ore in stopes is delivered to the ore pass system. There is an access to the ore pass system near the main sub-level access on each sub-level. The ore reports by gravity through the system to a chute at the bottom of the system. From the chute the ore is discharged into haul trucks (either Sandvik 20-tonne underground hault rucks or highway dump trucks) and hauled up the main ramp directly to surface stockpiles where each load is dumped, sampled and tagged individually. Once the grade of the dumped load is determined from the sampling the material is mixed with other stockpiled and sampled material to achieve a relatively constant feed grade to the process plant.

Ore flow in the upper blocks will be through the ramp system accessed through the 2100 Adit. The same Sandvik dumpers will be used in the upper block, with their use shifting from the lower to the upper blocks as development and production needs shift from the lower workings to the upper workings. Eventually, a raise bore from the 2100 Level to the 1850 Level is planned to concentrate all ore flow to the surface on the 1850 Level. The ore may easily be trucked from the planned raise bore to the process plant storage areas.

16.1.9. Mining Rate

El Roble mines at a production rate of 850 dmt per day. This rate has been sustained for several years and is not excessive for the deposit geometry. The new reserves will allow for thi rarte to be maintained for several more years with no changes in equipment or personnel.

16.1.10. Mine Fleet and Maintenance

The El Roble mine mechanized mining fleet consists of the following equipment:

- 1 Sandvik electro-hydraulic face jumbo, model DD-311 (single boom, 70 kW);
- 1 Sandvik electro-hydraulic face jumbo, model DS-322 (two boom, 135 kW);
- 1 Sandvik LHD – 4-yd^3 capacity;
- 1 sandvik LHD – 1.5yd3 capacity
- 3 Sandvik LHD – 6-yd^3 capacity;
- 1 Sandvik electro-hydraulic roof bolter, model DS-311 (single boom, 70 kW);
- 1 Shotcrete Pump and Spray Robojet (37 kW) with 2 mixers, each with a capacity of 2.5-m^3 material;
- 1 RESEMIN Scalemin hydraulic rock scaler (36 kW);
- 2 Sandvik 20-tonne underground haul trucks.

MINER contracts some underground haulage with local providers, a contractor mixes and delivers the cemented rock fill to the pump on the 1880 Level. This equipment is not included in this list.

The fleet is adequate for the work planned, there is no need to acquire additional equipment.

Sandvik provides factory maintenance for major maintenance schedules and repairs at the site for the Sandvik equipment. MINER personnel are trained by the factory to maintain the other equipment. El Roble has a three-bay maintenance facility near the 1880 Level adit with adequate equipment to maintain the fleet. In addition, El Roble has a preventive maintenance program that has been effective in minimizing major equipment failures.

16.1.11. Backfill

El Roble has a technical area responsible for executing the backfill process that guarantees the quality of the backfill in the mining workings. El Roble uses two backfill mediums. The first is a detrital backfill cemented with tailings at forty per cent (CRF type 1); all stope backfill at El Roble is cemented rock fill, with the exception of final fills in some lifts where the central stope access drift is filled with uncemented rock fill. CRF type 1 is produced on surface and delivered underground to distribution points in underground cement mixer trucks. The use of uncemented rock fill is limited to areas where no further work adjacent to, under or (in some cases) over the uncemented rock fill is planned. This percentage of the backfill is not large compared to the cemented rock fill.

The second backfill medium is cemented rock fill (CRF type 2), composed of screened stream gravels, tailings, cement and other reagents. The fill has an in-place compressive strength of 4 MPa, which testing has shown to be a safe compressive strength for use as fill in the underhand cut-and-fill method proposed for the upper blocks at El Roble. It is noted that El Roble has mined under CRF type 1 to extract sill pillars in the past with no negative issues.

Detrital rock fill cemented with tailings (CRF type 1) has the following characteristics:

- One cubic meter of CRF type 1 is composed of: 1,040 kilograms of an aggregate of -3/4”, +1/8” fraction of the stream gravel, 160 litres of water, 1.2 litres of retardant additive, 2.2 litres of stabilizer additive, 170 kilograms of cement and 690 kilograms of tailings (represents forty per cent in consumption).
- The material is processed at the concrete plant located on the surface at a distance of approximately 0.75 km from the access to the mine entrance on the 1880 Level. The mixture is transported by 8 m^3-capacity mixer trucks to the Schwing SP2000 pump located inside the mine 800 meters from the access to the 1800 level. The mixture is pumped into the stopes through two parallel, independent 4 mm-thick, 5"-diameter SDR/SCH-40 pipes.

The CRF type 2 composition and distribution may be described as follows:

- A concrete pump will be installed at the 2000 Level surface plant; the pump is rated at 488 Kw and will pump through a 5-in diameter pipeline for a distance of 500-m to the 2100 Level. The pump at the 2000 level will be supplied by five mixer trucks, each rated at 7-m^3 capacity. The pipeline will enter the 2100 Level through the 2100 adit and be distributed to stopes through a network of distribution pipes. The maximum network size is estimated at approximately one and one-half kilometers at various elevations. It is estimated that this system has the capacity to place 40.5-m^3/hr.

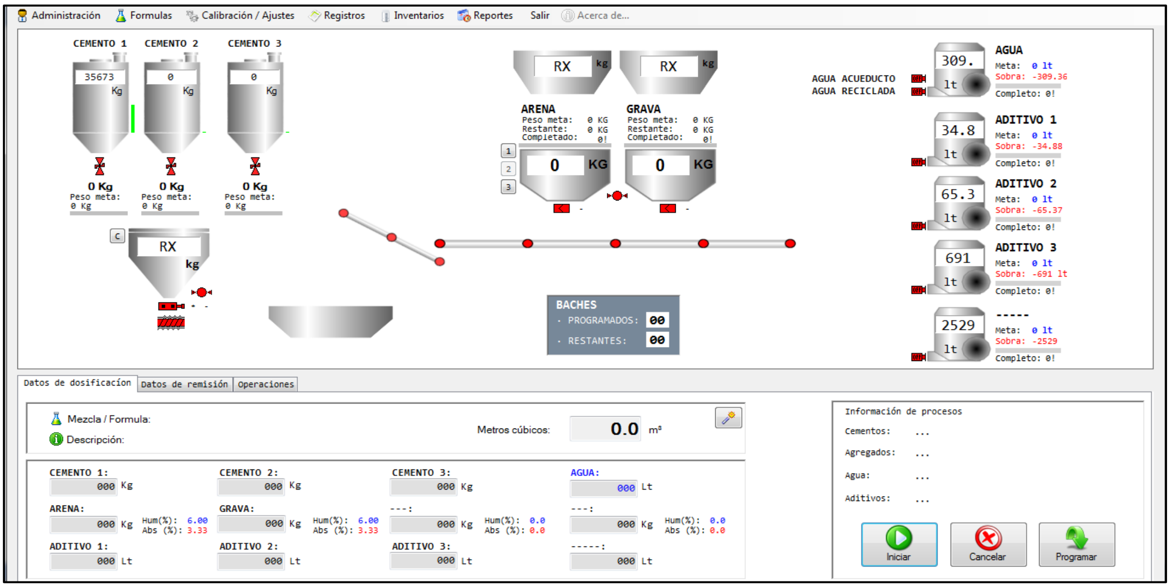
- One cubic meter of CRF type 2 is compoased of: 1,403-kg of aggregate (+1/8-in, -3/4-in) 300-l of water, 1.2-l of retardant additive, 2.2-l of stabilizer additive, 180-kg of cement and 690-kg of tailings (tailings are 40 percent approx).
- The plant is a locally-made Colombian mixer plant with a nameplate capacity of 45 m^3/hour of mixed material output. The main components are three cement silos, each with a capacity of 85 tonnes of dry cement, several silos with a combined capacity of 25,000 litres of additives (accelerators, plastifiers and other additives as called for by various backfill mixes) and a computerized dosage system that applies the required amount of each ingredient to the scale-weighed sand, gravel and tailing. Both CRF type 1 and CRF type 2 are produced at the same plant. CRF type 2 is then transported by mixers to the 2000 Level for pumping to the distribution network for thew upper blocks..

The backfill productivity to the CRF type 1 stopes is approximately 25 m^3/hour. Under the assumption of continuous work, it is estimated that 150 per cent of the requirement is met, ensuring reliability in meeting the need to fill in all the lower block mining stopes throughout the life of the mine.

As mentioned above, the CRF type 2 delivery capacity is 40.5-m^3/ hr. The delivery to stopes is by campaign. When a stope lift is finished the CRF type 2 fill is pumped at the rate stated above to the empty stope. Fill is pumped to the stope until the backfill contacts the CRF type 2 in the lift above, at which point filling ceases.

El Roble uses an internal laboratory for backfill quality control by testing for moisture, grain size, unit mass and density to ensure that the minimum recommended resistance is achieved. To date, the results have always been positive in reaching the minimum recommended resistance that a backfilled stope should have. Figure 16.4 shows a schematic diagram of the mixing plant.

Figure 16.4 El Roble Cemented Rock Fill Mixing Plant



The backfill factor seeks to determine and reconcile the actual rock fill deposited versus the planned volume to be filled, which is planned by surveying the mined stopes while they are empty. For calculation purposes, samples were taken during the 12 months between January 2023 and March 2024, concluding the following:

- From January 2023 to March 2024, forty-four (198) backfill samples from the stope workings were processed, taking data from the stope survey reports, backfill plant dispatch control, backfill pumping control to the workings and backfill supervision control.
- Solids from stope surveys were calculated, which made it possible to establish the volume of the open spaces (need for backfill).
- The backfill carried out over the aforementioned months was reviewed and compared with the volume calculated by stope survey, the result being positive and proving the good performance of the backfill in closing the void resulting from stope mining. Table 16.1 shows the backfill factor in the stopes by different levels.

Table 16.1Stope Backfill Factor

Backfill	Topographic Control	Concrete Plant Control	% Deviation
Total	94,553 m³	94,613 m³	0.1

16.2. Mine Infrastructure

The principal mine infrastructure for the lower blocks was installed through 2016, the main ramp reached its final depth in early 2018. There is no significant capital development program for the mine planned at this time as the present infrastructure is adequate to extract the Zeus deposit in its economic entirety. The most important on-going infrastructure systems include the ventilation system, mine sevices (compressed air and electrical distribution) and the dewatering system.

The upper block infrastructure includes three kilometers (approx) of underground development work in drifts, cross-cuts and ramps to access the Principal, A, B, D, D2, Rosario and Afrodita blocks. An additional 200-m (approx) of raise bore to make an ore pass to the 1880 Level where the ore will be loaded in dump trucks and hauled to the process plant.

Two electrical substations are planned for the upper blocks, both 1000 kVA capacity. Two drill holes will be drilled from the 2100 Level to the 1880 Level for water discharge. Water from the upper blocks will be sent via the drill holes to the treatment plant on the surface near the 1880 Adit for treatment prior to discharge into the environment. Compressors, shops and other infrastructure will remain as installed, the present installations are deemed to be adequate for the servide.

16.2.1. Mine Ventilation

The lower blocks of the mine are ventilated using the 1880 Level as the fresh air intake. Since all personnel, equipment and materials destined for the lower blocks travel through this access, it is critical to maintain high quality ventilation. The fresh air volume is estimated to be 162.3 m^3/second and is regularly measured by a ventilation technician; the volume reported in this report is an average over several measurements. The measured average volume is approximately 11 per cent higher than the required volume of 143.0 m^3/second. The required volume was estimated by using the measured equipment work hours, maximum number of personnel working underground and other data and by applying international standards for underground mine ventilation requirements (fresh air flow per brake-horsepower, per person, etc.).

The air travels down the main access ramp where splits are separated by secondary, axial vane fans and the air blown into the various workings on the active sub-levels. The air in the workings reports via a system of raises in the workings to exhaust raises located on the north and west sides of the Zeus deposit. These raises allow the spent air to flow up to the 2000 Level where the air exhausts to the surface.

