

# RPMGLOBAL

## NI 43-101 Technical Report Carangas Deposit Preliminary Economic Assessment

New Pacific Metals Corp.

Oruro, Bolivia

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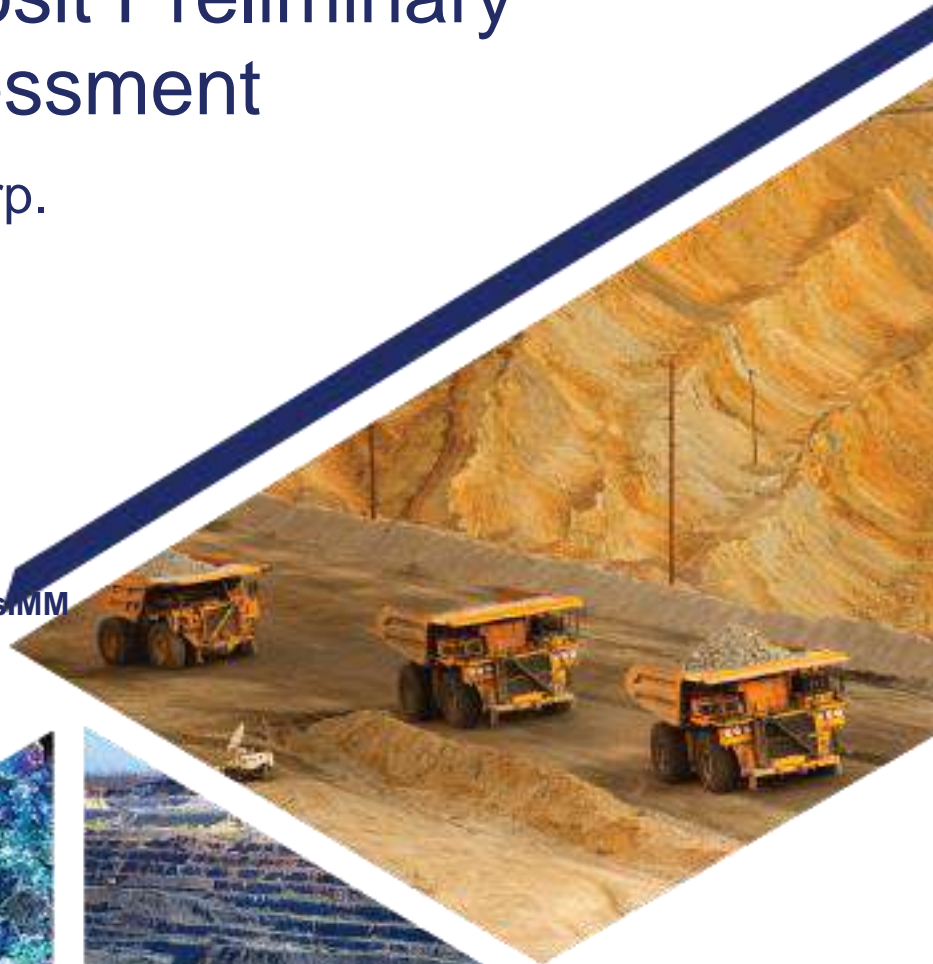
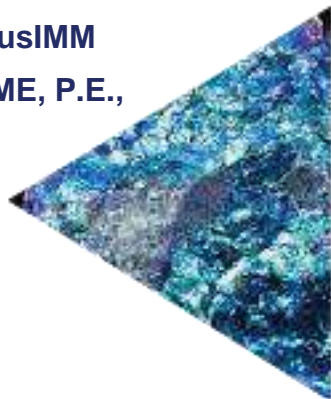
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# 1 SUMMARY

## 1.1 EXECUTIVE SUMMARY

RPMGlobal Canada Limited (“RPM”) was engaged by New Pacific Metals Corp. (“New Pacific”, “NPM”, the “Company” or the “Client”) to complete an Independent Preliminary Economic Analysis (“PEA” or the “Report”) of the Carangas Silver-Gold-Lead-Zinc Project (the “Project”, “Property” or “Relevant Asset”), located in Oruro Department, Bolivia. This Technical Report conforms to National Instrument 43-101 “Standards of Disclosure for Mineral Projects” of the Canadian Securities Administrators (“NI 43-101”).

In September 2023 New Pacific commissioned RPM to complete a Preliminary Economic Assessment (“PEA”) based on a Mineral Resource Estimate (“2023 MRE”) for the Carangas Silver-Gold-Lead-Zinc Project (the “Project” or the “Carangas”) in accordance with the guidelines of NI 43-101 and Form 43-101 F1.

The Project is located near the town of Carangas in the Oruro Department, Bolivia. RPM visited the property twice:

- Anderson Gonçalves, Principal Geologist FAusIMM, visited the project between March 27 and 30, 2023.
- Marcelo del Giudice, Principal Metallurgist FAusIMM, and Blaine Bovee, Principal Mining Engineer, visited the project between October 31 and November 2, 2023.

New Pacific Metals Corp is a Canadian exploration and development company that has three precious metal projects in Bolivia.

New Pacific Metals Corp. trades on the Toronto Stock Exchange (TSX) under the trading symbol NUAG and on the NYSE American under the symbol NEWP. The headquarters is in Vancouver, British Columbia.

Exploration at Carangas commenced in the late 1980s with mapping and channel chip sampling carried out in the old mining adits of San Jose and Orko Tonku at West Dome and the adits at East Dome. More than 350 samples were collected with an average grade of 64 g/t silver. Since 2021, exploration activities have focused on surface drilling. Drilling operations lasted until the end of April 2023.

The preliminary economic analysis contained within this study is partly based on Inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves. There is no certainty that the PEA based on these Mineral Resources will be realized.

### 1.1.1 Conclusions

The PEA is based on Indicated and Inferred Mineral Resources mined via a conventional open-pit mining approach. The assessment assumes a processing capacity of 4.0 million tonnes per annum (Mtpa), utilizing a series of operations, including crushing, grinding, flotation, concentrate thickening, and filtration to produce silver/lead and zinc/silver concentrates.

The Project’s life-of-mine (LOM) plan includes a total of 64.4 million tonnes of mill feed at average grades of 0.80% zinc, 0.44% lead, and 63 g/t silver, mined over a 16.2-year period through conventional open-pit mining. The cumulative production in concentrates is projected to yield 106.2 million ounces of payable silver, 281.2 thousand tonnes of payable zinc, and 173.4 thousand tonnes of payable lead.

On a stand-alone basis, the Project generates an undiscounted pre-tax cash flow totalling \$1,447 million over the mine life, with a post-tax payback period of 3.2 years from the start of production. The after-tax net present value (NPV) at a 5% discount rate is estimated at \$501 million, and the after-tax internal rate of return (IRR) is 26%.

The PEA demonstrates positive economic potential for the Carangas Project, supporting further advancement and development of the Project.

Specific conclusions by area are as follows:

## **GEOLOGY AND MINERAL RESOURCES**

**Geology and Mineralization:** The Carangas deposit is a sizable polymetallic silver-gold-lead-zinc deposit situated in a Tertiary-age volcanic complex within the South American Epithermal-Porphyry Belt. Mineralization is structured into distinct zones: an Upper Silver Zone (silver with lead and zinc), a Middle Zinc Zone (zinc with minor silver and lead), and a Lower Gold Zone (gold with traces of silver, copper, and zinc). Gold mineralization is open to north and northeast directions at depth. Beyond the drilled area, there are multiple IP chargeability anomalies with geophysical signatures similar to those of the known mineralization. These anomalies constitute targets for future drilling to assess if additional material is suitable for consideration in Mineral Resources.

**Data Verification and Resource Confidence:** New Pacific's procedures in core logging, sampling, and data QAQC have met industry standards, with the QP affirming the data's reliability and its suitability for resource estimation. The resource estimate complies with NI 43-101 standards and shows preliminary indicators for eventual economic extraction.

**Exploration Potential:** Previous exploration indicates additional potential for resource expansion, particularly for gold at depth and in the areas (outside current Mineral Resource pit shell) identified with IP chargeability anomalies. These anomalies have not yet been classified as Mineral Resources and should be tested with additional exploration drilling program.

## **MINING**

The Carangas Project PEA outlines a viable open-pit mining plan that includes detailed production schedules, capital, and operating cost estimates. The project is designed to exploit a 64.4 million tonne (Mt) resource with grades of 63 g/t silver, 0.44% lead, and 0.80% zinc at a waste-to-mill feed ratio of 1.7:1. The pit and stockpile layouts, as well as operational plans, align with practices typical of other regional open-pit metal mines, with contractor mining operations shown to be effective in similar settings.

The estimated capital and operating costs, assessed at a scoping level of engineering, are deemed reasonable and support the financial projections and cash flow model developed in the PEA. This analysis suggests that the project has the potential for positive economic outcomes under the proposed mine plan.

## **METALLURGICAL TESTWORK AND PROCESSING AND RECOVERY METHODS**

**Metallurgical Testing:** The Carangas Project's metallurgical testwork program was conducted by ALS Metallurgy in Kamloops, British Columbia, Canada, under the supervision of Dr. Jinxing Ji. This program builds upon earlier testing by Bureau Veritas Mineral/Metallurgy and ALS Metallurgy, focusing on flotation to produce silver/lead and zinc/silver concentrates from the Upper Silver Zone (USZ) and cyanide leach for gold doré production from the Lower Gold Zone (LGZ). The testwork included comminution testing, mineralogical analysis, gravity concentration, and both bulk and selective flotation, covering composite samples from various zones within the deposit.

Composite samples for testing were prepared using intervals from multiple drill holes across the deposit. In the Upper Silver Zone, the composite samples included the oxidized, transitional, and sulfide samples, with an additional composite sample representing the life-of-mine averages. A separate composite sample was prepared for testing from the Lower Gold Zone.

Sequential selective flotation successfully produced marketable silver/lead and zinc/silver concentrates from the Upper Silver Zone, achieving a total silver recovery of 87.3% in the two concentrates. Metallurgical testing

of the Lower Gold Zone indicated effective gold recoveries with gravity concentration, cyanide leach, and flotation.

**Proposed Process Flowsheet and Recovery Methods:** The proposed processing flowsheet for the Carangas Project involves sequential selective flotation to produce separate silver/lead and zinc/silver concentrates. The plant design includes a single-stage crushing circuit, a SABC (Semi-Autogenous Mill, Ball Mill, Crusher) grinding circuit, and dedicated silver/lead and zinc flotation circuits, each with rougher, regrinding, and three-stage cleaner circuits. Concentrate thickening, filtering, intermediate and final tailing thickeners are also included, with the intermediate thickening to reduce cross-contamination of process waters between two flotation circuits. The thickened final tailings are disposed of at the Tailings Storage Facility (TSF), with decant water recycled to the process plant.

The processing plant is designed with a nominal capacity of 4.0 Mtpa, achieving life-of-mine production of 826,000 tonnes of silver/lead concentrate and 744,000 tonnes of zinc/silver concentrate. The average concentrate grades are 3,975 g/t silver and 24.0% lead for the silver/lead concentrate, 356 g/t silver and 45.8% zinc for the zinc/silver concentrate.

## **INFRASTRUCTURE**

**Infrastructure and Support Systems:** The Carangas Project requires essential infrastructure development before operations commence, focusing on securing stable water and power supplies. Power will be sourced through an agreement with a government-owned power supplier, with a dedicated transmission line to the site. Securing a long-term power price agreement is critical to mitigate the risk of fluctuating electricity costs, and the line can be upgraded if needed for future expansion.

Water for initial construction will be drawn from an on-site stream. At the same time, operational needs will be met through a pipeline system, drawing from a combination of groundwater via water wells and surface water from the nearby rivers. Site access improvements are required, notably upgrading the last few kilometres of road, with annual maintenance planned. Fuel will be supplied by trucks, and contractual agreements are recommended to ensure reliable delivery and mitigate risks from potential political or economic disruptions.

All necessary non-process infrastructure buildings will be constructed to standard specifications, and the infrastructure design is expected to support the mine's operations over its life. The conventional slurry tailings storage facility (TSF) was chosen over dry-stacking due to lower operational costs and its suitability for the project area.

**Tailings Storage Facility:** The conventional slurry TSF design has been completed at a PEA level, based on general geological assumptions, without detailed meteorological or hydrological studies. It also assumes that waste rock will meet geochemical standards for embankment construction. Further studies are recommended to confirm these assumptions in the next project phase.