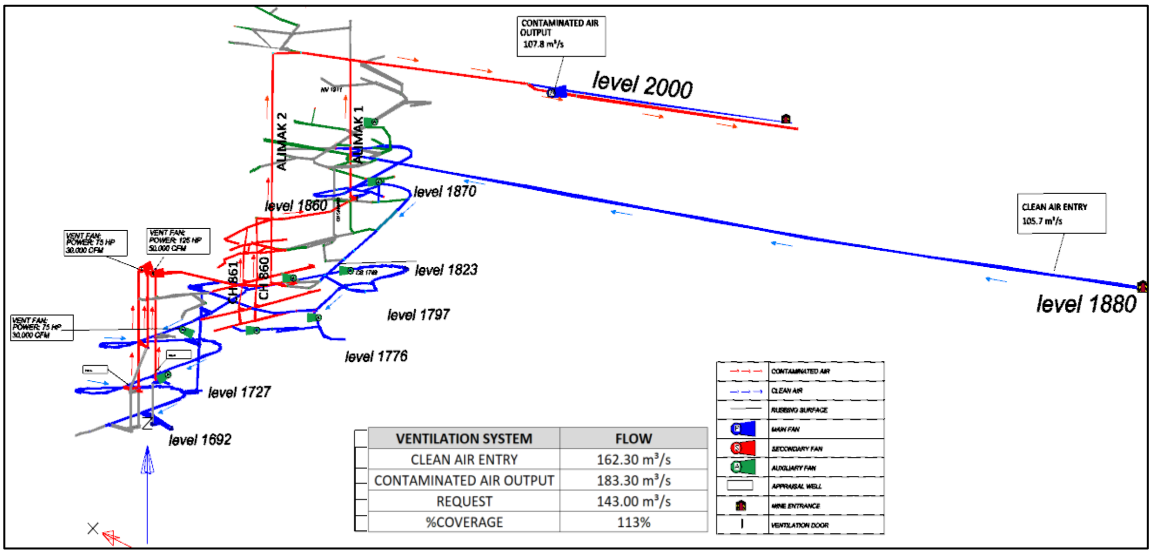
The exhaust output averages approximately 183.3 m^3/second; the increase in airflow from that reported on the 1880 Level intake is from leakage pulled into the system from the 2000 Level and above. The 2000 Level connects through old workings to other surface openings on the 2100 Level and above, due to leaking seals in the upper workings, an additional 3 m^3 of air is taken in through the old workings and reports as exhaust on the 2000 Level.

The main ventilation fan is a Spendrup Model 200-080-1200-A-2 direct drive axial flow fan operating at 1200 RPM. The fan has a 78.75" diameter and uses 16 adjustable, cast aluminum blades to move the air. The working fan pressure (wet gauge) is 10.5 mm water with the fan blades in the number five setting. The fan motor is electric (250 HP, 480 V) complete with starter, fed from an electrical substation on the 2000 Level surface near the portal. Figure 16.4 shows a line diagram of the ventilation system.

The ventilation system remains unchanged, ensuring that the necessary requirements are met during mining of Zeus, Maximus, Maximus Sur, Perseo and Goliat bodies.

A ventilation study has been performed for the Upper Zone (Principal, A, B, B, D, D2, Rosario and Afrodita deposits) where the calculated air requirement is 64 m^3/s. Project designs and cost estimates in the economic analysis include all the necessary elements to support this requirement. Due to the large amount of openings to the surface in the upper zone a ventilation line diagram is not possible. Air flow measurements are routinely performed and indicate a sufficient flow of fresh air to the workings in the upper blocks. The figure 16.5 show ventilation line diagram.

Figure 16.5 El Roble Ventilation Line Diagram



16.2.2. Mine Services

Mine services are comprised of the communication system, compressed air distribution system and the electrical energy distribution system. The communication system is a mine wide sytem of radios and repeaters that requires no further discussion. The system is mine-wide, anyone with a radio can access the system anytime and there is continuous communication between underground personnel and the surface. The system provides a high degree of industrial security, personnel safety and control of activities throughout the workings and the surface.

Compressed air is a secondary source of energy for drilling, is used for shotcreting and may be used to purge cemented rockfill pipes in the event the pipes become plugged or have a near-plugging incident requiring an immediate need to evacuate the rockfill from the pipe. Electrical energy is used for mechanized drilling, mechanized rock bolting, secondary ventilation, mine dewatering and underground lighting.

16.2.2.1. Compressed Air

Compressed air is provided by four compressors. All of the compressors are located on the surface near the 1880 Level adit, close to the mine substation and near the surface maintenance facility. The various compressors are:

- 2 each, Airman SMS125/150S electric, screw-type compressors driven by 200-HP electric motors with a nominal output of 850-CFM at 100-PSI;
- 1 each, Ingersoll Rand SSR-XF150 electric, screw-type compressor driven by a 150-HP electric motor with a nominal output of 740-CFM at 125-PSI;
- 1 each, Ingersoll Rand SSR-XF200 electric, screw-type compressor driven by a 200-HP electric motor with a nominal output of 1000-CFM at 125-PSI.

Compressed air reports from the compressors to a receiver tank that feeds at 6-inch HDPE airline. The airline is routed through the 1880 Level adit to the main ramp where a small split in a 4-inch HDPE airline reports to the upper workings. An additional 4-inch HDPE airline reports down the ramp to the Zeus workings. Individual airlines of 2-inch diameter feed the various workplaces where compressed air may be required. Not all workings require compressed air; therefore, the distribution in the all zones workings is installed and removed on an as-needed basis.

A six inch HDPE line will connect to the 2100 Adit and be distributed in the upper block as required.

16.2.2.2. Electrical Distribution

Electrical energy is delivered to the property substation (three transformers, each with a capacity of 1-MW) from the national power grid at 13.2 Kv. This substation provides surface energy to the mine plant, backfill mix plant, shops, process plant, offices and other surface installations. A high voltage line from the substation reports to the underground workings (13.2-Kv). Three mobile, purpose-built underground substations, located at various points near operating workings, transform the high voltage electricity to 440-v energy for use with equipment. The mobile substations may be relocated using an LHD as required for the mine's operations.

The three underground substations have capacities of 500-KvA/627-A, 600-KvA/753-A and 1-MW/1,255-A. All electrical energy delivered to the site is 60-Hz frequency. The electrical energy supply is adequate for the sustained mine operations required to achieve the production estimates used for mineral reserve estimation in this report.

16.2.3. Mine Dewatering

The mine makes no significant flows of water, the only consequential water found in the mine is that introduced by the mining operations (drilling, wetting down muck piles, flushing the cemented rockfill pump lines, etc.). As such, mine dewatering needs are modest, the total water handling system is capabale of pumping approximately 200-l/minute of mine water to the surface.

The system is comprised of portable, electric collector pumps in the active workings that pump the mine water to a sump located on the 1827 Level in the main ramp or the main sump located on the 1880 Level. Each sump has a decantation sump and a clear water sump. Mine water is discharged into the decantation sump where the water first flows past an oil catcher (floating sponge) and then into deeper water where the discharge loses velocity and drops solids into the bottom of the sump. Overflow from the far end of the decantation sump flows into the clear water sump where further settling of fine particles occurs.

At the far end of the clear water sump a fixed electric, centrifugal pump picks up the water and delivers it into a 2-inch HDPE pipeline. The pipe line from the 1827 Sump reports to the 1880 Sump, the pipe line from the 1880 Sump reports to a surface settling pond where the water is again clarified, polished and then discharged to the environment. The discharge is monitored for compliance with local environmental regulations.

16.3. Mine Labor

Mine labor is provided by the local community of Carmen de Atrato. Underground mining has been conducted in the area for over thirty years and experienced labor is readily available. For specialized labor and training purposes selected personnel may be contracted in Peru and work at the site, generally as trainers or as specialized equipment operators.

16.4. Mine Planning

MINER has developed a life-of-mine (LOM) production schedule that depletes the mineral reserve in the Zeus, Maximus, Maximus Sur, Perseo, Goliat, Principal, A, B, D, D2, Rosario and Afrodita deposit.

Production is planned at an average process plant throughput rate of 815 dmt/Operating Day. The schedule includes stope development access in 2024 through 2027 (887 m in 2024, 1338m in 2025, 659m in 2026 and 66 m in 2027). These advances increase in relation to the previous estimate of mineral reserves reported in 2020 due to the extraction of the levels of 2100.

Sequence of the lower stope block extraction is based on sequences that began when the first sub-levels were established several years ago. Upper block sequencing is now established and has been used for this reserve estimate. Andes Colorado has reviewed the stope sequences and concurs that the sequences are reasonable and safe sequences. The mineral reserve tonnage extracted is the same as the estimated mineral reserve (260k dmt in Zeus, 50k dmt in Maximus, 19k dmt in Maximus Sur, 14k dmt in Perseo, 38k dmt in Goliat, 160k dmt in Principal, 134k dmt in A, 46k dmt in B, 33k dmt in B, 15k dmt in D2, 23k dmt in Rosario and 35k dmt in Afrodita deposits). All of the production is planned for processing in the same year it is produced. Table 16.2 shows the El Roble LOM production schedule

Table 16.2 El Roble Estimated LOM Mineral Production and Processing Schedule

	2024*	2025	2026	2027**
Mine Production	*234,664 dmt*	*263,942 dmt*	*264,422 dmt*	*64,447 dmt*
Process Plant Throughput	*234,664 dmt*	*263,942 dmt*	*264,422 dmt*	*64,483 dmt*
Head Grade Cu (%)	2.52 %	2.50 %	2.45 %	2.52 %
Head Grade Au (g/dmt)	2.07 g/dmt	1.94 g/dmt	2.48 g/dmt	2.63 g/dmt
Recovery Cu to Con. (%)	91.8 %	92.3 %	92.8 %	93.0 %
Recovery Au to Con. (%)	60.0 %	61.4 %	62.6 %	63.0 %
Concentrate Production	*29,513 dmt*	*33,142 dmt*	*32,736 dmt*	*8,215 dmt*

	2024*	2025	2026	2027**
Concentrate Grade Cu (%)	18.4 %	18.4 %	18.4 %	18.4 %
Concentrate Grade Au (g/dmt)	9.87 g/dmt	9.50 g/dmt	12.54 g/dmt	12.99 g/dmt
DMT Cu Contained in Con	*5,430 dmt*	*6,098 dmt*	*6,023 dmt*	*1,512 dmt*
Troy Ounces Au Contained in Concentrate	9,367 tr oz	10,120 tr oz	13,201 tr oz	3,431 tr oz
Price Cu (US$/lb.)	US$/lb 4.12	US$/lb 4.12	US$/lb 4.12	US$/lb 4.12
Price Au (US$/tr oz)	US$/oz 1,991	US$/oz 1,991	US$/oz 1,991	US$/oz 1,991
N.S.R. (US$/dmt mineral reserve)	US$/tm 242.69	US$/tm 239.32	US$/tm 259.91	US$/tm 271.08

**Estimated Production is from March 13th – December 31st 2024*
*** Estimated Production is from January 1st – March 31st 2027*
- Table results are rounded; rounding error is not material to discussion.

The production shown in Table 16.2 was used for the economic analysis found in Chapter 22. The schedule demonstrates that the project is profitable.

16.5. Comments on Chapter 16

The drift-and-fill mining method as applied at El Roble is a safe, economic method for mining the Zeus deposit.

The Sublevel Caving method as practiced at El Roble is a safe, economic method for mining the Goliat and Maximus deposits.

The underhand cut-and-fill method is the best recommended method for the upper blocks; it will ensure safe mining using cemented rock fill.

17. Recovery Methods

17.1. Process Description

The existing process plant at El Roble has a rated nominal throughput capacity of 850 tonnes per day. The processing methods consist of conventional crushing, grinding, and flotation to produce a copper-gold concentrate. Grinding is 80 per cent passing 200 mesh before reporting to flotation cells. Four banks of six flotation cells each generate concentrates, which are subsequently thickened, filtered and stored on site for shipping via a highway truck to the Pacific Coast port of Buenaventura. Process tailings are deposited in an impoundment facility situated along the banks of the Atrato River located downstream of the process plant. Process waste water is decanted in a tailings dam and then released (at a pH between 7.48 and 8.45) into the Atrato River.

The process recovery in the 12 months (January 2023 to December 2023) averaged 91.67 per cent for copper and 59.74 per cent for gold. Concentrate grades for the 12 months (January 2023 to December 2023) averaged 18.41 per cent Cu and 9.67 grams per tonne Au. The only penalty metal known to the Qualified Person responsible for this portion of the Technical Report that occasionally exceeds maximum limits is mercury.

Current smelter charges are US$ 88 per dry metric tonne. Refining charges are US$ 0.08 per payable pound of copper, 0.75 per cent of gold price subject to a minimum of US$ 8.00 per payable ounce of gold, and US$ 0.35 per payable ounce of silver. Payables are specified in the concentrate sales contract as the copper content minus 1.1 per cent, 95 per cent of the contained gold and 95 per cent of the contained silver.

The current sales contract specifies that copper concentrate grades must be maintained between 18 and 24 per cent Cu, gold grades between 4 and 20 grams per tonne, and silver grades between 30 and 60 grams per tonne.

17.2. Process Plant

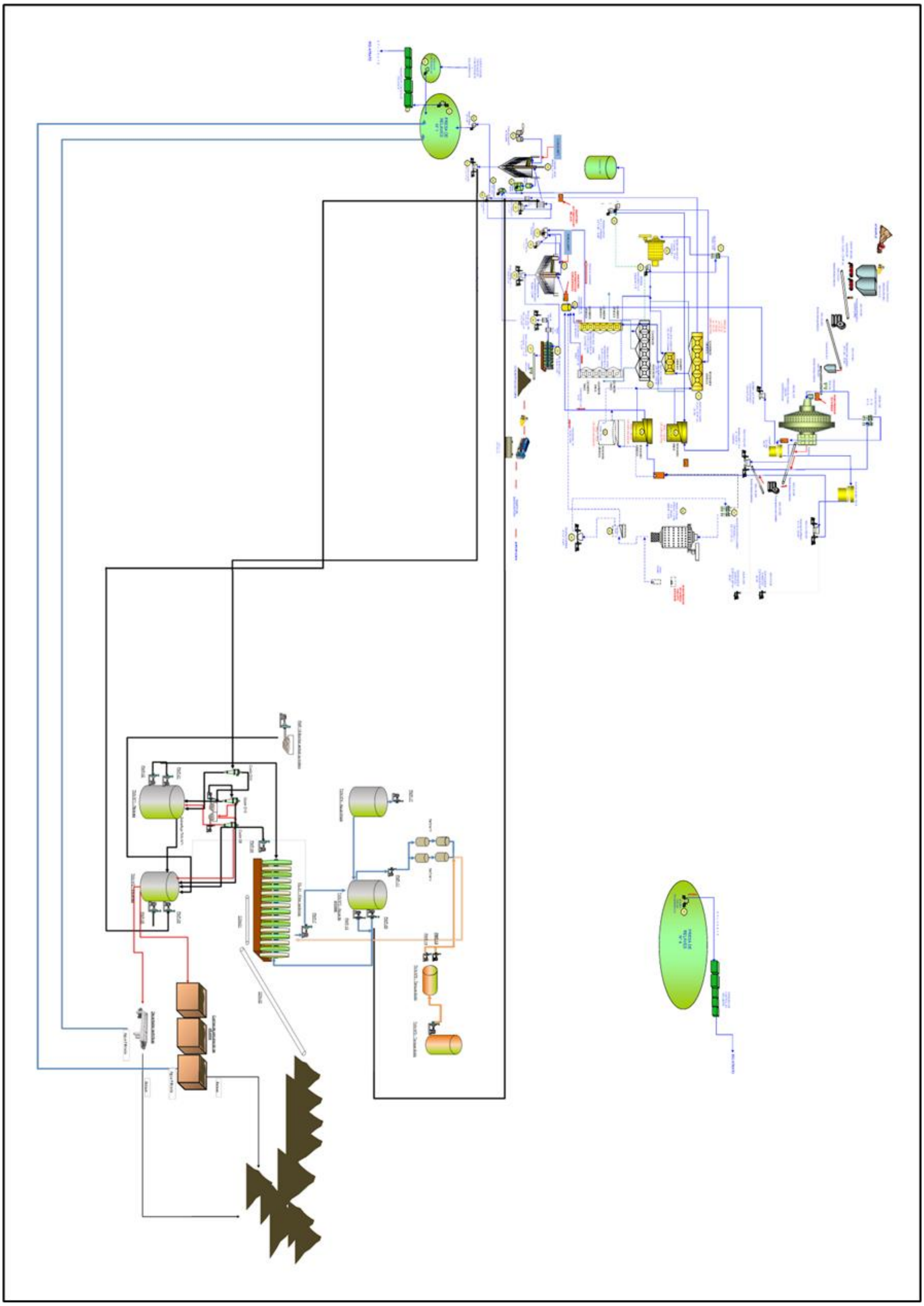
The process plant may be broken down by the various sub-processes that the plant uses to extract copper and gold from the process feed material. The basic sub-processes are crushing, grinding, flotation, concentrate thickening and filtering, and tailings disposal. Figure 17.1 shows the general flow chart for the El Roble process plant.

Flotation reagents used are common reagents readily available in Colombia or through importation in bulk. El Roble reports that the reagents and dosages have remained consistent for a number of years, no changes being required to achieve the recoveries used in estimating the mineral reserves. The reagent consumption is shown in Table 17.1 below.

Table 17.1 El Roble Process Plant Flotation Reagents and Consumption

Kilograms/dmt Ore	0.723	0.087	0.051	0.014	0.013
Reagent	Hydrated Lime	AP 3477	AP 318 A	Z-6	MIBC

Figure 17.1 General Schematic, El Roble Process Plant



17.2.1. Crushing

The ore from the mine is discharged into two Coarse Ore Bins No. 1 (200-BM-001) and No. 2 (200-BM-002), each with an effective capacity of 640 tons. At the top of each coarse ore bin, there is a grid with an opening of 7”x14”. The classified ore from Coarse Ore Bins No. 1 (200-BM-001) and No. 2 (200-BM-002) is discharged through Apron Feeder No. 1 (200-AF-001) and No. 2 (200-AF-002), each sized 3’x12’, which in turn feed Conveyor Belt No. 1 of 30” (200-CB-001) and supply a bypass chute feeding Jaw Crusher 24”x36” (200-CR-001). The discharge from the jaw crusher goes to Conveyor Belt No. 2 (200-CB-002), which feeds a 30-ton storage hopper in passing. The discharge from this hopper is via Conveyor Belt No. 3 (200-CB-003), which finally feeds the SAG mill (400-ML-001). Electronic Scale (200-BE-001) is located on this belt to record the tonnage entering the SAG mill.

17.2.2. Grinding

The SAG mill Ø18’x6’ (200-ML-001) operates in a closed circuit, with a grate on the discharge cap having an opening of 19 mm x 50 mm, and the trommel screen mesh at the mill discharge having an opening of 12 mm. The fines from the trommel fall by gravity into the pump box 6” x 4” (400-PU-2A/2B), which transports the primary grinding product to the D10 cyclone cluster.

The coarse or oversize (Pebbles) from the trommel fall by gravity onto Conveyor Belt #4 of 18” (400-CB-004), which feeds the hammer crusher and discharges onto Conveyor Belt No. 5 of 18” (400-CB-005), Chevron Type. Once the Pebble is reduced to -3/8” mesh, it returns to the SAG mill Ø18’x6’ (400-ML-001) via pumps 6” x 4” (400-PU-2A/2B).

The hydrocyclones perform size classification where the coarse underflow returns to the SAG mill for regrinding, and the fine minerals from the overflow by gravity reach pumps 400-PU-3A/3B, and this grinding product P80 around 120 um feeds the flotation, filtering, thickening, and tailings disposal circuit.

17.2.3. Flotation

The flotation circuit begins with one OK-20-style flotation cell fed cyclone overflow. The OK-30-style cell overflow reports to the concentrate thickener, and the underflow reports to a bank of two OK-8-style flotation cells. The flotation overflow from these cells reports to the concentrate thickener and the underflow reports to eight Denver 100-style flotation cells. Cell overflow feeds the final cleaner cells, with cleaner overflow reporting to the concentrate thickener and underflow to the tailings thickener.

The Denver 100-style cell underflow reports to a nest of cyclones for classification, the underflow from the cyclones reports to an Otsuka 5-foot by 5-foot ball mill for further grinding, and the ball mill discharge reports to the ball mill sump where it is pumped back to the cyclone nest for classification. The cyclone overflow reports to an OK-14-style flotation cell. The overflow from this cell reports to the cleaner flotation circuit while the underflow reports back to the eight Denver 100-style cells mentioned above.

In our flotation circuit, concentration begins from the flash cell SK-240, which was relocated to the SAG circuit, where the pulp flow from the SAG mill discharge arrives. The objective of this cell is to obtain a concentrate of the coarse-grained mineral of interest that is already liberated. Using the 6” x 4” pumps (400-PU-2A/2B), the pulp is sent to the Spyro D-10 Hydrocyclone cluster. The overflow is transported by gravity to the 10' x 10' pulp conditioner, and the underflow is transported to the SAG mill Ø18’x6’ (200-ML-001).

The homogenized pulp in the 10 x 10 conditioner is sent by gravity to pumps 400-PU-3A/3B and transported through a 4" HDPE pipe to the OK-20 flotation cell and/or the OK-24 flotation cell. The overflow from these cells is transported to the Concentrate Conditioner, and the underflow is transported to the bank of 4 OK-8 cells or OK-14 flotation cell. The overflow is transported to the DR-100 banks and Sub A 24 flotation cells for the first and second cleaning of fines and coarse particles. The underflow from OK-8 cells #4 exits to the vertical conditioner.

The concentrate from the DR-100 cells, along with the underflow from the first and second coarse cleaning, is transported for classification in the D-6 hydrocyclones. The underflow goes to a regrinding ball mill 5' x 5' Otsuka, 75 HP motor (with forged iron balls of 1.0" diameter), and the overflow goes to either the OK-14 or OK-24 flotation cell. The overflow from these cells goes to the Sub-A 24 cell for the second fine cleaning. The underflow goes to the DR-100 cells. This process repeats in a closed circuit.

From the Sub-A 24 cells for the second fine and coarse cleaning, a concentrate is obtained and sent to the concentrate conditioner.

17.2.4. Thickening and Filtration

17.2.4.1. Concentrates

Concentrate thickening is performed with a 30-foot by 10-foot rake thickener utilizing a 1.5-HP motor. Thickened material reports to the concentrate filter. The concentrate filter is a six-foot diameter, eight disk vacuum filter. The filtered material has a moisture content ranging between eleven and thirteen percent water.

A rotary dryer tank was implemented in the process, operating with a gas burner, with the aim of reducing the moisture content of the concentrate, thus ensuring the required levels in the process of around 10% moisture.

Filtered material reports via conveyor belt to a concentrate storage shed where it is kept dry and secure. Concentrates are loaded onto highway haul trucks with sealed, covered beds for haulage to the MINER concentrate storage facility at Buenaventura, Colombia on the Pacific coast.

17.2.4.2. Tailings

The tailings are thickened in a five-meter by ten-meter vertical thickener with a conical base. The thickener overflow is recycled to the ball mill and flotation circuits, the underflow reports to a pump box for pumping to the tailings impoundment.

With the current tailings disposal setup, a tailings dewatering plant was implemented where the system is configured to receive tailings pulps with a high percentage of solids (greater than 70%) from the vertical thickener of the processing plant and produce a filtered cake for "dry stack" tailings disposal, thereby reducing the need for a wet tailings storage facility.

The filtered material passes through the ceramic discs in a distribution pipeline (manifold) contained within the filter drum and is discharged into (2) two filter tanks attached to the sides of the filter assembly. The filtration level in the filter tanks is regulated by a Filtration Skid, which consists of a filtration pump, turbidity sensor, and automatic valves.

The turbidity sensor maintains the water quality integrity in the process water tank. It measures suspended solids in the filtrate before it passes through the filtration pump. If the filtrate meets the specified water quality index, the flow proceeds to the process water tank (TK-03, 140m3).

In case of high turbidity, the filtrate flow is redirected to the effluent tank (TK-02, 140m3), and a trigger on the sensor indicates an alarm in the PLC. This requires immediate attention, as pulp infiltration is detected in the filtration circuit. This could be the result of a broken or detached hose and/or ceramic membrane.