## **ENVIRONMENTAL STUDIES**

The baseline studies that were initiated are reasonable for what is expected to be able to produce the required Environmental Impact Assessment (EIA). These studies should continue to have an in-depth understanding of the physical and biological aspects of the project's area of influence.

### **1.1.2 Recommendations**

## **GEOLOGY AND DRILLING**

Additional drilling is recommended to improve confidence in the Carangas Project's Mineral Resources. This includes:

- Infill Drilling: Aimed at confirming mineral continuity within a 50 m by 50 m drilling grid in core areas, supporting resource classification and future economic studies.
- Step-out Drilling: Targeting extensions of gold mineralization beyond the conceptual pit in the north and northeast directions.
- Exploration Drilling: Focusing on IP chargeability anomalies beyond drilled areas may indicate similar mineralization and potential resource expansion.

## **MINING ENGINEERING**

To advance to Pre-Feasibility, the following are recommended with a \$3 million budget:

- Geotechnical Drilling: Focused on open-pit stability with rock strength testing and hydraulic characterization.
- Hydrogeological and Hydrological Studies: To refine pit water management strategies.
- Geochemical Waste Rock Characterization: Updating potentially acid-generating (PAG) models.
- Condemnation Drilling: Ensuring planned infrastructure locations are free of valuable mineralization.
- Trade-Off Studies: Evaluating contractor vs. owner-operated mining fleet options, cost-effectiveness of equipment, and potential for electrified equipment.

## **MINERAL PROCESSING AND METALLURGICAL TESTING**

Additional metallurgical testing is recommended to enhance flotation performance, minimize chemical reagent use, and finalize design parameters. Future testing should:

- Expand Flotation Testing: Using non-oxidized core intervals to reduce issues with oxidized samples and to improve selectivity.
- Optimize Zinc Flotation pH: Addressing high slurry viscosity in the zinc circuit by testing lower pH levels and different reagents.
- Conduct Comminution Testing: Conduct comminution testing on various samples across the deposit to refine mill design.
- Examine Process Water Impact: To optimize flotation efficiency by assessing cross-contamination effects between circuits.
- Thickening and Filtration Studies: These are for flotation tailings and concentrates to enhance handling and disposal.

## **INFRASTRUCTURE**

Infrastructure studies should prioritize:

- Water Source Development: Drilling local wells to secure fresh water and conducting hydrology studies for seasonal water availability from nearby rivers.
- Geotechnical and Hydrological Studies for TSF: To verify that the tailings storage facility (TSF) design meets regulatory standards and ensure containment stability.
- Environmental and Geochemical Testing of Tailings: Including acid-base accounting (ABA) and net acid generation (NAG) to assess potential acid drainage and metal leaching from waste rock.

## **ENVIRONMENTAL AND SOCIAL BASELINE STUDIES**



Baseline environmental studies are necessary to complete an Environmental Impact Assessment that meets regulatory standards. A social baseline assessment should be initiated to engage with nearby communities, with a focus on developing a community engagement and social investment plan.

### 1.1.3 Economic Analysis

A preliminary economic analysis for the Carangas project was completed in connection with the PEA study. The economic analysis and its underlying assumptions are preliminary in nature and include forward-looking statements. These statements involve a number of significant assumptions, including, but not limited to, Mineral Resource estimates, the proposed mine plan, cost estimates, metallurgical recoveries, concentrate grades, environmental and social considerations, infrastructure requirements, product marketing, and associated costs. There is no certainty that the economic projections within this report will be realized.

The preliminary economics analysis includes Inferred Mineral Resources that are considered too speculative geologically. There is no certainty that the 2024 PEA based on the Mineral Resources will be realized. Mineral Resources that are not mineral reserves have not demonstrated economic viability.

The discounted cash flow (DCF) methodology was employed to calculate the project’s net present value, internal rate of return, and payback period. The cash flow estimates are unlevered and calculated at the Carangas asset level. This economic analysis does not incorporate any corporate-level considerations from New Pacific Metals or any of its subsidiaries.

The NPV was calculated using a 5% discount rate, which is a standard real discount rate for evaluating precious metals projects. The cash flows were discounted from the second half of year –2.

No inflation adjustments were applied to the cash flow model.

Considering the Project on a stand-alone basis, the undiscounted pre-tax cash flow totals \$1,447 million over the mine life, and post-tax payback occurs 3.2 years from the start of production.

The economic analysis results are shown in **Table 1-1**.

**Table 1-1 Economic Analysis Results**

	Economic Analysis Results
Post Tax NPV @ 5% (\$M)	501
IRR (%)	26
Payback (years)	3.2

A sensitivity analysis was conducted to evaluate the influence of variations in LOM capital and operating costs. This analysis assessed the impact on post-tax NPV, applying a 5% annual discount rate, and on IRR by adjusting mining cost, process cost, and LOM capex, respectively, by +/-10% to +/-20%. The results of the cost sensitivity analysis are summarized in **Table 1-2**.

**Table 1-2 NPV and IRR Sensitivity Analysis by Input Cost**

Sensitivity Items	Cost Sensitivity				
	-20%	-10%	100% (base case)	+10%	+20%
<b>Mining Cost (Post-tax NPV \$M / IRR)</b>	534/27%	518/26%	501/26%	485/25%	468/25%
<b>Processing Cost (Post-tax NPV \$M / IRR)</b>	563/28%	532/27%	501/26%	470/25%	439/24%
<b>Life-of-Mine Capex (Post-tax NPV \$M / IRR)</b>	558/32%	530/29%	501/26%	473/23%	444/21%

Another sensitivity analysis was conducted for the silver metal price. The change in NPV and IRR is presented in **Table 1-3**.

**Table 1-3 Sensitivity analysis of silver prices**

Silver Price (US\$/oz)	Silver Price Sensitivity				
	\$18.00	\$21.00	\$24.00 (base case)	\$27.00	\$30.00
<b>Result (Post-tax NPV \$M / IRR)</b>	254/17%	378/22%	501/26%	625/30%	748/34%

An additional sensitivity analysis considering different discount rates is shown in Table 1-4.

**Table 1-4 Sensitivity to Discount Rate**

Discount Rates (%)	5%	8%	10%	12%
<b>Post Tax NPV @ (\$M)</b>	501	359	285	224

The sensitivity analysis results indicate that the post-tax NPV remains positive across the evaluated sensitivity range. The NPV is highly sensitive to variations in silver price and discount rate while showing moderate sensitivity to changes in capital and operating costs.

## 1.2 TECHNICAL SUMMARY

### 1.2.1 Property Description and Location

The Carangas Property is located in the Carangas district, situated in Bolivia's western part of the Oruro Department, approximately 190 kilometres southwest of Oruro City. The property is currently held by Minera Granville S.R.L.(Granville), a private Bolivian company, and comprises three Prospecting and Exploration Licenses (PELs), namely Granville I, Granville II, and Colapso, covering a total area of 40.75 km<sup>2</sup>

New Pacific Metals entered into a Mining Association Contract (MAC) with Granville to jointly explore and develop the property under applicable Bolivian laws and pursuant to the terms and conditions of the MAC. New Pacific Metals will cover all costs related to the exploration, development, and mining of the project, with the majority of the profits from mining production going to New Pacific Metals and a smaller portion allocated to Granville. As the holder of the mineral title to the property, Granville will be responsible for permitting matters to ensure the property remains in good standing under applicable Bolivian laws. The agreement has a term of 30 years and is renewable for an additional 15 years.

### 1.2.2 Land Tenure

The Property consists of three mining rights (PELs) granted to Minera Granville S.R.L. by the Bolivian authority AJAM (Mining Administrative Jurisdictional Authority). Each PEL has a five-year validity term, with provisions for one extension of three years. Minera Granville manages the annual costs of maintaining the PELs. New Pacific Metals (NPM) has a joint venture agreement or MAC with Minera Granville to conduct the geological and mining works related to these PELs.

RPM is not aware of any environmental liabilities on the property. New Pacific Metals has all required permits to conduct the proposed work on the property. RPM is not aware of any other significant factors and risks that may affect access, title, or the right or ability to perform the proposed work program on the property.

### 1.2.3 Existing Infrastructure

There is currently a camp accommodation for geologists to support exploration activities. The access road is by the existing 5 m wide compacted dirt roads to the camp.

### 1.2.4 History

Mining activities in the Carangas district began in the late 16<sup>th</sup> century in the Spanish colonial era. During that time, mining activities were mainly focused on oxide materials and native silver. Currently, widespread ruins of historical mine workings are visible in the East and West Dome, historically known as San Antonio and Espiritu Santo hills.

Following the decline of the Spanish colonial era, mining activities in the Carangas area diminished. In the 20<sup>th</sup> century, ownership of the Property was transferred between various international and Bolivian local mining companies. Notably, in the early 20th century, mining operations were revived by Moritz Hochschild and Federico Alfeld, a German geologist regarded as the father of Bolivian geology, who was working on the Property in 1923.

There has been a very limited amount of historical mineral exploration at Carangas. COMSUR conducted the earliest recorded exploration. This local Bolivian mining company conducted channel sampling in the underground workings of the San Jose, Orcko Tunku, and San Antonio adits in 1985. It collected over 350 samples with an average silver grade of 64 g/t Ag. Llicancabur Mining Ltda., a local Bolivia mining company, completed a total of 1,001 meters in 9 reverse circulation holes in 1995, and COMSUR drilled 914.2 meters in 6 diamond drill holes in 2000 (Lopez-Montaño, 2019).

### 1.2.5 Geology and Mineralization

The Property sits in the South American Epithermal-Porphyry Belt, featuring a geological sequence that includes Jurassic granites and the volcanic rocks of the Negrillos Formation and the Carangas Formation of Tertiary age. The Negrillos Formation consists of eroded lavas, tuffs, and volcanic breccias from ancient volcanic cones. Above the Negrillos Formation, the Carangas Formation includes rhyolitic to rhyo-dacitic intrusive dykes, lithic tuffs, phreatomagmatic breccias intercalated with fluvial sediments in the upper portion and andesitic volcanoclastic rocks in the lower portion.

The Carangas area is interpreted as a grand volcanic caldera system of the Tertiary age. The Property is located at the southwest corner of the Carangas basin. It geomorphologically comprises two prominent hills, the West Dome and the East Dome, and a fluvial valley in between called the Central Valley. In addition, there is a small hill known as South Dome near the south end of the Central Valley. At the Property's surface, silver-lead-zinc mineralized vein structures predominantly strike in a West-Northwest direction with steep dips, either sub-vertically or slightly dipping to the south or the north. In addition, there are some vein sets trending in northerly and northeast directions. To depth below the shallow silver-lead-zinc horizon, mineralization is dominated by gold plus a minor amount of silver and copper in the lower portion of the mineralized system.

Based on data obtained from drilling, the area of West Dome and Central Valley is interpreted as a diatreme structure with the shape of an inverted cone filled with breccias of phreatomagmatic origin and rhyo-dacitic intrusive dykes. On the top of West Dome, un lithified sandy sediments with horizontal beddings intercalated with phreatomagmatic breccias of altered rhyolitic and older volcanoclastic clasts are well exposed on surface, evidencing a volcanic maar environment. The intrusion of magma, once reaching the meteoric water level near surface, led to a series of intense explosive eruptions and fracturing, which in turn generated abundant open spaces, including cracks and pores in breccias, favourable for the circulation of hydrothermal fluids and the deposition of sulfide minerals of metals.

Three zones of mineralization can be recognized as zoning of different metals. The Upper Silver Zone is near surface and dominated by silver plus moderate amounts of lead and zinc. Below the upper zone, the Middle Zinc Zone is dominated by zinc plus minor silver and lead. The Lower Gold Zone is dominated by gold plus a small amount of silver, copper, and zinc.

## 1.2.6 Exploration Status

The Carangas project underwent a systematic exploration process, beginning with the Company's reconnaissance mapping and sampling in 2019. This initial phase was followed by detailed surface-underground mapping and sampling throughout 2020-2021. Exploration activities continued intermittently in 2022 and concluded with the sampling and mapping of previously inaccessible historical underground workings.

In 2020, New Pacific collected 383 rock chip samples from 55 outcrops. The samples were taken at two-meter intervals approximately perpendicular to the strike direction of mineralization, covering a total length of 769 meters. Out of these samples, 117 returned grades ranging from 30 to 2,350 g/t Ag, with an average grade of 160 g/t Ag. These samples were used as a guideline for further exploration programs.