17.3. Electrical Energy

Three-phase electrical energy is delivered to the site from the national grid at a nominal voltage of 13,200 kVA. The high voltage line is split at the property boundary with feeds to the process plant, mine and additional, smaller sub-stations distributed at other points within the property. The plant transformer is rated at 800-kVA. Average electrical energy consumption for the period October 2019 – September 2020 is shown in Table 2 below. Average electrical energy consumption for the period January 2023 – December 2023 is shown in Table 17.2 below.

Table 17.2 Average El Roble Process Plant Electrical Energy Consumption, January 2023 – December 2023

Item	Process	Energy Consumption (KW)
1	SAG Milling	371,922 KW
3	Flotation	283,123 KW
4	Tailings	51,697 KW
5	Filtration	74,499 KW
6	filtrate dehydration plant	86,218 KW

17.4. Mass Balance Estimate

The El Roble Process Plant mass balance I shown in Table 17.3 below.

Table 17.3 El Roble Process Plant Mass Balance for 815 dmt Throughput Rate

Daily Throughput	823 dmt			
Mass Balance		Unidad	Concentrate	Tailings
Concentration Ratio		RC	8,54	1,13
Average Density (dmt/m3)		dp	1,39	1,25
Specific Gravity		g.e.	3,85	2,82
Percent Solids by Weight		% Sp	37,20	30,99
Percent Liquid by Volume		% Lv	86,67	86,26
Mass Flow		m3/tm	1,94	2,58
Production Basis		dmtyear	6.014,00	246.207,00
Pulp Volume		m3/year	63.637,01	635.598,21

Water Volume		**m3/year**	**55152,08**	**548290,77**
Process Water Consumption	603.443,00	m3/year		
Process Water Consumption	50.286,92	m3/month		
Process Water Consumption	1.780,78	m3/day		
Process Water Consumption	74,20	m3/hour		
Ratio Water Consumption	**2,16**	**m3/dmt**		

Total water used in Plant considering the 60% water reused from all the process	**60,00%**	44,52	m3/hour
		1.068,47	m3/day
		30.172,15	m3/month
		362.065,80	m3/year
Recirculated Water Consumption		**1,30**	**m3/dmt**

17.5. Comments, Chapter 17

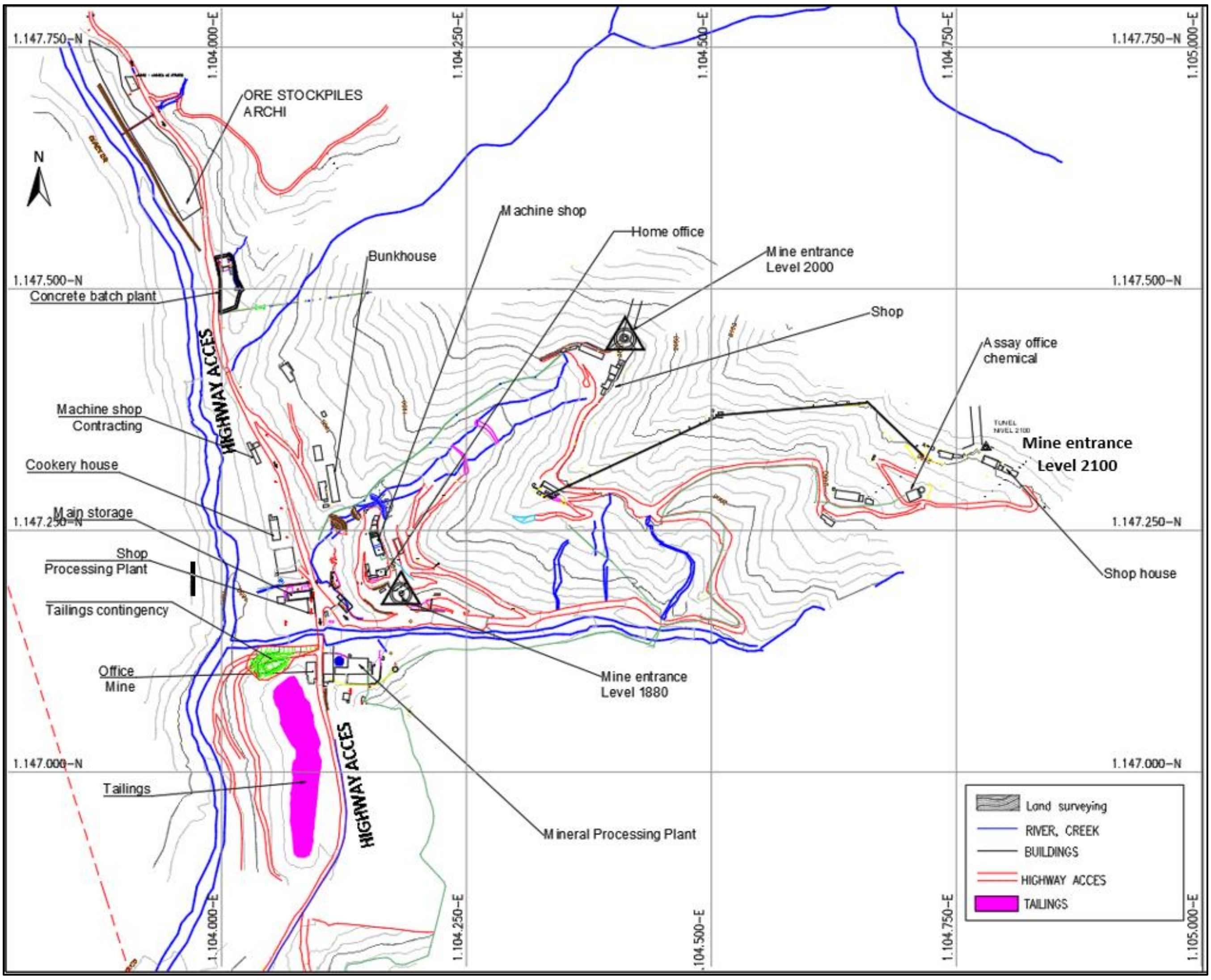
The process flowsheet as applied at El Roble is a suitable flowsheet providing reasonable recoveries of copper and gold. The change in ores from the lower to the upper blocks should have a minor positive effect regarding recoveries of copper and gold to concentrates.

El Roble continues to work with reagent suppliers to identify ways to increase gold recovery. This is a good initiative and needs to be pursued.

18. Infrastructure

All of the important operations infrastructure is contained within the permitted land under Colombian Mining Title number 9319. El Roble owns or controls the surface rights for the area. Figure 18.1 shows the location of important infrastructure at the site. Figure18. Plant.

Figure 18.1 Plant



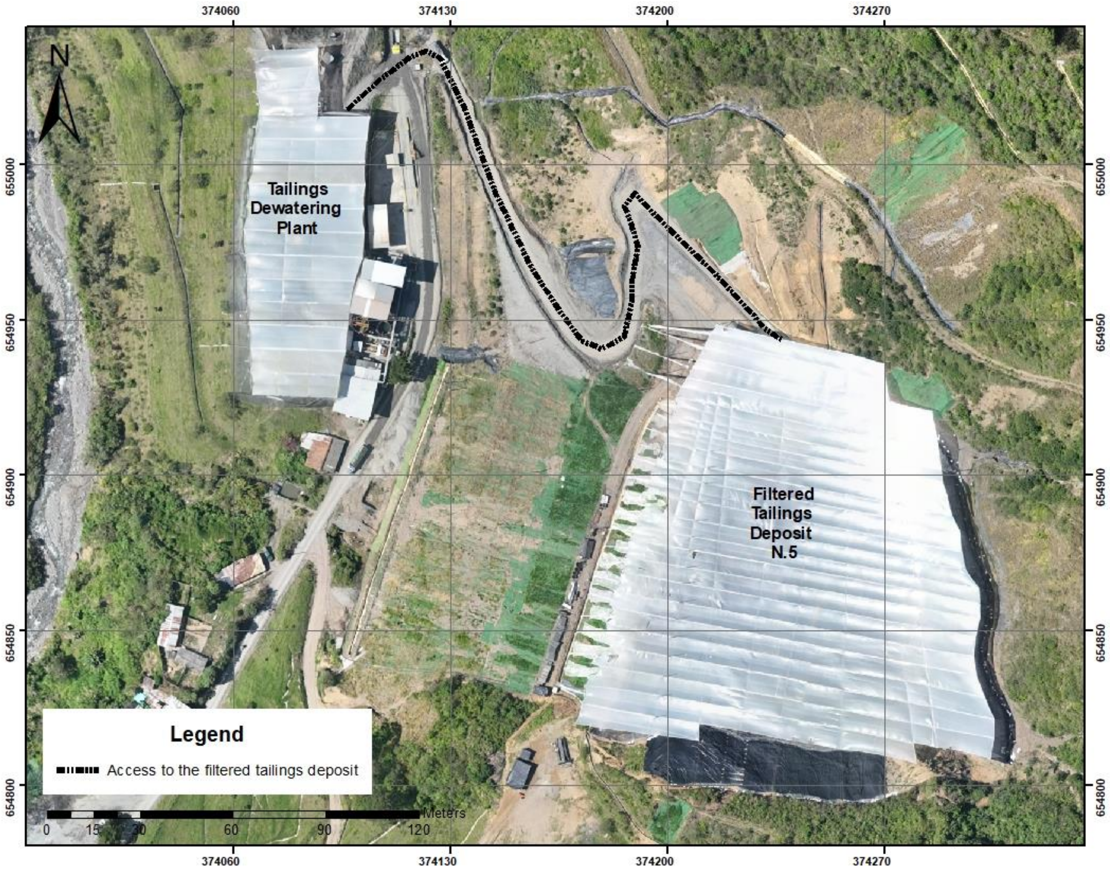
Site access is by a 3-km gravel road from the town of El Carmen de Atrato, Choco, Colombia. El Carmen de Atrato is connected via a 150-km paved, improved highway to the city of Medellin, Antioquia, Colombia. Medellin offers a wide variety of mining related supplies and materials, an international airport, as well as general services as may be found in any large city.

18.1. Tailings Impoundments

Impundment 4 is in the process of tailings closure. The tailings at the El Roble at present have been developed as a stacked tailings facility (Numero 5), based on the processing of thickened tailings through a vertical-press filtering system. This type of system is generally considered industry best practice for risk management associated with tailings storage.

Tailings Deposit No. 5 is the current facility for storage of tailings produced by the mineral processing plant that have then passed through the tailings dewatering plant (TDP) to produce dry filtered tailings. The filtered tailings are stockpiled until transported by truck approximately 0.3 km where they are used to construct terraplain buttressing in Tailing Deposit No. 5. Figure 18.2 shows thickened tailings Numero. 5.

Figure 18.2 Dewatering plant and dry filtered Tailings Deposit Numero 5.