The Property features historical underground mining workings. The company conducted surveys of all safe and accessible tunnels, totalling 2.4 kilometres, which are all developed within the Carangas Formation. To date, a total of 425 samples have been collected. Among these samples, 112 (26.35%) returned assay results ranging from 30 to 1,060 g/t Ag, with an average grade of 122 g/t Ag.

Furthermore, the company implemented systematic geophysical surveying programs, including a ground magnetometry survey and an Offset (3D) Bipole-Dipole Induced Polarization (IP)-Magneto-Telluric (MT) survey, from 2021 to 2023. The known mineralization system responds well to magnetic lows and IP chargeability highs, and multiple additional anomalies were identified.

## 1.2.7 Drilling

The Company started exploration drilling in June 2021 and completed resource definition drilling at the end of April 2023. During that period, as many as five rigs were running at Carangas, and a total of 81,145 meters were drilled in 189 holes. Maldonado Exploraciones, a contracted drilling company from La Paz, Bolivia, conducted all drilling roughly broken down into four stages.

- Phase I drilling: started on June 21, 2021, and concluded on September 24, 2021. Thirteen holes were completed, totalling 3,790.4 meters, to verify historical drill results and to test the lateral and depth extent of the known mineralization exposed on the surface at West Dome and East Dome.
- Phase II: drilling commenced on October 6, 2021, and completed on December 17, 2021. In this phase, 22 holes were drilled for a total of 9,420 meters with the objective of testing mineralization covered by young sediments in the Central Valley area.
- Phase III: a resource definition drill program, started on February 3, 2022, and completed on December 14, 2022. Five drill rigs were employed for the drill program to rapidly define the mineral resource potential at Carangas. During this period, a total of 50,311 meters were drilled in 115 holes on a drill grid of approximately 50-meter spacing, and most holes intersected broad mineralization.
- Phase IV: drilling is a continuation of the 2022 resource definition drill program with the aim to infill areas drilled in 2021-2022 and step out beyond these previously drilled areas. As of the end of April 2023, a total of 39 holes were completed for a total of 17,623.5 meters in this phase of drilling.

## 1.2.8 Sample Preparation, Assay, and QA/QC

New Pacific has established a series of working procedures and protocols regarding core logging, sampling, core quality assurance/quality control (QAQC) and data validation, which include the regular submission of check samples to umpire Alfred H Knight laboratory in Lima, Peru.

All drill holes were geologically logged and sampled by New Pacific field personnel at the company's facilities in Carangas. Geological logging included detailed recording of lithology, alteration, mineralization, structure and RQD measurements. Drill cores are stored in a secure core storage area at the Company's Carangas camp for future checks and audits.

New Pacific personnel oversees the delivery of drill core and rock chip samples from the Carangas camp to the ALS laboratories in Oruro, Bolivia, for sample preparation. Then, the pulp samples were shipped to ALS in Lima, Peru, for geochemical analysis. ALS Oruro and ALS Lima are part of ALS Global, a commercial laboratory specializing in analytical geochemistry services, all of which are accredited in accordance with ISO/IES 17025:2017 and are independent of New Pacific.

All drill core, rock chip, and grab samples are prepared using the following procedures: (1) crush to 70% less than 2 mm; (2) riffle split of 250 g; and (3) pulverize the split to more than 85% passing a 75-micron sieve.

New Pacific has established comprehensive QA/QC procedures covering every step of sampling, preparation, and geochemical analysis, including inserting certified reference materials (CRMs), blanks and duplicates into regular sample sequences. The use of a reasonable number of different control samples is robust. It returns a good variety of verifications throughout the complete process, and the umpire lab check analysis gives a good level of reproducibility of the database.

The insertion ratio of control samples is 24%, which is higher than the industry benchmark (15-20%).

In the QP's opinion, the data acquisition, analysis and validation comply with the best industry practices and are trustworthy for Mineral Resource estimates and technical reporting.

## 1.2.9 Mineral Processing and Metallurgical Testing

Following the completion of the first metallurgical testwork program in May 2023 with five mineralized samples, another five composite samples were collected in December 2023 from the Upper Silver Zone and Lower Gold Zone for the second metallurgical testwork program to support the current preliminary economic assessment.

Four mineralized samples were prepared using intervals from multiple drill holes in the Upper Silver Zone. The first sample was a nearly fully oxidized silver/lead/zinc mineralization which contained 61 g/t silver, 0.44% lead, 0.08% zinc and 0.20% sulfur. The second sample was a partially oxidized silver/lead/zinc mineralization which contained 61 g/t silver, 0.48% lead, 0.65% zinc and 0.89% sulfur. The third sample was a fresh silver/lead/zinc mineralization which contained 59 g/t silver, 0.42% lead, 0.89% zinc and 1.75% sulfur. The fourth sample consisted of 12.5% fully oxidized sample, 2.5% partially oxidized sample and 85.0% fresh sample, which was close to the life-of-mine average mineralization. Bulk flotation was applied to the fully oxidized sample to produce a silver/lead concentrate. Sequential selective flotation was applied for the other three samples to produce a silver/lead concentrate and a silver/zinc concentrate. For the fourth life-of-mine average sample, the locked cycle flotation test produced a high-silver containing lead concentrate, which contained 3,658 g/t silver and 24.0% lead with corresponding recoveries of 81.6% for silver and 73.4% for lead, and a silver/zinc concentrate which contained 325 g/t silver and 45.8% zinc with corresponding recoveries of 6.0% for silver and 66.9% for zinc. The total silver recovery in these two concentrates was 87.6%.

In the Lower Gold Zone, one composite sample was prepared, which contained 1.01 g/t gold, 11 g/t silver, 0.060% copper and 3.07% sulfur. This sample was amenable to gravity concentration, whole-ore cyanide leach and bulk flotation. A large amount of free gold particles was present between 53 µm and 300 µm. Based on the gravity concentration testwork results, a commercial gravity concentration circuit installed to process a portion of cyclone underflow is expected to recover about 45% gold at a primary grind size of 80% passing 75 µm. This gold sample was amenable to cyanide leach with 94.0% gold recovery at a grind size of 80% passing 90 µm, 48-hour retention time and cyanide consumption of 0.55 kg/t NaCN. Bulk flotation of this gold sample achieved 98.0% gold recovery and 94.7% silver recovery on average at 10.9% concentrate mass pull.

Three samples from the Upper Silver Zone, Lower Silver Zone and Lower Gold Zone were subjected to comminution testing. The measured rod mill work index, ball mill work index and abrasion index values were



10.1 ~ 12.3 kW.h/t, 10.7 ~ 12.8 kW.h/t and 0.038 ~ 0.075 g, respectively. These values indicate that these three samples were moderately hard and mildly abrasive.

## 1.2.10 Mineral Resources

RPM has independently estimated the Mineral Resources of the Carangas Project based on the data provided by New Pacific Metals as of June 1, 2023. The Mineral Resource estimate and underlying data comply with the guidelines of the CIM Definition Standards under NI 43-101. RPM considers it suitable for public reporting. The QP, Mr. Anderson Goncalves Candido, completed the Mineral Resources Estimate.

Mineral Resources were reported using a cut-off value of 40 g/t AgEq and a conceptual open-pit mining constraint, assuming that extraction will be conducted using an open-pit mining method. The cut-off value was determined using a number of technical factors and a consensus five-year forecast of metal prices.

Three zones of mineralization can be recognized as zoning of different metals. The Upper Silver Zone, the Middle Zinc Zone and the Lower Gold Zone. The Mineral Resources are stated in these three zones. The results of the Mineral Resource estimate for the Carangas deposit are presented in **Table 1-5**.

**Table 1-5 Carangas Deposit - Conceptual Pit\* Constrained Mineral Resource as of 25 August 2023**

Domain	Category	Tonnage	AgEq		Ag		Au		Pb		Zn	
		Mt	g/t	MoZs	g/t	MoZs	g/t	KoZs	%	Mlbs	%	Mlbs
Upper Silver Zone	Indicated	119.18	85	326.8	45	171.2	0.06	216.4	0.35	916.6	0.66	1,729.6
	Inferred	31.30	80	80.8	43	43.3	0.10	104.6	0.29	202.4	0.51	350.0
Middle Zinc Zone	Indicated	43.42	56	78.1	11	15.0	0.06	77.4	0.36	343.6	0.77	739.4
	Inferred	9.32	54	16.2	9	2.6	0.05	15.6	0.36	74.1	0.79	162.3
Lower Gold Zone	Indicated	52.28	92	154.9	11	19.1	0.77	1,294.4	0.16	184.7	0.16	184.7
	Inferred	4.37	91	12.8	13	1.8	0.69	97.5	0.22	21.4	0.22	21.4

Source: compiled by RPM GLOBAL, 2023

\* Notes:

1. CIM Definition Standards (2014) were used for reporting the Mineral Resources.
2. The Qualified Person (as defined in NI 43-101) for the purposes of the MRE is Anderson Candido, FAusIMM, Principal Geologist with RPM (the "QP").
3. Mineral Resources are constrained by an optimized pit shell at a metal price of \$23.00/oz Ag, \$1,900.00/oz Au, \$0.95/lb Pb, \$1.25/lb Zn, recovery of 90% Ag, 98% Au, 83% Pb, 58% Zn and Cut-off grade of 40 g/t AgEq and reported as per Section 14.
4. Drilling results up to June 1, 2023.
5. The numbers may not compute exactly due to rounding.
6. Mineral Resources are reported on a dry in-situ basis.
7. Mineral Resources are not mineral reserves and have not demonstrated economic viability.

Below the conceptual pit constraint, gold-dominated mineralized material of similar size and grade to the reported Mineral Resources of the Gold Domain within the conceptual pit exists. Gold mineralization remains open to the north and northeast at depth.

RPM considers that the reported Mineral Resources have reasonable prospects for eventual economic extraction using open-pit mining methods.

## 1.2.11 Mineral Reserves

This section is not relevant to this Technical Report.



## 1.2.12 Mining

The deposit is amenable to open-pit mining practices. Open pit mine designs, mine production schedules and mine capital and operating costs have been developed for the Carangas deposit at a scoping level of engineering. The Mineral Resources described in Section 14 form the basis of the mine planning, including Indicated and Inferred class resources.

Mine planning is based on conventional drill/blast/load/haul open pit mining methods suited for the project location and local site requirements. The open pit activities are designed for approximately two years of construction followed by thirteen years of mine operations and four years of post-pit mining stockpile processing. The subset of Mineral Resources contained within the designed open pits are summarized in **Table 1-6**, with a \$28/t NSR (Net Smelter Return) cut-off and form the basis of the mine plan and production schedule.

**Table 1-6 PEA Mine Plan Production Summary**

Factor	Value
PEA Mill Feed	64.4 Mt
Mill Feed NSR	\$50.6/t
Mill Feed Ag Grade	63 g/t
Mill Feed Pb Grade	0.44 %
Mill Feed Zn Grade	0.80 %
Waste Rock	111.7 Mt
Waste: Mill Feed Ratio	1.7

*Notes:*

1. The PEA Mine Plan and Mill Feed estimates are a subset of the August 25, 2023, Mineral Resource estimates and are based on open pit mine engineering and technical information developed at a Scoping level for the Carangas deposit.
2. PEA Mine Plan and Mill Feed estimates are mined tonnes and grade; the reference point is the primary crusher. Mill Feed tonnages and grades include open pit mining method modifying factors, such as dilution and recovery.
3. Net Smelter Prices (NSP) and metallurgical recoveries define the cutoff grade. NSPs include market price assumptions of \$23.00/oz Ag, \$2,094/t Pb, \$2,756/t Zn. Various smelter and refining terms, offsite costs, and a 6% royalty derive NSPs of \$20.5/oz Ag, \$1,418/t Pb, and \$1,630/t Zn. Metallurgical recoveries of 90% Ag, 83% Pb, and 58% Zn are applied.
4. The chosen cut-off grade covers total operating costs of \$28/t, which exceeds estimated PEA mining, processing and G&A cost estimates.
5. Estimates have been rounded and may result in summation differences.

Economic pit limits are determined using the Pseudoflow implementation of the Lerchs-Grossman algorithm. Selected pit limits are split up into three phases or pushbacks to target higher economic margin material earlier in the mine life. Additional mineable open pit phases below the pit limits and targeting the “Lower Gold Zone” portion of the Mineral Resource have been excluded from the base case PEA mine plan to limit the planned project footprint. Upper benches will be accessed via internal cut ramps on topography or via ramps left behind on phased pit walls. In-pit ramps will access material below the pit rim.

Pit designs are configured on 10 m bench heights, with a minimum of 8 m wide berms placed every two benches or double benching. Since no geotechnical test work or analysis has been completed on the bedrock, the applied bench face and inter-ramp angles, 67.5 degrees and 50 degrees, respectively, are scoping level assumptions based on the rock type and overall depth of the open pit.

Resources from the open pit will report to a ROM pad and primary crusher 0.5 km northeast of the pit rim. The mill will be fed with material from the pits at an average rate of 4.0 Mtpa (11 ktpd). Oxide resources will be stored in a stockpile 1 km north of the pit rim and rehandled to the crusher over the life of mine, blended with non-oxide mill feed. Non-oxide resources, mined in excess of mill feed targets, will be stored in a low-grade stockpile directly south of the ROM pad and process plant and east of the open pit. This stockpile is planned to be completely reclaimed to the mill at the end of the mine life.

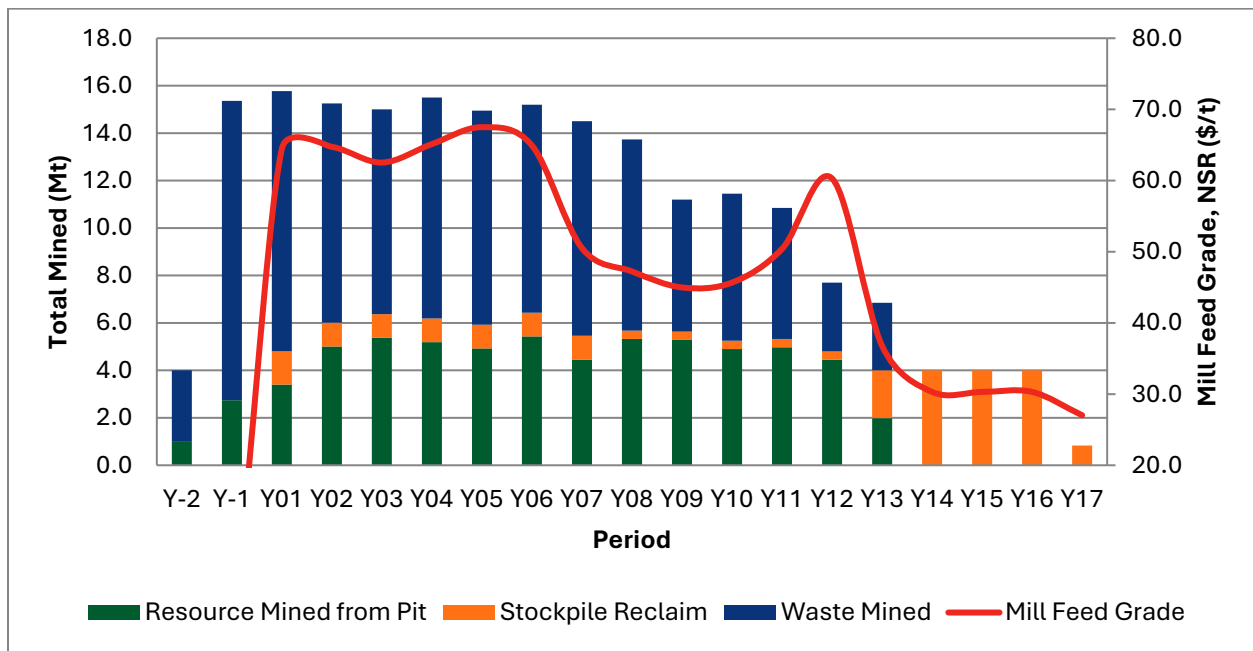
Waste rock will be placed in one of three storage facilities or used in the construction of haul roads and the dam portion of the tailings facility. The west waste rock storage facility (WRSF) sits directly north of the open pit. The east WRSF sits 2 km east of the open pit. A third WRSF sits 2 km north of the open pit, directly north of the oxide stockpile, and will store sub-grade waste, which is the portion of the Mineral Resources mined and not milled within this PEA mine plan.

The waste rock from the open pit has not been tested or analyzed for potential acid generation (PAG). It is assumed that PAG quantities will be small enough to be blended with larger quantities of non-acid generating (NAG) waste rock for surface storage within the WRSFs.

Topsoil and overburden encountered at the top of the pits will be placed in a dedicated stockpile directly north of the open pit and kept salvageable for closure at the end of the mine life. These quantities have not been measured and the storage facility has not been designed for the PEA mine plan.

The mine production schedule is summarized in **Figure 1-1**.

**Figure 1-1 Mine Production Schedule Summary**



Source: Moose Mountain, 2024

Contractor mining operations are planned, utilizing a diesel-powered mining fleet. Cost estimates for mining are based on a contractor quotation for this project, utilizing down the hole (DTH) drills for drilling, 0.20 kg/t target powder factor ANFO-based blasting, 4 m3 bucket size diesel hydraulic excavators for loading, and 70 t payload rigid-frame haul trucks for hauling, plus ancillary and service equipment to support the mining operations, including haul road and stockpile maintenance.

In-pit dewatering systems will be established for the pit. All surface water and precipitation in the open pit will be gravity drained or directed via submersible pumps to ex-pit settling ponds directly outside the pit limits, where it will report to the broader project water management system.

Contractor cost estimates include the investment in the mining mobile fleet and fixed facilities to maintain it.

### 1.2.13 Recovery Method

The proposed processing flowsheet for the Carangas Project is designed based on the characteristics of the mill feed for sequential selective flotation. A processing circuit was developed to treat the mill feed, comprising

a crushing-milling circuit followed by dedicated silver/lead and zinc/silver flotation circuits. The processing plant is designed with a nominal capacity of 4.0 million tonnes per annum, targeting an average annual production of 46,000 tonnes of zinc/silver concentrate and 51,000 tonnes of lead concentrate, both containing payable silver.

Metallurgical testwork results, combined with industry benchmark data, formed the preliminary mass balance, design criteria, and equipment selection for the process plant. A trade-off study was conducted prior to finalizing the flowsheet for this Preliminary Economic Assessment, evaluating alternative circuits such as concentrate cyanidation to produce silver doré. The conventional grinding-flotation circuit for producing two concentrates (silver/lead and zinc/silver) was chosen as the optimal approach.

The key unit operations for the Carangas process plant are:

- ROM ore stockpile and blending,
- Primary jaw crusher,
- SAG mill, pebble crusher and ball mill,
- Silver/lead selective flotation while rejecting zinc, pyrite and non-sulfidic gangue minerals,
- Silver/lead concentrate thickening, filtering, bagging and dispatch,
- Zinc/silver selective flotation while rejecting pyrite and non-sulfidic gangue minerals,
- Zinc/silver concentrate thickening, filtering, bagging and dispatch,
- Tailings thickening and pumping to the tailing storage facility (TSF).

The process plant's operational philosophy consists of grinding the mill feed to a particle size (P80) of 75 µm for subsequent silver/lead flotation, which consists of a rougher circuit, a regrinding mill and a three-stage cleaner circuit. The first-stage flotation is designed to produce a silver/lead concentrate with over 2,000 g/t silver content. The lead content in this concentrate will be above 15% to achieve a favorable payable rate for the contained lead. After the silver/lead concentrate is produced, the rougher tail and cleaner tail will be combined, thickened and then undergo a second-stage flotation to produce a zinc/silver concentrate which contains more than 40% zinc content. The second-stage flotation comprises a rougher circuit, a regrinding mill and a three-stage cleaner circuit. Efforts will be made to maximize silver recovery into the lead concentrate to enhance silver payable rate. After zinc/silver flotation, the final tailings will be thickened and pumped to the tailings storage facility.

### 1.2.14 Project Infrastructure

Existing infrastructure at the site supports exploration activities. Additional infrastructure is required to support construction and operations as described in this document.

The Project area is accessible by vehicle from Oruro city, with approximately 197 kilometres of paved National Highway 12 leading to Sabaya., then a 35km, maintained, flat gravel road from Sabaya to Carangas.

Water wells are considered as a primary water source for operations with local stream used during construction. The pipeline will have a catchment intake area, filters, and a pump station to pump the water to the site water tanks. Water will be used for the process plant, potable water, and fire water. After treatment at the site, water will be stored in tanks distributed to all areas. The hydrologic regime of the main water sources and associated tributaries as well as alternate water options will be further evaluated in the next project phase.

Power is planned to be supplied by a twinned overhead 115 kV, 210 km long transmission line, which will connect to the Carangas substation at the site from the Pagador substation, located 210km to the north. Power will be provide via the transformers at the substation and distributed to all areas at the Project.

A main gate will be built with a chain fence, external parking, communications, CCTV surveillance cameras, and a truck scale.

Accommodation for all weather conditions will be in place during construction, including temporary accommodations supplied by the construction contractor and permanent camp will be in place during operations.

All reagents, fuel, materials, and equipment will be transported on commercial trucks to the Project. Explosives will be stored and prepared away from living and working areas.

The Project will have an administrative building, lunch room, change room, truck shop, warehouses, meeting rooms, first aid room, and laboratory. All of these facilities will comply with local regulations and will be designed according to local weather conditions.

Communications and control will be designed for remote control operations and have internal and external phone systems and radios. Internet will be provided for operations and the campsite.

The Project assessed three types of tailings storage facilities (TSFs) in a trade-off analysis: conventional TSF (high-rate thickened tailings), high-density thickened tailings TSF, and a dry stack of filtered tailings. Conventional TSF method was selected due to its suitability for the site condition and its clear cost advantages.

The evaluation of TSF options is based on the following assumptions: total ore to mill is 64,438 kt, throughput is 4 Mtpa (10,959 tpd), mine life is 17 years, and total tailings amount to 63,794 kt (99% of total ore to mill).

Three locations were considered for conventional TSFs: the northeast tributary of the Carangas Stream, which had insufficient capacity due to a steep gradient; the southeast tributary of the Carangas Stream, which also had insufficient capacity; and the floodplain of the Carangas Stream, had a storage capacity of 69.0 Mm<sup>3</sup>, exceeding the required capacity.

A staging plan was developed for the construction of the Conventional TSF Option 1 in five stages. The capital and operating costs for the high-rate thickener required for this TSF are both included in the process plant costs. The tailings slurry pumping costs are covered in the tailings operating costs.

## 1.2.15 Market Studies

The project will generate revenue from the sale of a silver/lead concentrate and a zinc/silver concentrate.

The project is expected to produce approximately 826 kt (dry) of silver-lead concentrate with an average grade of 3975g/t silver and 24% lead and 744 kt (dry) of zinc-silver concentrate with an average grade of 45.8% zinc and 356 g/t silver over its 16.2 year operating life.

The principal commodities at Carangas are freely traded at widely known prices, ensuring virtually assured prospects for the sale of any production. RPM used the prices shown in **Table 1-7** for the chosen mining case.

**Table 1-7 Assigned Commodity Pricing**

	Units	Price
<b>Zinc/Silver Concentrate</b>		
Zn Price	\$/t	2,756
Ag Price	\$/oz	24
<b>Silver/Lead Concentrate</b>		
Pb Price	\$/t	2,094
Ag Price	\$/oz	24

As of this report, the initial contact with commodity buyers indicates that the silver/lead and zinc/silver concentrate market is strong and tight, resulting in low treatment and refining charges. The silver and lead market appears more stable and is expected to remain tight longer than the zinc market.

The market indicates that a silver/lead concentrate grading above 3,000 g/t silver and 22% lead (dry) and a zinc/silver concentrate grading 46% zinc (dry) would be acceptable to most smelting facilities.

The economic analysis completed for this PEA assumed that silver, lead, and zinc/silver production in the form of concentrates could be readily sold without deleterious element penalties. Assumed concentrate payabilities, treatment, refining and transportation charges are provided in **Table 1-8**; these values are considered typical.