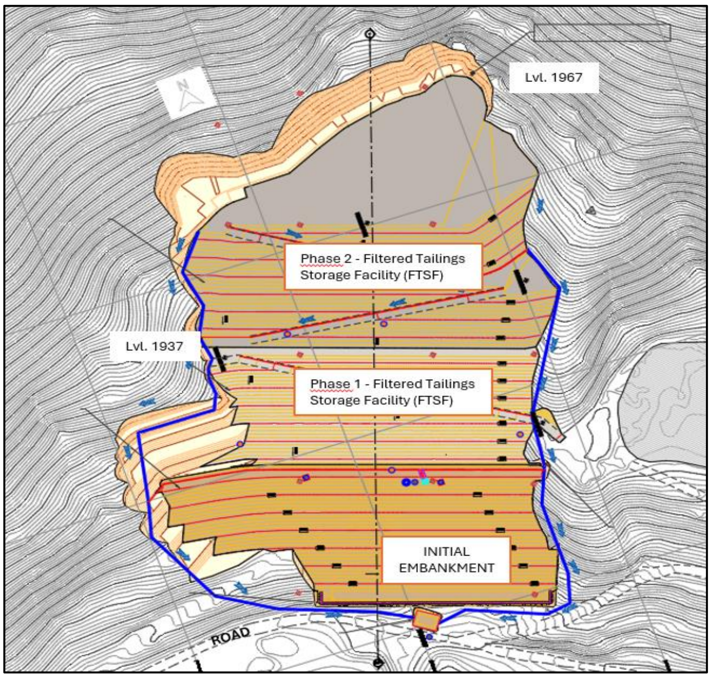


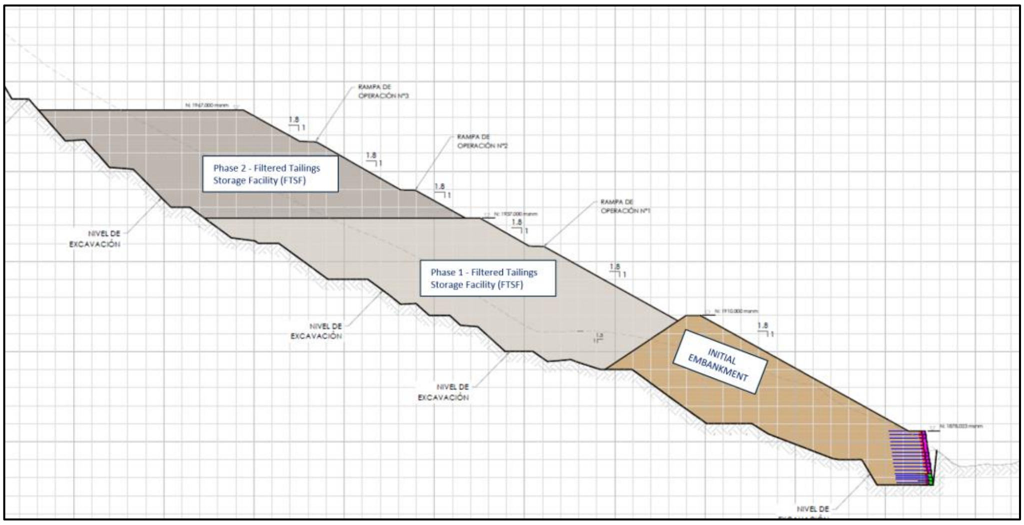
The key design dimensions of the facility are as listed following:

- The reservoir is sealed with an LLDPE geomembrane.
- During the process of tailings storage, key parameters are controlled in order to guarantee optimal conditions regarding humidity and compaction in line with the operations manual for assuring the physical stability of the deposit.
- During Phases I and II, Tailings Deposit Numero 5 will have a capacity of 591,000 m3 dewatered tailings, of which 56,000 m3 have been emplaced as the starter dike and 140,900 m3 placed in the deposit basin, leaving a capacity of 395,000 m3 available

below level 1,967 m.a.s.l. The production of filtered tailings for the life of mine will be 304,703 m3, this capacity is sufficient to supply this tailings stacked demand. Figure 18.3 presents the final configuration of the filtered tailings deposit Numero 5.

Figure 18.3 Final configuration of the dry filtered tailings in deposit Numero5 after completion of Phases I y II.





18.1.1. Design Standards

Tailings Deposit N° 5 will allow storage of 535,000 m^3 of filtered tailings in the basin and 56,000 m^3 in a starter dike designed to contain the filtered tailings and will be constructed in two stages as described below:

Phase I: Phase I will consist of forming the starter dike with 159,217 m3 of borrow material mixed to a ratio of 70:30 and filled with filtered tailings up to level 1,937 m.a.s.l. creating a tailings storage capacity of 277,354 m^3. The primary components of Phase I are the starter dike and terraplain:

Starter Dike

- Elevation of starter dike: 1,910 m.a.s.l.
- Crown width: 4.0 m
- Slope ratio: 1.8H:1.0V
- Volume: 115,000m3 of fill material and 56,000m3 of filtered tailings

Terraplain

- Maximum elevation of tailings pile: 1,937 m.a.s.l.
- Slope of banks: 1.8H:1.0V
- Time of operation: 1.94 approximately (time subject to changes due to the variations in volume of production from the mineral processing plant)
- Impermeabilization: Geomembrae LDPE over non-woven geotextile

Phase II: Terraplains will be constructed during Phase II that will provide storage for 230,138 m^3 of filtered tailings up to level 1,967 m.a.s.l. allowing a life span of 1.6 years.

Filtered Tailings Terraplains

- Maximum elevation of tailings pile: 1,967 m.a.s.l.
- Slope of banks: 1.8H:1.0V
- Configuration volume: 253,118 m3
- Time of operation: 1.8 (time subject to changes due to the variations in volume of production from the mineral processing plant)

Water Level: For the analysis of static and pseudo-static stability, the piezometric level was used as established by Geoservice Ambiental S.A.C. in their stratigraphic profile (Evaluation of Alternatives, Feasible Engineering and Detail of Tailings Deposit No 5, 2018). The piezometric level was adjusted with the parameters of the five piezometers that were installed in exploration drill holes. It is necessary to emphasize that only one of these instruments remained after the rest were removed due to removal during underground mine work on the project. Six additional piezometers were installed on the principal dike for the purpose of geotechnical monitoring during this phase of the operation. According to the reports, the phreatic level has developed in units of fractured and altered rocks.

Construction of a crown canal was designed to manage the flow of surficial water in the filtered Tailings Deposit No.5; preventingthe entrance of water through the natural drainage basin and superficial saturation of the open cuts or excavations and/or borrow material or filtered tailings.

Geotechnical Studies: Based on geotechnical investigations, the parameters of the mechanical and physical characteristics of the rock mass were chosen conservatively. These parameters were verified and subsequently adjusted based on assays of the material used for the construction of the impoundment and the filtered tailings produced by the mineral processing plant. The filtered tailings, product of the process plant and subsequently of the tailings dewatering plant, are classified as silt (ML) with 29.3% sand and 70.7 fines

Definition of geotechnical parameters: Geotechnical parameters of the materials that comprise the geotechnical model are described below. The definition of the geotechnical parameters was based on a review of information from studies and assays conducted on material used in the mine workings and tailings deposits. The constituents of the geotechnical model are:

- Fine tailings (ML): The tailings material stored in Tailings Deposit No 5 is predominantly silt with low plasticity and a granulometric distribution of 0.1% sand and 99.9% fines. According to tests referred to previously, the parameters of resistance to cutting are: angle of internal friction = 30° and cohesion = 20 MPa (dry).
- Borrow Material (Dike): Material from dikes was collected where exposed in excavations; the dike material consists of silty clays with minor rock fragments (GM) with specific gravity of 1.8 ton/m^3. According to tests referred to previously, the parameters of resistance to cutting are: angle of internal friction = 33° and cohesion = 4 MPa (dry).
- Mixed Material 70:30: In order to improve the stability of the starter dike the strategy of the circular economy and the policy objective of managing the tailings a mix of materials were used in the starter dike consisting of 70% tailings and 30% material from mine workings with a static safety factor of 1.56 to 1.706 and a pseudo-static factor of 1.07 to 1.25. According to tests referred to previously, the parameters of resistance to cutting are: angle of internal friction = 38° and cohesion = 0.5 MPa (dry).
- Rocky Mass (Siltstone): Siltstone and sandstone are found at deeper levels in the mine. These rock types are relatively more resistant and have a specific gravity of 2.2 ton/m^3. According to tests referred to previously, the parameters of resistance to cutting are: angle of internal friction = 40° and cohesion = 1 MPa (dry).

18.1.2. Stability Analyses

The safety factors that were determined by physical stability analysis are presented. These results determined that the conditions of the filtered Tailings Deposit No 5 will be stable over the long run. Static factor, FS=1.703 and Pseudostatic factor, FS = 1.205. SINCOS consulting company's detailed engineering results.

18.2. Staged Construction of FTSF

Currently, the filtered tailings storage facility has a designed capacity of 140,124 m3 for Phase I and 253,119 m3 for Phase II, allowing for accommodation of the projected volume of tailings produced through 2027 and leaving a remaining capacity of 64,072 m3. Table 18.1shows the balance of the production of filtered tailings deposited with the capacity of tailings deposit No. 5.

Table 18.1 Balance of the filtered tailings with capacity deposit No.5

PRODUCED TAILINGS (LOM)		STORAGE CAPACITY, DEPÓSITO No.5		
YEAR	LOM TAILINGS (m3)	PHASE I (capacity designe 140,124 m3)	PHASE II (capacity designe 253,119 m^3)	RESIDUAL CAPACITY PHASE II (m^3)
2024*	81,698 m^3	106,166 m^3		
2025	99,823 m^3	33,958 m^3	65,865 m^3	
2026	99,483 m^3		99,483 m^3	
2027	23,699 m^3		23,699 m^3	
TOTAL	304,703 m^3	140,124 m^3	189,047 m^3	67,072 m^3

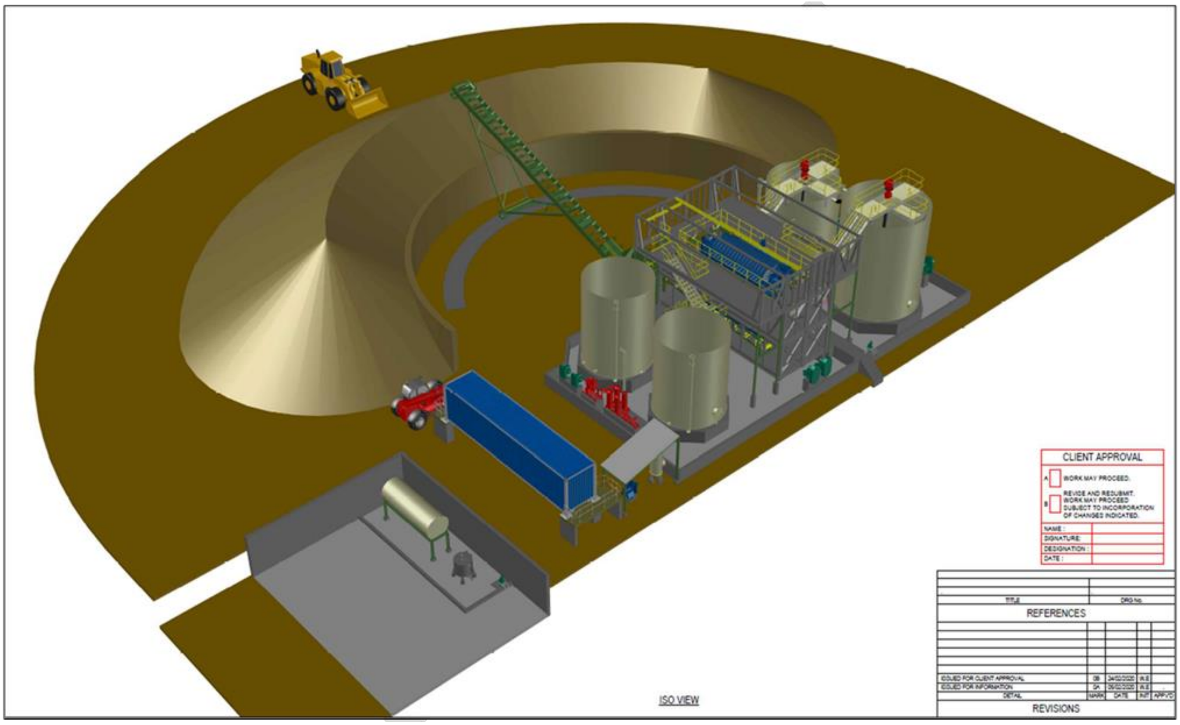
** Estimated from March 13th – December 31st 2024*

18.3. Filtered Tailings Production

At the El Roble Mine, the process of filtering tailings is accomplished in the dewatering plant. This plant consists of a combination of circuits with components of works and imported machinery which, in the general design of the plant, includes:

- Storage for tailings and storage for dry filtered tailings
- Filtration
- System of filtration and back-wash
- Storage of acid
- Storage of water and effluent return
- System of pressurized air
- Transport and storage of filter cake

Figure 18.4. Schematic diagram of the tailings dewatering plant



The tailings dewatering plant consists of a modular structure, tanks, conveyor belts, storage area, and acid dilution that form part of the filtration system as shown in the simplified model below.