**Table 1-8 Concentrate Payables, Refining and Transportation Assumptions**

Parameter	Silver/Lead Concentrate		Zinc/Silver Concentrate	
	Silver	Lead	Silver	Zinc
Payable	Pay 96.5% subject to a minimum deduction of 50 g/t.	Pay 95% subject to a minimum deduction of 3%	Deduct 3 ozs and pay 70%	Pay 85% subject to a minimum deduction of 8%
Treatment Charges	N/A	\$100/t	N/A	\$175/t
Refining Charges	\$0.5/oz	N/A	\$0.50/oz	N/A
Transportation Charges	\$120/t Conc		\$35/t Conc	

It was assumed that the zinc/silver concentrate would be sold to a Bolivian trader while the lead concentrate would be exported, resulting in differing transportation charges for each.

In Bolivia, mining royalties are applied to gross revenue from mineral sales, with silver production incurring a 6% royalty rate on gross revenue, while lead and zinc production incur a 5% royalty.

No contractual arrangements for mining, concentrate trucking, rail freight, port usage, shipping or smelting and refining are currently in place. Furthermore, no contractual sales arrangements have been made for the silver/lead concentrate or zinc/silver concentrate at this time.

Initial testwork of the two concentrates indicates no penalty elements are expected on the silver-lead and zinc/silver concentrates.

## 1.2.16 Environmental, Permitting and Social Considerations

The Carangas project is developing the baselines required to produce the EIA, receive the environmental license, and eventually construct the project. Environmental sampling campaigns for dry and wet seasons were conducted in November 2023 and February 2024, respectively. The community has authorized the social baseline, which is expected to be completed in due course. The town of Carangas is in close proximity to the project footprint, particularly the open pit. Further social and technical studies will need to be conducted to understand the potential implications better. The pit's proximity to the town may impact a colonial church and cemetery. During the EIA, a public consultation must be conducted with the affected population to consider the public's observations, suggestions, and recommendations.

A local consulting firm conducted field studies on air, gases, noise, sediments/solids, groundwater, water for consumption, and waste material in Nov 2023 and Feb 2024, covering the Dry and Wet Seasons, respectively. The baseline work to date has not detected any unusual or unexpected results.

## 1.2.17 Capital and Operating Costs

RPM, Moose Mountain Technical Services, and New Pacific teams have prepared the PEA cost estimates. All operating and capital costs have been estimated in real terms, in United States dollars (\$), and are effective as of the date of this report.

The cost estimate for this PEA considers all necessary investments to construct and operate the Carangas project over its LOM. The estimate was derived from a number of sources, including:

- Vendor’s quotations for some of the major equipment,
- Benchmark data,
- Inputs from New Pacific and other similar projects,
- Moose Mountain Technical Services data,
- RPM data.

The total project capital cost for Carangas is estimated at \$490 million, comprising an initial capital cost of \$324 million, sustaining capital of \$128 million, and closure capital of \$39 million. **Table 1-9** provides a breakdown of the capital costs.

**Table 1-9 Capital Cost Breakdown**

CAPEX (\$M)	Initial	Sustaining	Closure	Total
Mine	43	7		51
Processing Plant	188	32		219
Infrastructure	68	23		91
Tailings Management	14	34		48
G&A	11			11
Closure Cost			39	39
Contingency		32		32
<b>Total CAPEX</b>	<b>324</b>	<b>128</b>	<b>39</b>	<b>490</b>

A summary of the project operating costs is provided in **Table 1-10**.

**Table 1-10 Operating Cost Breakdown**

OPEX	Unit Cost – LOM Average (\$/t ore)
Mine	6.02*
Processing Plant	8.66
Tailings Management	0.36
G&A	3.56
<b>Total OPEX</b>	<b>18.60</b>

*\*The mining operating cost per tonne of mill feed.*

## 1.2.18 Risks and Opportunities

The Carangas Project faces several key risks and potential opportunities, summarized below:

### 1.2.18.1 Risks

#### Economic and Market-Related Risks

- **Metal Prices:** Declines in metal prices could increase the economic cutoff grade or reduce the selected open pit limits, decreasing the resource base available for the mine plan.



- **Operating Cost Assumptions:** Preliminary estimates rely on current market rates, including a \$0.53/L diesel price subsidized by the Bolivian government. Changes to this subsidy or shifts to market-driven fuel prices could significantly impact mining costs.
- **Treatment and Refining Charges:** Current projections are based on a preliminary quotation but may vary with market conditions and concentrate specifications.
- **Logistics for Zinc/silver concentrate:** Assumes a local Bolivian buyer, keeping transportation costs low. Costs may increase if export is required.
- **Capital and Operating Cost Estimates:** Based on initial quotes and benchmarks; further detailing may lead to adjustments as the project progresses potentially increasing cost estimates from those presented in this report.

## Technical and Operational Risks

- **Mineral Resources Classification:** The PEA relies on Inferred and Indicated Mineral Resources; upgrading to Measured Resources through additional drilling is essential to increase confidence in the resource base.
- **Geotechnical and Hydrogeological Factors:** Geotechnical studies could result in shallower pit slope angles, raising the overall stripping ratio. Hydrogeological analysis may also reveal more costly requirements for pit water management and slope depressurization.
- **Geochemical Factors:** Geochemical testing, especially for open-pit waste rock, could identify a need for more stringent and costly potentially acid-generating management solutions than those assumed in this study.
- **Metallurgical Assumptions and Processing Efficiency:** Metallurgical recoveries and concentrate grades are based on preliminary testing and observed correlations. Additional testing is needed to refine these projections.
- **Mining and Milling Operations:** Meeting the planned production rate relies on maintaining grade control and achieving anticipated recoveries. Reduced selectivity, recovery rates, or increased dilution would raise costs and challenge PEA production goals.
- **Tailings Storage Facility Design:** TSF design and cost assumptions depend on adequate subsurface conditions for embankment foundations and geochemically suitable waste rock for embankment construction.

## Infrastructure and Resource Supply Risks

- **Water Supply:** The water supply sources have been defined. Further hydrological studies and positive collaboration with the community will be essential to ensure stable water availability and uninterrupted operations.
- **Power Supply:** Although a plan exists to connect to the national grid, further studies are needed to confirm the cost, schedule, and reliability of this option.
- **Workforce Availability:** The project's remote location, high altitude, and climate pose challenges to attracting skilled and unskilled labor.

## Environmental, Social, and Governance (ESG) Risks

- **Land Tenure, Permitting, and Social License:** Maintaining land tenure, securing environmental licenses, and upholding the social license to operate are critical. The project's success will depend on robust governance and a positive local presence.
- **Political and Economic Stability:** Bolivia's recent social, economic, and political instability increases risk for foreign investment. Political shifts could also impact fuel and power supplies to the mine, posing a risk to uninterrupted operations.

## 1.2.18.2 Opportunities

### Economic and Market-Related Opportunities

- **Metal Prices:** If metal prices increase beyond the PEA assumptions, it could enable processing of lower-grade stockpiles, which are currently excluded in the mine plan, thereby extending the mine life and improving project economics.
- **Alternative Mining Plan:** There is an opportunity for an alternate production plan aimed at the Lower Gold Zone of the deposit, leveraging a larger open pit design. This approach retains all the established mine planning and design criteria, utilizing the 0.80 PF pit shell as the target. With comprehensive open pit designs tailored to access the Lower Gold Zone, this plan has the potential to expand resource extraction.

### Technical and Operational Opportunities

- **Resource Expansion through Drilling:** There is potential to extend the Resource base a depth with further drilling. Furthermore, exploration in geophysical anomaly zones could lead to resource expansion, potentially increasing the resource base.
- **Enhanced Metallurgical Recoveries:** With the uncertainty in the projected metallurgical recoveries, further metallurgical testing may allow for optimization of the processing flowsheet, improving metal recoveries.
- **Metallurgical Assumptions and Processing Efficiency:** Potential to reduce slurry viscosity in the zinc circuit through selective collectors, instead of Sodium Isobutyl Xanthate (SIPX), may improve processing at a moderately high pH level. More studies are required to confirm this.

## 2 INTRODUCTION

RPMGlobal Canada Limited (“RPM”) was engaged by New Pacific Metals Corp. (“New Pacific”, “NPM”, the “Company” or the “Client”) to complete an Independent Preliminary Economic Analysis (“PEA” or the “Report”) of the Carangas Silver-Gold-Lead-Zinc Project (the “Project”, “Property” or “Relevant Asset”), located in Oruro Department, Bolivia. This Technical Report conforms to National Instrument 43-101 “Standards of Disclosure for Mineral Projects” of the Canadian Securities Administrators (“NI 43-101”).

Through its wholly-owned subsidiaries, New Pacific Metals acquired exploration and mining rights over an aggregate area of approximately 40.75 square kilometres covering the Carangas project and its surrounding areas. The Carangas area is characterized by two prominent hills, West Dome and East Dome, which are situated within the Carangas caldera. This region has been historically known for its mineralization, particularly silver and gold, hosted in a variety of pyroclastic rocks and volcanic formations.

The Carangas Project, located in the Department of Oruro, Bolivia, consists of volcanic rocks from the Negrillos Formation, Carangas Formation, and Todos Santos Formation. These formations include a variety of lava flows, volcanic breccias, and ash flow tuffs, which have been instrumental in hosting significant mineral deposits. The exploration activities at Carangas have revealed notable silver and gold mineralization, with drilling and geological mapping ongoing to delineate these resources further.

### 2.1 Terms of Reference

This report was prepared to present the results of a PEA undertaken regarding the property.

Resource definitions are as outlined in the “Canadian Institute of Mining, Metallurgy and Petroleum, CIM Standards on Mineral Resource and mineral reserves – Definitions and Guidelines” adopted by the CIM Council on May 10, 2014.

This report is considered by RPM to meet the requirements of a Preliminary Economic Assessment as defined in Canadian NI 43-101 regulations. The economic analysis contained in this report is based, in part, on Inferred Resources and is preliminary in nature. Inferred Resources are considered too geologically speculative to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves. There is no certainty that economic forecasts on which this Preliminary Economic Assessment is based will be realized.

### 2.2 Effective Date

The effective date of this Technical Report is September 5, 2024.

### 2.3 Qualified Persons

Tables 2-1 present the Qualified Persons responsible for the preparation of this Preliminary Economic Assessment.

**Table 2-1 Qualified Persons**

Qualified Person	Position	Employer	Independent of New Pacific	Date of last site visit	Professional Designation	Sections of Report
Mr. Anderson G. Candido	Principal Geologist	RPMGlobal USA Inc.	Yes	Mar 27-30, 2023	FAusIMM	4-12, 14, Part of 1-3, 25-27
Mr. Marc Shulte	Vice President of Engineering and Operations	Moose Mountain Technical Services	Yes	No Visit	P.Eng (BC)	1.2.11, 1.2.12, 1.2.17 (mining costs), 15, 16, 21.1.1, 21.2.1, 24, 25.4, and 26.2
Mr. Marcelo del Giudice	Principal Metallurgist	RPMGlobal Brazil	Yes	Oct 30-Nov 2, 2023	FAusIMM	17, 18 (with the exception of 18.8), 19, 21, and 22, Parts of 1-3, 25, 26
Mr. Jinxing Ji	Consulting Metallurgist	JJ Metallurgical Services Inc	Yes	May 21-23, 2022	P.Eng (BC)	13, Parts of 1, 17, 25, 26
Mr. Gonzalo Rios	Executive Consultant - ESG	RPMGlobal Canada Ltd.	Yes	No Visit	FAusIMM	20, Parts of 1-3, 25, 26
Mr. Pedro Repetto	Principal Civil/Geotechnical Engineer	RPMGlobal USA Inc.	Yes	No Visit	P.E.	18.18, Part of 1, 25, 26

## 2.4 Sources of Information

Site visits were carried out by Mr. Anderson Gonclaves Candido from March 27 to March 30, 2023, and by Mr. Marcelo del Giudice and Mr. Blaine Bovee from Oct 30 to Nov 02, 2023.

The Qualified Person (QP) for Mineral Resources, Mr. Anderson Goncalves Candido, completed a site visit to the Project during the period from March 27 to March 30, 2023, to review field procedures of drilling, core logging, and sampling as well as previous work. During this visit, RPM also observed and verified site geology, site conditions, and data quality. In addition, open discussions took place with the Company personnel on technical aspects related to the Project. The QP found the New Pacific Metals project team was cooperative and open in facilitating RPM's work.