18.4. Mine Waste Stockpiles

Waste and marginal material from the mine are sent to the Level 2000 dump located near the access to the mine entrance on the same level. The La Calera dump is also available for any additional requirements that may arise during the operation. According to the mine planning, the remaining Mineral Reserve will not generate sufficient low grade material as to require an additional dump, and there should be no further waste from underground workings, as the current ones are sufficient to complete the mining of the remaining Mineral Reserve.

These dumps have been granted the relevant permits and authorisations.

	2024*	2025	2026	2027
Waste development mine	37,056 m^3	67,819 m^3	53,724 m^3	10,775 m^3
backfill in stopes	2,402 m^3	5,665 m^3	0 m^3	0 m^3
backfill in area level 1880 - mine	28,600 m^3	57,200 m^3	50,050 m^3	7,150 m^3
LOM waste for waste stockpiles	**6,054 m^3**	**4,954 m^3**	**3,674 m^3**	**3,625 m^3**

** Estimated from March 13th – December 31st 2024*

18.5. Mine Ore Stockpiles

Mined ore reports from underground by a highway dump truck or low-profile underground haul truck to the surface. The 2000 Level surface area provides a flat area and acts as the main ore stockpiling area. The stockpile is close to the coarse ore bin and requires little material handling. The other two areas are located below the 1880 Level adit and are used as surge areas when the 2000 Level stockpile area is full. All of the areas are permitted for their use.

Each load of ore is dumped, sampled and tagged in a separate pile. When analytical results are received, the individual piles are mixed to make a consistent grade plant feed. This material is then dumped by loader to the coarse ore bin of the process plant. Total ore stockpile capacity is estimated by MINER to be 20,000 wmt of run-of-mine ore. This stockpile capacity is adequate for the mine plan used to estimate mineral reserves in this report.

18.6. Concentrate Production and Transportation

The process by which concentrates are made was discussed in Chapter 17. The filtered concentrate reports to a concentrate storage facility at the process plant. Approximately every three days a caravan of 30-dmt covered highway haul trucks are loaded with concentrates. The loaded concentrates are sampled and the trucks are weighed before departing site for the concentrate storage facility at the port. When the trucks arrive at the port, they are weighed and the weight is compared to the weight reported by the mine site scale. No discrepancies have been reported over the many years during which the current system has been in place.

18.7. Communications Systems

The El Roble site has mobile telephony, fixed telephony and broadband internet service. The services are provided locally. The underground workings have a leaky feeder system, with the leaky feeder cable distributed along the 1880 Level from the adit to the main ramp. The cable follows the main ramp throughout the vertical extent of the ramp, providing communication and internet services to the underground workings.

18.8. Water Supply

Fresh water comes from the Archy ravine, a ravine wholly-contained on the El Roble surface rights. A water takes of approximately 180-m3 fresh water is used for domestic uses (offices, kitchen, etc.) and the process plant. Water is captured in various small dams and directed to the various end users. The flow is continuous and the water take is permitted by the appropriate authorities. The water supply has been stable for many years, it is adequate to meet the needs of the production schedule used to estimate the mineral reserves in this report.

19. Market Studies and Contracts

MINER has a long-term contract with Trafigura SAC, an international minerals concentrate trader. The terms vary slightly year-on-year but are all within internationally recognized concentrate purchasing standards and industry norms.

20. Environmental Studies, Permitting and Social or Community Impact

20.1. Environmental Permits and Studies

MINER follows an environmental management plan ("PMA" for its acronym in Spanish) approved by Resolution 0030/2001 issued by the Choco regional government's environmental department ("CODECHOCO", for its acronym in Spanish) on 22 January 2001. This resolution states that El Roble is a viable mining project while the operation complies with the policies and guidelines stated in the resolution. Resolution 0030/2001 was later amended by Resolution 0850/2002 issued by CODECHOCO. However, there were no significant changes. Every six months, the Company submits to CODECHOCO a report that includes environmental compliance reports ("ICA", for its acronym in Spanish) regarding all activities related to water monitoring, solid and liquid waste management, reforestation and other activities demonstrating compliance with the established policies, regulations, guidelines, forms and methodologies as set out by the Ministry of the Environment.

MINER has additional permits established in Resolution 0870/2013 and 0871/2013 granted on 10 September 2013. These resolutions allow for the waste rock storage area near the 2000 Level adit and Tailings Impoundment 4, respectively.

Additional permits have been granted by Resolution 1638/2016, which allows the Company to take surface waters for exploration activities, and Resolution 0960/2017, which sets out certain environmental compliance requirements that MINER has been addressing.

Moreover, Resolution 0167/2020, which grants authorization for depositing waste rock in the Calera and Cristalina waste storage facilities, was recently signed after submission by the Company of all the environmental management measures for this permit. Resolutions 0181/2020 and 0175/2020 further allowed the Company to take surface waters for exploration activities in the Calera and Santa Anita exploration areas.

MINER has an Environmental Department staffed by environmental professionals that manages environmental administration, prevention and risk control using environmental best practices.

20.1.1. Laws and Regulations

The project operates under Colombian laws, regulations and guidelines. Andes Colorado understands that the relevant permits, licenses and approvals have been obtained for the El Roble Mine and Process Plant. Andes Colorado has not checked the individual licenses and permits.

20.1.2. Waste and Tailings Disposal Management

The two major sources of solid waste are the mine waste rock and the tailings generated by the process plant. All of the mine waste rock reports to the 2000 Level waste dump. The process plant tailings all report to Impoundment 4 for storage. Both facilities meet regional and national requirements.

20.1.3. Water and Solid Residue Management

20.1.3.1. Rain Water Run-Off

Tailings impoundments 3 and 4, as well as the 2000 Level waste dump have ditches around them to prevent inflows of water to the impoundments or filtration through the waste dump.

Catchment ponds capture run-off from the impoundments and the waste storge facility. The catchment ponds are designed to capture the run-off waters, settle them to allow for the deposition of solids and then discharge the clarified water to the environment.

20.1.3.2. Tailings Impoundment Water Discharge

Water from Impoundment 4 is discharged occasionally to the environment. The discharge water is monitored for pH, conductivity, turbidity, oxygen, temperature, and percentage of suspended solids daily with semi-annual monitoring and reporting of all of the discharge water aspects in accordance with the standard set out in Resolution 631/2015. The report is submitted to the Choco government agency assigned to monitor environmental issues within the region (CODECHOCO).

Impoundment 4 also has piezometers spaced around its perimeter. The piezometers are monitored regularly to check for water migrating from the impoundment through leaks in the facility. Additionally, permanent survey points have been installed on the dam and are surveyed regularly to monitor for any possible movement of components of the impoundment. No incidents have been monitored to date.

20.1.3.3. Oil and Grease Traps, Spent Oil Handling

All of the maintenance facilities, both underground and on the surface, have traps to catch the run-off water from the floors of the facilities and pass the water through a trap system which may capture and contain the floating oils and greases. The kitchen also has an industrial kitchen grease trap.

Spent oil from equipment oil changes and other sources is captured in barrels and sent off-site by contractor to licensed disposal facilities within Colombia.

20.1.3.4. Domestic Sewage Water Handling

Domestic sewage water is captured in septic tanks. The material in the septic tanks is periodically pumped and taken to licensed disposal sites within Colombia by a contractor.

20.1.3.5. Solid Residue Handling

Each workplace on the El Roble site has solid waste recipients (barrels) color-coded as to what may be disposed in each color barrel. The color code is established in the Colombian Technical Guide GTC24, which is distributed by the national government. Solid residues from each of the three colors is collected separately and sent to the appropriate disposal site.

Scrap metal is kept in a scrap metal storage area. From time to time, the scrap is sold to a scrap dealer, who collects the scrap metal and hauls it away for recycling.

20.1.4. Air Quality

Underground dust generation and exhaust gas are managed with water sprays, equipment air scrubbers and high-volume ventilation flows. All air quality measurements from underground have been positive, no detrimental air conditions have been identified.

Surface dust is managed by water sprays. There is little dust generated due to the moist nature of the ore reporting to the crushing plant. The tailings impoundments have been covered with topsoil and seeded or are kept moist to avoid dust generation by blowing wind.

During 2019 the company carried out air quality monitoring according to regional regulations. The results were presented to the regional environmental authority (CODECHOCO) and received no comments.

20.1.5. Environmental Permits

The following permits have been granted by CODECHOCO and are in good standing:

- Resolution 0030/2001 – Environmental Management Plan – overall operating permit.
- Resolution 0850/2002 – Certain minor amendments to Resolution 0030/2001.
- Resolution 0870/2013 – Permit to establish and use waste rock storage facility near El Roble Mine 2000 Level adit.
- Resolution 0871/2013 – Permit to construct and operate Tailings Impoundment 4.
- Resolution 1638/2016 – Allows the use of surface waters for exploration use.
- Resolution 0960/2017 – Sets out certain environmental compliance requirements.
- Resolution 0167/2020 – Authorization to use the Calera and Cristalina waste storage facilities.
- Resolution 0175/2020 – Allows the use of surface waters for exploration use.
- Resolution 0181/2020 – Allows the use of surface waters for exploration use.
- Resolution 0765/2021 – Discharge permit.
- Resolution 0766/2021 – Surface water concession.
- Resolution 1411/2021 – Surface water concession.
- Resolution 0151/2021 – Temporary subtraction of forest reserve.

20.2. Land Use, Social and Community

20.2.1. Land Use

The land surrounding the El Roble mine is dedidicated to agriculture or ranching. No ecological sites, archeological sites or other zones requiring limited access or special controls exist in the area.

20.2.2. Social and Community

MINER has established an alliance with the Colombian national government for training personnel in underground mining work, heavy equipment operation and maintenance, environmental management and occupational health and safety. In the past several years, over 350 people have been certified in these various fields.

Additionally, MINER sponsors sport leagues for men and women locally, a meal for students program in the local school system and other health initiatives. The Company has also supported local micro-business development and agricultural programs, and provided services to the local government when weather events have damaged roads and other infrastructure.

There is strong local backing for the mining operation. The town of El Carmen de Atrato relies on the operation for employment of local residents as well as support of local business. Since 2017, the local purchases (services and materials) that MINER made in Carmen de Atrato have generated more than 500 unrelated jobs and the approximate total value of the purchases until 2023 exceeds COP 94,700,000,00 (approximately US$ 2.6 Million US Dollars).

20.3. Mine Closure

The mine closure plan consists of covering the tailings impoundments with topsoil and reseeding, dismantling the process plant and removing the equipment along with related site reclamation. A closure plan has been approved by the Colombian government. MINER estimates the cost to execute the reclamation and remediation work to be US$3,318,000. This is included in the long-term capital expenditure budget.

21. Capital and Operating Costs

Capital and operating costs (CAPEX and OPEX, respectively) have been developed by the MINER staff using the past years of operation, including comprehensive production and financial reports, historic productivity and unit costs.

Detailed costs are available for the mining unit operations (drill, blast, muck, backfill, etc.), process plant unit cost by sub-process, as well as detailed administration costs and sales costs. Costs have been reported in United States of America Dollars (US$) or Colombian Pesos (pesos or COP); where the costs have been reported in pesos, the relevant exchange rate at the time of reporting was used to convert the costs to US$ (COP 4,350.00 = US$ 1.00).

21.1. Mine Capital Cost Estimate

The estimated CAPEX for the operation includes the sustainability of the plant operation, tailings disposal management, mine development for the exploitation of the Principal, A, B, D, D2, Rosario and Afrodita deposits.

The El Roble CAPEX LOM Plan Spending is shown in Table 21.1 below.

Table 21.1 Estimated El Roble CAPEX LOM Spending in US$000

CAPEX DESCRPTION	2024*	2025	2026	2027	TOTAL
MINE DEVELOPMENT	US$ 2,674	US$ 4,203	US$ 1,926	US$ 181	US$ 8,984
MINE SERVICES	US$ 48	US$ 183	US$ 0	US$ 0	US$ 231
PROCESS PLANT	US$ 290	US$ 387	US$ 0	US$ 0	US$ 677
GENERAL SERVICES & OTHER	US$ 420	US$ 2,150	US$ 66	US$ 0	US$ 2,636
TOTAL CAPEX	**US$ 3,432**	**US$ 6,923**	**US$ 1,992**	**US$ 181**	**US$ 12,528**

** From March 13th to December 31st 2024*
- All numbers have been rounded to the nearest 000.

21.2. Mine Operating Cost Estimate

The OPEX budget for the life-of-mine was developed using the existing cost basis. The existing cost basis accumulates costs and, on a monthly basis, reconciles the costs at the corporate level to budgets and forecasts. The process is well-established and produces reliable results as per the reconciliation in publicly-available corporate filings. MINER does not foresee any circumstances that would materially alter the cost estimate based upon present operating circumstances.