The primary source documents for this report were as follows:

- Canadian National Instrument 43-101 Standards of Disclosure for Mineral Projects, (“NI 43-101”), 2011;
- CIM Definition Standards for Mineral Resources and mineral reserves, prepared by the CIM Standing Committee on Reserve Definitions, adopted by CIM Council on May 10, 2014;
- Carangas Project Technical Report, Bolivia, Birak Consulting LLC, November 2022.
- Carangas Silver- Gold Project – Department of Oruro, Bolivia – NI 43-101 Mineral Resource Estimate Technical Report, effective date 25 August 2023, RPMGlobal Consulting, August 2023.

The primary source documents for the Mineral Resource estimate were:

- Drill hole files (assay, collar, downhole survey, lithology, RQD, core recovery) in CSV format;
- Density measurements from drill holes in CSV format;

- QAQC control samples;
- An orthophoto file in tif format; and
- A topography file in dxf format.

The documentation was reviewed, and other sources of information are listed at the end of this report in Section 27 References.

## 2.5 Key Units of Measure

All measurement units used in this Report are metric.

Currency is expressed in United States dollars (“\$”) unless otherwise noted.

Silver and Gold are described in terms of grams per dry metric tonnes (g/t).

Lead, Zinc, and Copper are described in terms of percentage.

## 2.6 List of Abbreviations

<b>Abbreviation</b>	<b>Unit or Term</b>
A	Ampere
ac-ft	Acre-foot
Ag	Silver
AJAM	Mining Administrative Jurisdictional Authority
ARD	Acid Rock Drainage
Au	Gold
AuEq	Gold Equivalent
bcy	Bank Cubic Yard
bcm	Bank Cubic Meter
CAPEX	Capital Expenditures
CFM	Cubic Feet per Minute
CIM	Canadian Institute of Mining, Metallurgy, and Petroleum
CM	Carrizal Mining
cm	Centimeter
CoG	Cutoff Grade
COO	Chief Operating Officer
Cu	Copper
cu ft	Cubic Foot
cu yd	Cubic Yard
CST	Cleaner Scavenger Tailings
dmt	Dry Metric Tonnes
dst	Dry Short Tons
dxf	Drawing Exchange Format
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMS	Environmental Management System
EP	Equator Principles
EPC	Engineering, Procurement, Construction
EPCM	Engineering, Procurement, Construction Management
ESAP	Environmental and Social Action Plan

FAusIMM	Fellow of the Australian Institute of Mining and Metallurgy
F&A	Finance and Administration
FoS	Factor of Safety
FS	Feasibility Study
g	Grams
g/l	Grams per Liter/Gallons per Liter
g/t	Grams per Tonne
G&A	General and Administrative
hp	Horsepower
IRR	Internal Rate of Return
k	Thousand
klbs	Thousands of Pounds
km	Kilometer
km <sup>2</sup>	Square Kilometer
koz	Thousands of Troy Ounces
kt	Kilo Tonnes
kV	Kilovolt
kW	Kilowatt
kWh	Kilowatt Hour
kWhr	Kilowatt Hour
l	Liter
l/s	Liters per Second
LAN	Local Area Network (computer communications system)
lb	Pound
lbs	Pounds
LOM	Life of Mine
m	Meter(s)
m <sup>2</sup>	Square Meter
m <sup>3</sup>	Cubic Meter
masl	Meters Above Sea Level
MDA	Mineral Development Agreement
MDE	Maximum Design Earthquake
MDL	Method Detection Limit
Mlb	Millions of Pounds
M+I	Measured and Indicated (with respect to Resources)
Mm <sup>3</sup>	Million Cubic Meters
Mt	Million Tonnes
MW	Megawatt
MWhr	Megawatt-Hour
Mw	Movement Magnitude (of rock, by seismic activity)
NPM	New Pacific Metals Corp.
NI 43-101	National Instrument 43-101
NPV	Net Present Value
NSR	Net Smelter Return
OBE	Operational Basis Earthquake
OPEX	Operational Expenditures
oz	Ounce
oz. t	Troy Ounces



opt	Troy Ounces per Short Ton
P <sub>80</sub>	80-Percent-Passing Size
PAG	Potentially Acid Generating
PELs	Mining Rights
Pb	Lead
PC	Principal Contractor
PE or PEng	Professional Engineer
PFS	Prefeasibility Study
PG or PGeo	Professional Geologist
PGA	Peak Ground Acceleration
PMF	Probable Maximum Flood
ppm	Parts Per Million
QA/QC	Quality-Assurance/Quality-Control
QAQC	Quality Assurance and Quality Control
Rec	Recovery
RMR	Rock Mass Rating
ROI	Return on Investment (Percentage, After Tax)
RPM	RPMGlobal
S	Sulfur
SAG	Semi-Autogenous Grinding
SEIA	Social and Environmental Impact Assessment
t	Tonne
tpa	Tonnes per Annum
tpd	Tonnes per Day
tph	Tonnes per Hour
tr oz	Troy Ounce
US\$	US Dollars
WAN	Wide Area Network (computer communication system)
WRF	Waste Rock Facility
Wi	Work Index (Grinding Characteristic of Rock)
Zn	Zinc

### 3 RELIANCE ON OTHER EXPERTS

All Sections of this Report were prepared using information provided by the Company or other third parties and verified by RPM, where applicable, or based on observations made by RPM.

The Qualified Persons have relied on the contribution by the Company and specialist consultants engaged by the Company and believe there is a reasonable basis for this reliance. The Qualified Persons do not disclaim any responsibility for this information. As of the effective date, RPM has relied on NPM for guidance on applicable taxes, royalties, and other government levies or interests applicable to revenue or income from the Project.

As of the effective date, with reference to the background, history, ownership and tenure of the Project, RPM has relied on the information provided by the Company, including land ownership and tenure status. RPM's scope has specifically excluded all aspects of legal, political, land titles and agreements, accepting such aspects may directly influence technical, operational, or cost issues.

RPM has not researched property title or mineral rights for the Project and expresses no opinion as to the ownership status of the Property.

## 4 PROPERTY DESCRIPTION AND LOCATION

The Carangas Property is located in the Carangas region in the western portion of the Department of Oruro, Bolivia, approximately 190 kilometres (km) from the city of Oruro. The coordinates of the center of the Property are 7,906,871 Northing and 541,116 Easting (WGS84, UTM Zone 19S), corresponding to latitude 18°55'48.05" S and longitude 68°36'34.25" W. The average altitude is approximately 3,950 meters. The Property has a total area of 40.75 square kilometres (4,075 hectares). The location of the Property is shown in **Figure 4-1**.



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LEGEND
<small>DO NOT SCALE THIS DRAWING. ALL FIGURES DEPENDING ONLY ON DATA PROVIDED TO US.</small>

CLIENT
 New Pacific Metals Corp.

PROJECT
<small>NAME</small> Carangas Silver- Gold Project - Department of Oruro, Bolivia - NI 43-101 Mineral Resource Estimate Technical Report
<small>DRAWING</small> Carangas Project General Location Plan
<small>FIGURE NO.</small> 4.3
<small>PROJECT NO.</small> ADV-10-00079
<small>DATE</small> September 2023

#### 4.1 Land Tenure

The Property consists of three mining rights (PELs) granted to Minera Granville S.R.L. by AJAM with the following details (**Table 4-1 and Figure 4-2**).

Each of the PELs in **Table 4-1** has a validity term of five years, with provisions for one extension of three years. Minera Granville manages the annual costs of maintaining the PELs. As the Property is located within 50 kilometres of international borders where foreign companies or foreigners are not permitted to have ownership of the land and right of mineral, Granville remains the holder of all licenses, permits and rights granted to it by Bolivian authorities. To the extent known, there are no other royalties, back-in rights, payments, or other agreements and encumbrances to which the Property is subject.

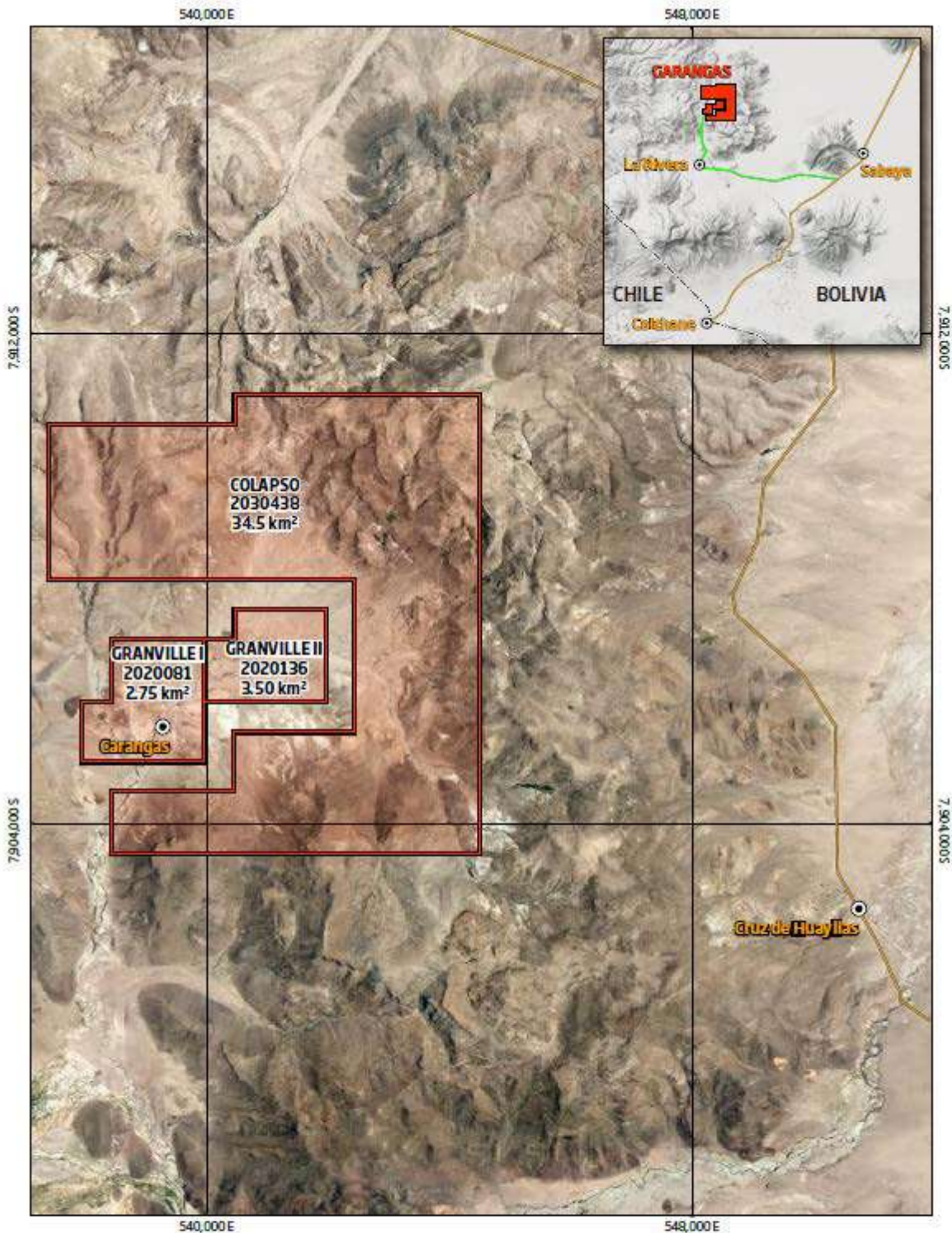
**Table 4-1 Mining Rights of Carangas Property**

Concession Number	National Registry	Name	Concession type	Size in Km2 (hectares)	Title holder	Expiration Date
2020081	4-02-2020081-0009-23	Granville I	PEL	2.75 (275)	Minera Granville S.R.L.	20/11/2027
2020136	4-02-2020136-0088-21	Granville II	PEL	3.50 (350)	Minera Granville S.R.L.	14/03/2026
2030438	4-02-2030438-0008-23	Collapso	PEL	34.5 (3450)	Minera Granville S.R.L.	20/11/2027

*Source: New Pacific, 2023*

RPM is not aware of any environmental liabilities on the property. New Pacific Metals has all required permits to conduct the proposed work on the property. RPM is not aware of any other significant factors and risks that may affect access, title, or the right or ability to perform the proposed work program on the property.





## RPMGLOBAL

### LEGEND

- Mining Licence
- International Boundary
- Town/City
- Road
- Gravel Road



GENERAL NOTE: THIS DRAWING USES RESOURCES OBTAINED ONLY FROM PUBLICLY AVAILABLE SOURCES

### CLIENT

New Pacific Metals Corp

### PROJECT

NAME Carangas Silver-Gold Project - Department of Oruro, Bolivia - NI 43-101 Mineral Resource Estimate Technical Report  
DRAWING Location of Carangas Mineral Rights

FIGURE No. 4-2

PROJECT No. ADV-TO-00079

Date September 2023



As the holder of the PELs, Granville has the right to:

- Carry out mining exploration and prospecting activities in the mining area indicated in the licenses for a specific term.
- Have the possibility to commercialize the eventual mineral production obtained exclusively from the exploration activities.
- Have a preferential right (the "Preferential Right"), which allows the holder to request the signing of an Administrative Mining Contract on the mining area preferentially over any other interested parties.
- The rights of passage, which allow transit through the land and/or neighbouring properties to access the holder's license area under prior agreement with the landowner and to build paths, roads, bridges, pipelines, aqueducts, power lines, railway lines, and install the necessary basic services, at its own expense and cost.

To maintain the PELs in good standing, Granville shall:

- Commence exploration and prospecting activities within one year from the date of the license grant.
- Not suspend activities for more than one year without justifiable reason.
- Deliver reports each semester on the progress of activities to AJAM (Mining Administrative Jurisdictional Authority).
- Pay the corresponding mining patent fees yearly in advance according to applicable Bolivian laws.
- Obtain the required environmental license before conducting prospecting and exploration activities in the area, and
- Follow the current exploration/mining Bolivian legislation and regulations.

## 4.2 Terms of the Joint Venture

The Company entered the Mining Association Contract to form a joint venture for the development of the permitted mining activities under applicable Bolivian laws. The joint venture grants the Company and Granville the opportunity to conduct mining activities within the mining area pursuant to the terms and conditions of the Mining Association Contract.

Terms of the joint venture were disclosed by the Company in its management discussion and analysis for the three and nine months ended March 31, 2022, as follows (New Pacific SEDAR issuer profile – MD&A, May 11, 2022):

*"In April 2021, the Company signed an agreement with a private Bolivian company to acquire a 98% interest in the Carangas Project. The project is located approximately 180 km southwest of the city of Oruro and within 50 km from Bolivia's border with Chile. The private Bolivian company is 100% owned by Bolivian nationals and holds title to the two exploration licenses that cover an area of 6.25 km<sup>2</sup>. Under the agreement, the Company is required to cover 100% of the future expenditures on exploration, mining, development, and production activities for the project. The agreement has a term of 30 years and is renewable for another 15 years."*

On April 20, 2023, the Mining Association Contract was updated for inclusion of the PEL of Colapso, which has an area of 3,450 hectares with all other terms of rights and obligations unchanged, bringing the total area to 40.75 square kilometres in three PELs.

To maintain the Property in good standing, the Company and Granville must comply with the agreement in relation to the development of the authorized mining activities.

## 5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

### 5.1 Accessibility

The Project area is accessible by vehicle from Oruro city, with approximately 197 kilometres of paved national Highway 12 leading to the town of Sabaya., then a flat gravel road of 35 kilometres from Sabaya to Carangas (Figure 4-1).

The closest major population center is Oruro City, with a population of approximately 260,000 people. Some small farming and grazing communities (pueblos) are scattered throughout the region, the closest being Carangas, situated between the two prominent hills – the West Dome and the East Dome – on the Property. The official population of the Carangas Pueblo is 1,130 people, according to the 2024 national census. Still, only a small number of people reside in the community on a regular basis, with the majority living in Oruro. Oruro has a long history and culture of mining since the colonial era, and a sufficient supply of skilled mining talents will be available once the Project evolves to mining production.

### 5.2 Physiography and Climate

The Project area is in Bolivia's Western Andes Cordillera region, a rugged mountains region with elevation reaching 4,000-5,000 m. At the Project area, the elevation ranges from 4,074 m on top of the West Dome down to 3,904 m at the Carangas Stream running between the West Dome and the East Dome in the core of the Property.

Vegetation on the Property consists of low grasses and shrubs. The climate of the Western Cordillera is cool and dry, especially in winter months. In the Carangas area, high temperatures range from 12.4°C in July to 19.2°C in October, and the low temperatures range from -3.5°C in July to 3.8°C in January (Table 5-1). Rainfall in the area is sparse and ranges from 2 mm in June to 162 mm in January. The local climate does not limit the length of the operating season.

**Table 5-1 Weather of Carangas Region**

	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Avg. Temperature °C	9.2°C	9°C	8.7°C	7.8°C	5.5°C	4.5°C	3.8°C	5.3°C	7.2°C	9°C	10.1°C	10.4°C
Min. Temperature °C	3.8°C	3.8°C	2.4°C	0.3°C	-2.4°C	-3°C	-3.5°C	-2.9°C	-1.5°C	0.2°C	1.2°C	3.3°C
Max. Temperature °C	15.4°C	15.1°C	15.4°C	15.7°C	14.3°C	13.1°C	12.4°C	14.2°C	16.3°C	18.1°C	19.2°C	18.3°C
Precipitation (mm)	162	138	81	21	3	2	4	6	6	12	22	82
Humidity (%)	59%	65%	59%	40%	22%	16%	17%	17%	19%	21%	22%	37%
Rainy days (d)	15	13	11	4	1	0	1	1	1	2	3	9
Avg. Sun hours (hours)	8.6	7.9	8.7	9.8	10	9.8	9.8	10.2	10.7	11.1	11.5	10.6

Source: *climate-data.org, 2023*

### 5.3 Local Resources and Infrastructure

Two small local streams are running through the Property with a flow rate of approximately 20 litres per second for each in the dry season. This water supply was more than enough for the water consumption of the Project during the exploration and drilling stage. Approximately five kilometres south of the Property, the streams join the larger Todos Santos River near La Rivera, which has a flow rate of more than one thousand litres per second in the dry season, which could provide an adequate alternative water supply for future mining stages if required.”

A 220 kV, single-phase electric power line is available via an approximately 250 km long power line from Oruro, running along the main road, Highway 12. A three-phase industrial power line is available about 5 km to the south of the Property near the community of La Rivera.

The Carangas community has essential facilities such as a medical clinic, school, church, soccer field, municipal offices, and towers for mobile telecommunication.

The Company has set up its exploration camp facilities at Carangas, including exploration offices, accommodation and dining, a core shack for logging and sampling, and storage. Most supplies for the Project are trucked from Oruro and La Paz.

The PELs grant the Company the right of exploration and small-scale mining only. Surface rights belong to the local communities. The Company has obtained permission from local communities to build drill roads, pads, and other exploration infrastructures during the exploration stage. Agreements or permissions need to be secured from the local communities to build the mine and other facilities, such as a processing plant, tailing and waste storage, as well as offices and accommodations in the vast open area surrounding the Property when it moves to the mining production stage.

## 6 HISTORY

The Property has a long mining history, dating back to the Spanish colonial period in the mid-1500s and continuing intermittently until the 20<sup>th</sup> century. In the 1980s, Compañía Minera del Sur S.A. (“Comsur”) was active in the area and collected 350 samples from surface dumps and underground channels.

From 1985 to 2000, limited exploration and drilling were conducted, primarily focusing on the geology and potential of the West Dome area. In 1995, Llicancabur Mining Ltda. (“Llicancabur”), a Bolivian mining company completed a total of 1,001 meters of reverse circulation drilling in nine holes.

In 2000, Comsur drilled 914.2 meters of diamond core drilling in six holes. The results confirmed significant silver mineralization, which had been reported from earlier drilling programs. Noteworthy intersections include 52 meters grading 103.4 g/t silver from a depth of 24 meters in hole DDH-1 and 30 meters grading 62.9 g/t silver from a depth of 8.0 meters in hole DDH-5.

In 2020, a Bolivian private company, Minera Granville S.R.L., was granted the Prospecting and Exploration License in the Carangas area.

In April 2021, New Pacific announced an agreement with Minera Granville to jointly explore and develop the Carangas Property. According to the agreement, New Pacific will cover 100% of future expenditures for exploration, mining, development, and production activities and will receive 98% of operating profits once the Project moves to mining production.

### 6.1 Historical Resource Estimates

No previous estimates were prepared from the property prior to the 2023 Mineral Resource Technical Report, which forms the basis of the study presented in this report.

### 6.2 Past Production

Mining in the district is believed to have commenced in the sixteenth century and continued intermittently until the early twentieth century. The Project, particularly the West Dome area, contains extensive surface workings, underground mine adits, shafts, and associated processing and smelting infrastructure. Currently, there is no active mining.

## 7 GEOLOGICAL SETTING AND MINERALISATION

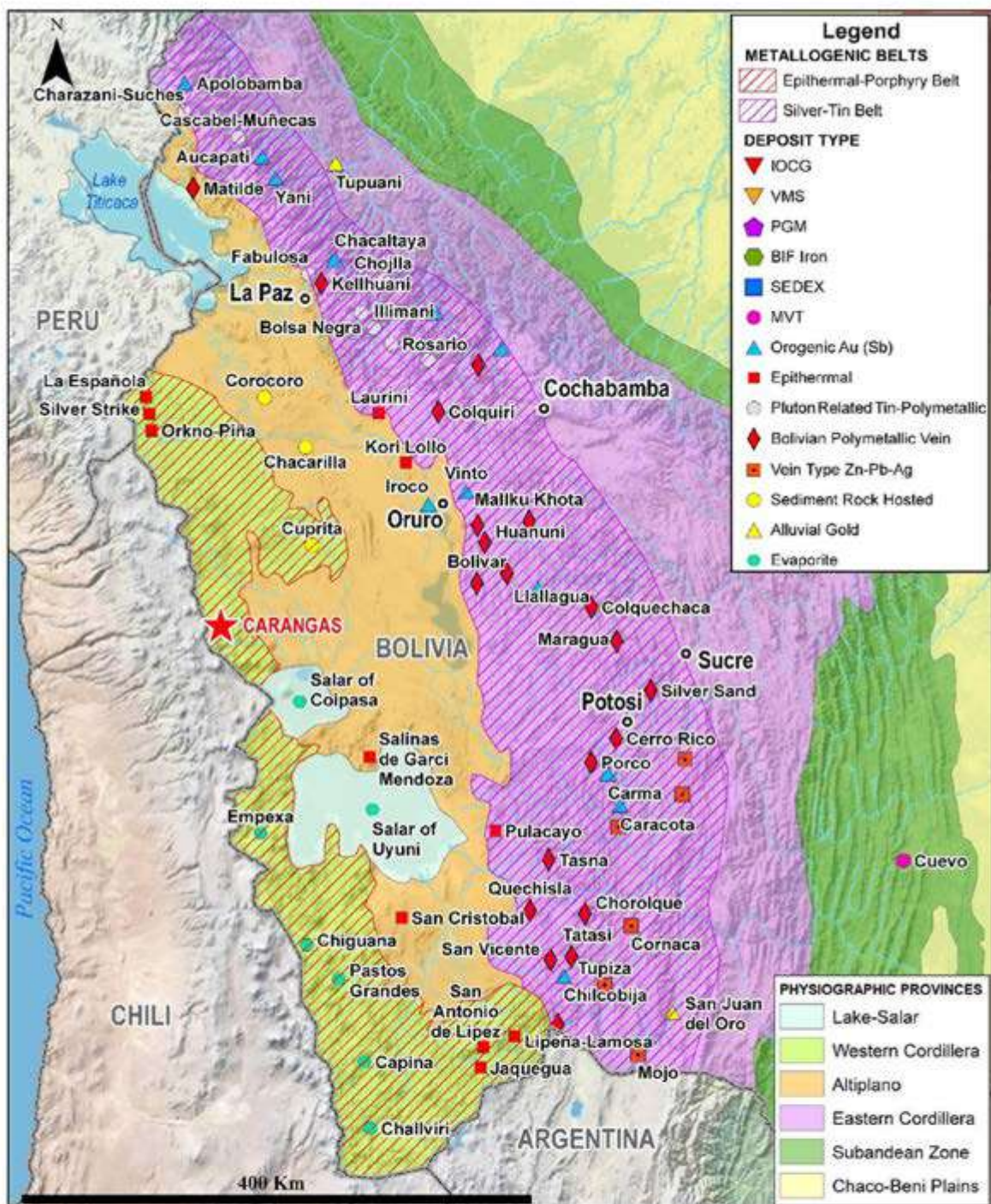
### 7.1 Regional Geology

The Bolivian Central Andes hosts a variety of mineral deposits grouped into distinct metallogenic belts (**Figure 7-1**). This region hosts epithermal silver, gold, lead, zinc, and copper deposits. From the Western Cordillera to the east into the Altiplano, several small copper deposits are hosted in the red sandstones of the Tertiary age, and some gold deposits associated with subvolcanic intrusions of the Tertiary age are hosted in Paleozoic metasediments.