Operating costs may change with the start of mining in the upper blocks but any changes are deemed to be minimal given that the blocks are within the operation and can use gravity for passing ore to the 1880 Level, etc. No changes to the equipment fleet are considered. The methodology change is important technically but, given the operation is already using a cemented rock fill, the cost difference should not be significant. The process plant, G&A and other costs should be the same as they are at the presenttime.

Table 21.2 shows the unit cost per dry metric tonne OPEX estimate for the LOM.

Table 21.2 Estimated El Roble OPEX LOM Spending, Unit Cost in US Dollars

Unit Cost OPEX		2024*	2025	2026	2027**
Mine	US$/dmt	76.39	66.78	70.68	72.75
Process Plant	US$/dmt	29.30	29.78	29.77	29.95
Indirects	US$/dmt	33.59	35.69	35.63	36.47
Distribution	US$/dmt	8.64	8.71	8.60	8.84
		147.92	**140.96**	**144.67**	**148.00**

** From March 13th – December 31st 2024*
*** From January 1st – March 31st 2027*

22. Economic Analysis

The following section is a summary of the major economic considerations of the operation, based on the economic analysis conducted by Atico following appropriate economic evaluation standards for an operating asset such as El Roble. The following section presents the elements of the financial model starting with the financial parameter assumptions and production estimates. Those main inputs allow the forecast of revenues, operating costs (OPEX), capital expenditure (CAPEX), working capital, and closure and reclamation costs for final calculations of net project cash flows.

The start date for the economic analysis is March 13, 2024. The financial results are presented based on future metal production, OPEX and CAPEX from March 13, 2024, to completion, including all project costs. The economic analysis is based on an annual production plan for the life of the mine, and associated OPEX and CAPEX. The economic analysis calculates an after-tax NPV at an 8% discount rate of US$25.7 million resulting in an average EBITDA margin of 32%.

22.1. Financial Assumptions

The most important financial assumptions influencing the economics of the mine include the following parameters:

- Copper price of US$4.12 per pound;
- Gold price of US$1,991 per ounce;
- Colombian Peso exchange rate (COP 4,350.00 = US$ 1.00);
- Government royalty of 4%[(1)] on gold and silver and 5%[(1)] on copper;
- Commercial royalty of 1%[(1)] on gold, silver and copper;
- Income tax rate of 35%.

[(1)] Royalties are calculated net of contained metals produced, after ocean transportation and 20% refining costs.

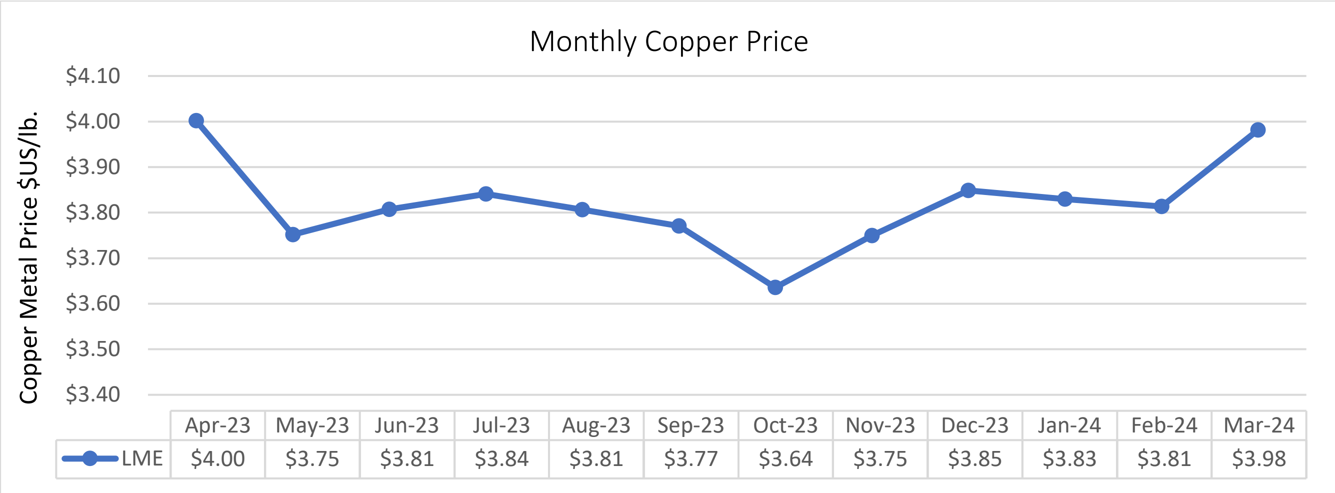
Exchange rate assumptions are based on spot rates; no currency depreciation or appreciation is considered throughout the (LOM). The exposure to local currency (80%) reflects the cost structure for the Life of Mine (LOM).

22.1.1. Copper Price

The base case financial model considers a copper price of US$4.12 per pound through 2027. This same price is used in Chapter 15 for the calculation of break-even cut-off.

The price level used is within financial and mining analysts long-term forecast prices and forward selling curves. The average monthly copper price from April 2023 to March 2024 based on London Metal Exchange afternoon fix (LME PM) pricing is shown in Figure 22.1.

Figure 22.1 Average Monthly LME Copper Price (US$/lb), April 2023 to March 2024

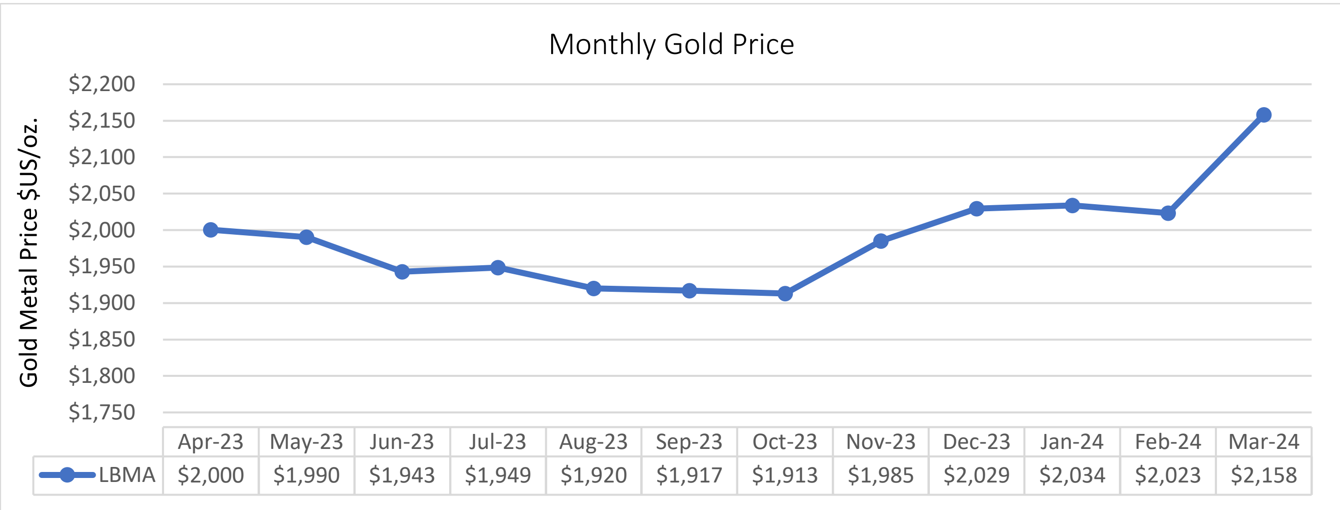


22.1.2. Gold Price

The base case financial model considers a gold price of US$1,991 per troy ounce through 2027. This same price is used in Chapter 15, for the calculation of break-even cut-off.

The price level used is within long-term forecast prices and forward selling curves used by financial and mining analysts. The average monthly gold price from April 2023 to March 2024 based on London Bullion Market Association (LBMA PM) pricing is shown in Figure 22.2.

Figure 22.2 Average Monthly LBMA PM Fix Gold Price (US$/troy ounce), April 2023 to March 2024



22.1.3. Colombian Peso exchange rate

Financial projections to assess economics for the El Roble Mine have used an exchange rate of COP 4,350.00 to US$ 1.00 in line with expected exchange rates.

The relevant OPEX and CAPEX denominated in Colombian Pesos include:

- Wages and salaries
- Service costs
- Material costs
- Electrical power
- Contractor costs
- Federal taxes
- Withholding taxes to local providers

22.2. Life-of-mine Production Plan

The LOM plan includes the estimated Mineral Reserves (0.83 Mt) reported as of March 13, 2024, as well as stockpiled ore as of March 12, 2024 (38 dry metric tonnes). The Mineral Reserve estimate has only considered Measured and Indicated Resources (0.88 Mt) and does not include any Inferred Resources. Table 22.1 details the annual production plant feed and concentrate production for the El Roble Mine.

Table 22.1 Life-of-mine Production Plan for the El Roble Mine

Type	Item	2024*	2025	2026	2027**	Total
Treatment	dmt	234,664	263,942	264,422	64,483	827,511
	Cu (%)	2.52	2.50	2.45	2.52	2.49
	Au (g/t)	2.07	1.94	2.48	2.63	2.20
Metallurgical Recovery	Cu (%)	91.8	92.3	92.8	93.0	92.4
	Au (%)	60.0	61.4	62.6	63.0	61.5
Concentrate	dmt	29,513	33,142	32,736	8,215	103,606
Metal Content	Cu (dmt)	5,430	6,098	6,023	1,512	19,063
	Au (oz)	9,367	10,120	13,201	3,431	36,119

** March 13 – December 31, 2024 period*
***Includes 38 dmt from stockpiles (1.2% Cu, 2.0 g/t Au) as per March 12, 2024. January 1 – March 31, 2027 period*

22.2.1. Inventory

The LOM annual tonnage and head grades have been obtained from the Mineral Reserves estimate based on the processing plant treatment capacity and the established mining sequence for reserves in the mineral deposit.

Metallurgical recoveries, concentrate production and metal content for the LOM have been estimated based on the estimated head grades, processing plant historical metallurgical recoveries as well as metallurgical testing (as described in Section 17).

22.3. Operating Costs

The projected OPEX is based on the related LOM mining and processing requirements, as well as historical information regarding performance and operation and administrative support demand. Table 22.2 details the projected life-of-mine OPEX.

Table 22.2 Life-of-Mine Operating Costs (OPEX) in US$000

Area	2024*	2025	2026	2027**	Total
Mine	17,925	17,626	18,689	4,691	58,931
Plant	6,877	7,860	7,871	1,931	24,539
Indirects	7,883	9,421	9,421	2,352	29,077
Distribution	2,027	2,299	2,273	570	7,169
Total	34,712	37,206	38,254	9,544	119,716

**March 13 – December 31, 2024 period*
*** January 1 – March 31, 2027 period*

22.4. Capital Costs (CAPEX)

The projected CAPEX is based on the related LOM mine development, equipment and infrastructure requirements.

Atico has operated the El Roble Mine since 2013 so the CAPEX in this case refers to the annual addition of capital required to sustain the operation and production at current levels (i.e. sustaining capital expenditure). Table 22.3 details the projected life-of-mine CAPEX.

Table 22.3 Life-of-mine Capital Costs (CAPEX) in US$000

Area	2024*	2025	2026	2027**	Total
Equipment and Infrastructure	758	2,720	66	0	3,544
Mine development	2,674	4,203	1,926	181	8,984

** March 13 – December 31, 2024 period*
*** January 1 – March 31, 2027 period*

Costs related to mine closure through restoration and decommissioning activities are ongoing each year of the LOM. Included in the final year of operation is the cost estimate for employees/workers severance as part of the mine closure. Table 22.4 details the projected mine closure costs.

Table 22.4 Mine closure costs in US$000

Area	2024*	2025	2026	2027	Total
Restoration and decommissioning	479	758	199	1,882**	3,318
Mine closure - labour	0	0	0	5,019	5,019

** March 13 – December 31, 2024 period*
**Also includes some restoration costs to be incurred from 2027 to 2033*

22.5. Economic Analysis Summary

The summary of the LOM economic analysis shows the annual free cash flow forecast based on the Proven and Probable Reserves.

The economic evaluation shows positive after-tax free cash flow for the LOM, results in a positive Net Present Value (NPV). The after-tax NPV at an 8% discount rate is US$25.7 million. The Internal Rate of Return (IRR) and payback period do not apply for a presently operating mine with a LOM positive cash flow. Table 22.5 shows the annual free cash flow.

Table 22.5 El Roble LOM Financial Summary

Description	Units	2024*	2025	2026	2027**	Total
Revenues	US$ '000	56,951	63,167	68,726	17,480	206,324
Net Income	US$ '000	8,038	7,439	12,424	(1,848)	26,053
EBITDA***	US$ '000	16,715	19,468	23,771	6,215	66,169
EBITDA Margin	%	29%	31%	35%	36%	32%
Investments	US$ '000	3,911	7,681	2,191	7,082	20,865
Free Cash Flow	US$ '000	8,041	7,280	14,359	(866)	28,814
NPV @ 8%	$25,723					

** March 13 – December 31, 2024 period*
***Includes 38 dmt from stockpiles (1.2% Cu, 2.0 g/t Au) as per March 12, 2024. January 1 – March 31, 2027 period*
**** Earnings before interest, taxes, depreciation and amortization.*

22.6. Sensitivity Analysis

Sensitivity analyses have been performed to assess the effect on the NPV of changing copper and gold metal prices, as well as the effects of altering head grade, OPEX, and CAPEX.

22.6.1. Sensitivity to Metal Price

The effect of changing the copper price by US$0.20/lb positive and negative increments and the gold price by a 10 percent positive and negative increment from the base case is detailed in Table 22.6.

Table 22.6 Sensitivity Analysis, Varied Copper & Gold Price vs NPV

NPV Sensitivity		Copper Price ($/lb)				
		3.72	3.92	4.12	4.32	4.52
Change in Gold Price ($/oz)	-10 %	12,932	17,423	21,915	26,407	30,899
	0 %	16,739	21,231	25,723	30,215	34,706
	+10 %	20,547	25,039	29,531	34,022	38,453

22.6.2. Sensitivity to Head Grades

The effect on NPV when varying the copper and gold head grades as expressed at a 10 percent negative and positive increment from the base case is detailed in Table 22.7.

Table 22.7 Sensitivity Analysis for Gold and Copper Head Grade Variations on NPV

NPV Sensitivity		Change in Head Grade of Copper		
		-10%	0%	+10%
Change in Head Grade of Gold	-10%	14,401	21,622	28,843
	0%	18,502	25,723	32,944
	+10%	22,570	29,824	37,038

22.6.3. Sensitivity to Capital and Operating Costs

The effect on NPV when varying the CAPEX and OPEX as expressed at a 10 percent negative and positive increment from the base case is detailed in Table 22.8.

Table 22.8 Sensitivity Analysis for CAPEX and OPEX Cost Variations on NPV

NPV Sensitivity		Change in CAPEX		
		-10%	0%	+10%
Change in Operating Costs	-10%	33,324	32,546	31,768
	0 %	26,501	25,723	24,945
	+10%	19,678	18,900	18,122

22.7. Taxes

As established by Colombian tax laws.

22.8. Comments

The El Roble project is a robust project economically until the present reserve base is depleted

23. Adjacent Properties

There are no other active mines near El Roble. While some artisanal mining has been performed in the past in nearby rivers and streams, stories are all anecdotal and no supporting documentation is available.

24. Other Relevant Data and Information

24.1. Risk Assessment

Mining is, by nature, a relatively high-risk industry when compared to many other industries. Each mine is hosted in a geologic deposit, where the occurrence and mineralised grade and the resultant response to mining and processing are unique.

An in-depth risk analysis is beyond the scope of this report. However, the reader is advised that there are inherent risks regarding the mine, the surface plant, the tailings impoundments and other installations with regard to major seismic events, forest fires, very large rainfalls or other natural phenomena. Additionally, acts of war, industrial sabotage and other man-made threats may occur from time to time in any environment. A lack of community support and threats of action from anti-mining NGOs or other political risks may also occur.

MINER does not foresee any such natural or man-made threats at the present time. However, they may manifest themselves with little or no warning. MINER does have a Loss Prevention program that assists in mitigating most risks and the fact that few incidents have occurred while Atico has operated the site indicate that the Company uses precaution in its operations. The community remains solidly behind the mining activities, NGO activity is not significant and no other potential threats have been identified at this time.

There is a significant risk of depleting the known ore reserve before encountering additional mineral reserves that would allow the project to continue. If no additional resources are identified in the next 12-18 months there is a significant risk of the project being shuttered after the present reserve bvase is depleted.

In December 2021, the Company entered into an agreement with the mining authority (the "National Mining Agency") in Colombia related to an ongoing royalty dispute. While the Company maintains it has complied with the royalty payments due and called for under the mining contract for the El Roble mining property, this agreement allows for the Company to be recognized as being formally in good standing with the National Mining Agency, enabling the Company to apply for a new mining contract on the property. The miningcontract and related title expired on January 23, 2022, where the Company has been allowed to continue operating while the process for the contract and title renewal continues. The Company and the National Mining Agency agreed to settle the royalty dispute via binding arbitration at the Center for Arbitration and Conciliation of the Bogota Chamber of Commerce for the purposes of seeking an expedited resolution to the ongoing claim. In addition, the Company entered into a five-year payment plan (the "Payment Plan"), amended in June 2022, payable in biannual instalments for a total amount of COP$101,217,832,270 (approximately $26.5 million) plus interest at a 6% annual rate. To the extent that a final ruling is made in favor of the Company, the Payment Plan will cease, and any amounts already paid are to be reimbursed to the Company or offset against future royalty obligations. While to date the National Mining Agency has allowed continued operation of El Roble, in the event that title renewal is not extended, operations of El Roble would cease and related assets would be impaired.

25. Interpretation and Conclusions

Andes Colorado has reviewed the provided information for this report, compared it against previous production and financial reports and found the information to be consistent and of good quality. The practices used to estimate the Mineral Reserve are consistent with international best practices and conform the the standards required for reporting an NI 43-101 compliant report of Mineral Reserve estimation.

Andes Colorado concludes:

- The process used to estimate the Mineral Reserve meets international standards, including those standards applicable for a NI 43-101 compliant Mineral Reserve.
- The information used to prepare the estimate is of good quality and demonstrably reliable, as seen by the reconcilaitions and other work done as a check to confirm the accuracy of the information.
- The Mineral Reserve is a reasonable and accurate representation of the remaining mineral inventories of the Zeus, Goliat, Maximus, Maximus Sur, Perseo, Principal, A, B, D, D2, Rosario and Afrodita deposits.
- The El Roble project is financially robust until the known Mineral Reserve is depleted.
- There is significant risk to the project with regard to finding additional mineral reserves. If no additional, significant mineral reserves are found within the next 12-18 months there is a high risk that the project closes after the present mineral reserve is depleted.

26. Recommendations

Andes Colorado has the flowing recommendations:

MINER personnel should continue applying the methodology and systems that are used at present to track the remaining Mineral Reserve.

An aggressive exploration program is needed to replace the Mineral Reserve that has been or will be mined, there is a very small basis of Mineral Reserve moving forward.

Capital investments should be closely monitored to minimize capital costs going forward until additional Mineral Resources and additional Mineral Reserves can be identified.

27. References

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28. Certificates

28.1. Statement of Certification by Author

I, Thomas R. Kelly, MSc., EM, do hereby certify that:

1) I am a Mining Engineer and owner of Andes Colorado Corp., 8781 Sheridan Blvd., Suite 2001, Arvada, CO, 80003, USA and co-author of the report “NI 43-101 Technical Report, Mineral Reserve Estimate, El Roble Mine, Colombia” dated 12 June 2024 and effective as of 12 March 2024. I am jointly responsible and have reviewed and jointly edited Sections Summary 1, 13, 15, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26, and 28 of this Independent Technical Report.
2) I am a Registered Member in good standing of the Society for Mining, Metallurgy, and Exploration, Inc. (SME) (Registered Member Number 1696580).
3) I have practiced my profession as a Mining Engineer since 1974.
4) I am a graduate of the Colorado School of Mines, and earned a Bachelor of Science Degree in Mining Engineering in May 1974, as well as a Master of Science Degree in Mining Engineering from the Colorado School of Mines in December 1995.
5) I am a Fellow of the Australasian Institute of Mining and Metallurgy (Fellow Number 109746).
6) As a Mining Engineer, I have been involved from 1974 to 2024 with evaluation of resources and reserves, and design and operation of mines and other underground facilities in copper, gold, silver, lead, zinc, tin, and tungsten in the United States (Nevada, Colorado, Idaho, Alaska, and California), Bolivia, Peru, Chile, Colombia, Mexico, Honduras, Nicaragua, Costa Rica, Brazil, Ecuador, Republic of South Africa, Ghana, Guinea (West Africa), Indonesia, and Kazakhstan.
7) As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43-101.
8) I act as the independent qualified person for Atico Mining regarding mining issues. I am independent of the issuer according to the definition of independence presented in Section 1.5 of National Instrument 43-101.
9) I visited the site on multiple times, and inspected the underground mine workings, surface plant related to underground mine operations, and the engineering offices at the mine site.
10) As at the effective date of the Independent Technical Report, to the best of my knowledge, information, and belief, those sections or parts of the Independent Technical Report for which I was responsible contain all scientific and technical information that is required to be disclosed to make those sections or parts of the Independent Technical Report not misleading.
11) I have read National Instrument 43-101 and Form 43-101 F1. This report has been prepared in compliance with these documents to the best of my understanding.
12) I consent to the filing of the Independent Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their web sites accessible by the public, of the Independent Technical Report.

Dated this 12 day of June, 2024.

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Thomas R. Kelly, RM-SME
President & CEO, Andes Colorado Corp

28.2. Statement of Certification by Author

I, Antonio Cruz, hereby certify that:

1) I am currently employed (since Juanary 2013) as Senior Geologist for Atico Mining Corporation Peru S.A.C., Calle Miguel Dasso 153 Of. 3C, San Isidro, Lima, Peru. and co-author of the report “NI 43-101 Technical Report, Mineral Reserve Estimate, El Roble Mine, Colombia” dated 12 June 2024 and effective as of 12 March 2024. I am jointly responsible and have reviewed and jointly edited Sections Summary 2,3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 20, 27, and 28
2) I am a graduate of the Universidad Nacional de Mayor de San Marcos of Peru in 2007 where I obtained a Bsc Geology Engineer degree in 2011, obtained a Professional degree in Geological Engineering, Also, I have completed a Master's Degree in Administration and Project Management from the UPC (Peruvian University of Applied Sciences). I have practiced my profession continuously since 1998.
3) I am a registered member of the Australian Institute of Geoscientists (FAIG), member No FAIG # 7065.
4) I hold relevant work experience in Mineral Resource estimation of VMS, replacement polymetallic deposits and other veins deposits.
5) I have read the definition of “qualified person” set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfil the requirements to be a “qualified person” for the purposes of NI 43-101.
6) From February, 2013 to March, 2024, I have visited the mine constantly.
7) I have not had prior involvement with the property that is the subject of the Technical Report.
8) I have read NI 43-101 and Form 43-101F1 and the sections of the Technical Report I am responsible for have been prepared in compliance with that instrument and form.
9) As of the aforementioned Effective Date, to the best of my knowledge, information and belief, the sections of the Technical Report I am responsible for contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.
10) I consent to the filing of the technical report with any stock exchange and other regulatory authority and any publication for regulatory purposes, including electronic publication in the public company files on their websites accessible to the public of extracts from the technical report.

Dated this 12 day of June, 2024.

Antonio Cruz, FAIG
Senior Geologist, Atico Mining Corporation Peru S.A.C.