The Eastern Cordillera (or Cordillera Oriental) hosts numerous tin-silver-lead-zinc-tungsten-gold-antimony-bismuth deposits, traditionally known as the Bolivian Silver-Tin Belt which stretches more than 900 km in length from Peru in the north, through Bolivia to Argentina in the south, trending from northwest to north-south. The Bolivian Silver-Tin Belt is a significant metallogeny belt with many super large silver-tin deposits such as Cerro Rico, Silver Sand, Llallagua, Huanuni, Pulacayo, etc.

Mineral deposits in the Bolivian Central Andes are genetically related to Miocene and Pliocene subvolcanic intrusions of dacitic-rhyolitic composition. Mineralization occurs as veins, veinlets, stockworks, and dissemination hosted in Paleozoic and Mesozoic sedimentary rocks, Cenozoic volcanic rocks, and Paleozoic to Mesozoic plutons.





RPMGLOBAL

LEGEND

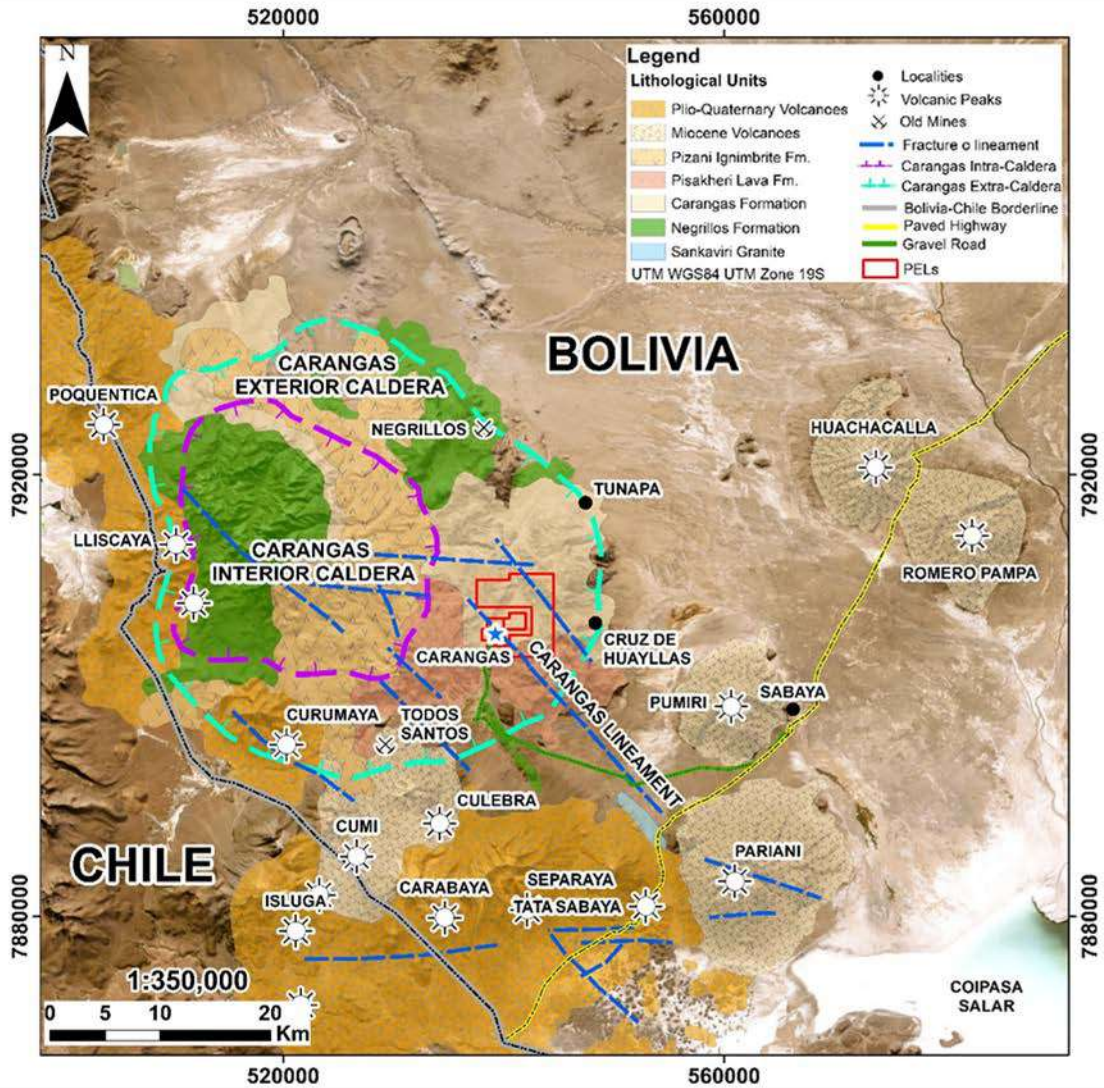
CLIENT

PROJECT
NAME: Carangas Silver- Gold Project - Department of Oruro, Bolivia - NI 43-101 Mineral Resource Estimate Technical Report DRAWING: Regional Geology Map of Bolivia Central Andes



## 7.2 Local Geology of Carangas Property

The Central Andes hosts a higher density of volcanoes of ages from Tertiary to Quaternary than any other area in the world. The region of Carangas is interesting as a caldera system of Tertiary age, which is formed over a basement consisting of a moderately deformed Triassic-Lower Jurassic crystalline bedrock and evolved from the Upper Oligocene to Lower Miocene period as indicated by radiometric dating (Ponce & Avila 1965). The proposed Carangas caldera is a circular structure with a central dome (Interior Caldera) approximately 20 km in diameter, surrounded by rings of lava domes 25 to 30 km from the center (Exterior Caldera) (**Figure 7-2**). The central dome is interpreted as a resurgent volcanic center with mineralization in the ring zone, including mineralization systems in Carangas, Negrillos, and Todos Santos.



**RPMGLOBAL**

<b>LEGEND</b>	<b>CLIENT</b>	<b>PROJECT</b>	
	 New Pacific Metals Corp.	NAME: Carangas Silver- Gold Project - Department of Oruro, Bolivia - NI 43-101 Mineral Resource Estimate Technical Report	
		DRAWING: Regional Geology of Carangas Property	
<small>DO NOT SCALE THIS DRAWING. USE FIGURED DIMENSIONS ONLY. VERIFY ALL DIMENSIONS ON SITE.</small>	<small>FIGURE No. 7-2</small>	<small>PROJECT No. ADV-TO-00079</small>	<small>Date: September 2023</small>

The Carangas deposit is located at the southwest corner of the Carangas basin, a caldera in the Carangas Exterior-Caldera system. Geomorphologically, it consists of two prominent hills, namely the West Dome and the East Dome, and a valley in between called the Central Valley (**Figure 7-3**). The two domes are more than 100 m above the surrounding fluvial plains. Near the south end of the Central Valley, a small, outcropped hill is known as the South Dome. Historically, the West Dome is referred to as Espiritu Santo Hill while the East Dome as San Antonio Hill.

Based on the results of detailed surface geological mapping and logging of drill cores by the project geologists of the Company, the Carangas deposit is interpreted as an epithermal silver-gold mineralization system centered by a rhyolitic diatreme filled with magmatic breccia in the shape of inverted conical structure spanning from the top of the West Dome to east in the Central Valley (**Figure 7-4**). The diatreme cuts through the older country rock of volcanoclastic rocks or lithic tuffs of dacitic composition in the upper part and andesitic composition in the lower part of the Carangas Formation.



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## Legend

- Ag Mineralized Structure
- Diatreme-Breccia Boundary
- DDH Collar
- Mining Dumps
- Fluvial Sediments
- Talus Overburden
- Hydrothermal Breccia
- Lithic Tuff
- Rhyolite / Dacite

WEST DOME

Section 24

CENTRAL VALLEY

EAST DOME

SOUTH DOME

WGS84 19S 0 125 250 Meters

538500

539000

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## LEGEND

## CLIENT

 New Pacific Metals Corp.

## PROJECT

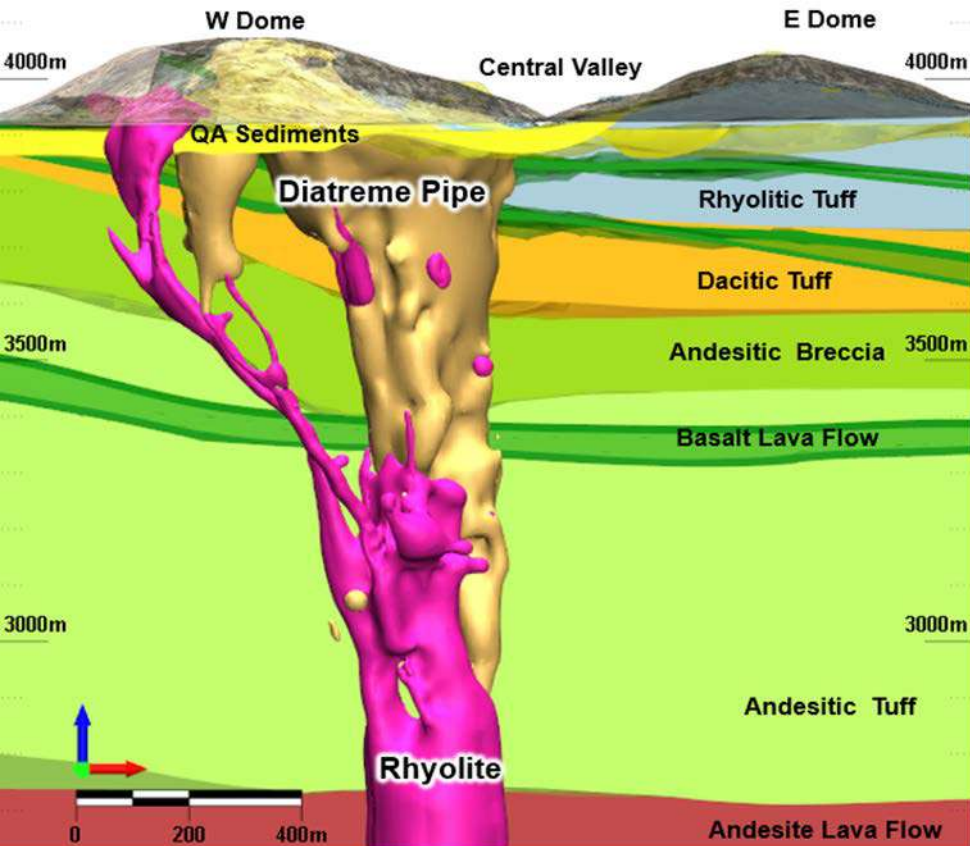
NAME  
Carangas Silver- Gold Project - Department of Oruro,  
Bolivia - NI 43-101 Mineral Resource Estimate Technical Report

## DRAWING

Carangas Local Geology

FIGURE No.  
7-3PROJECT No.  
ADV-TO-00079Date  
September 2023

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LEGEND	CLIENT	PROJECT
	 New Pacific Metals Corp.	NAME Carangas Silver- Gold Project - Department of Oruro, Bolivia - NI 43-101 Mineral Resource Estimate Technical Report DRAWING Carangas Diatreme Structure Section View - Looking NW
<small>DO NOT SCALE THIS DRAWING. USE FIGURED DIMENSIONS ONLY. VERIFY ALL DIMENSIONS ON SITE.</small>		FIGURE No. 7-4
		PROJECT No. ADV-TO-00079
		Date September 2023

The upper part of the diatreme is exposed on the top of the West Dome, and three types of rock were identified: hydrothermal breccia, heterolithic breccia and sandy tuff. To the west of the diatreme breccias, spotty outcrops of dacitic to rhyolitic dykes with flow banding textures are exposed on surface. The rhyolite dykes roughly strike north-northwest direction, and the flow bandings generally dipping west at high angles.

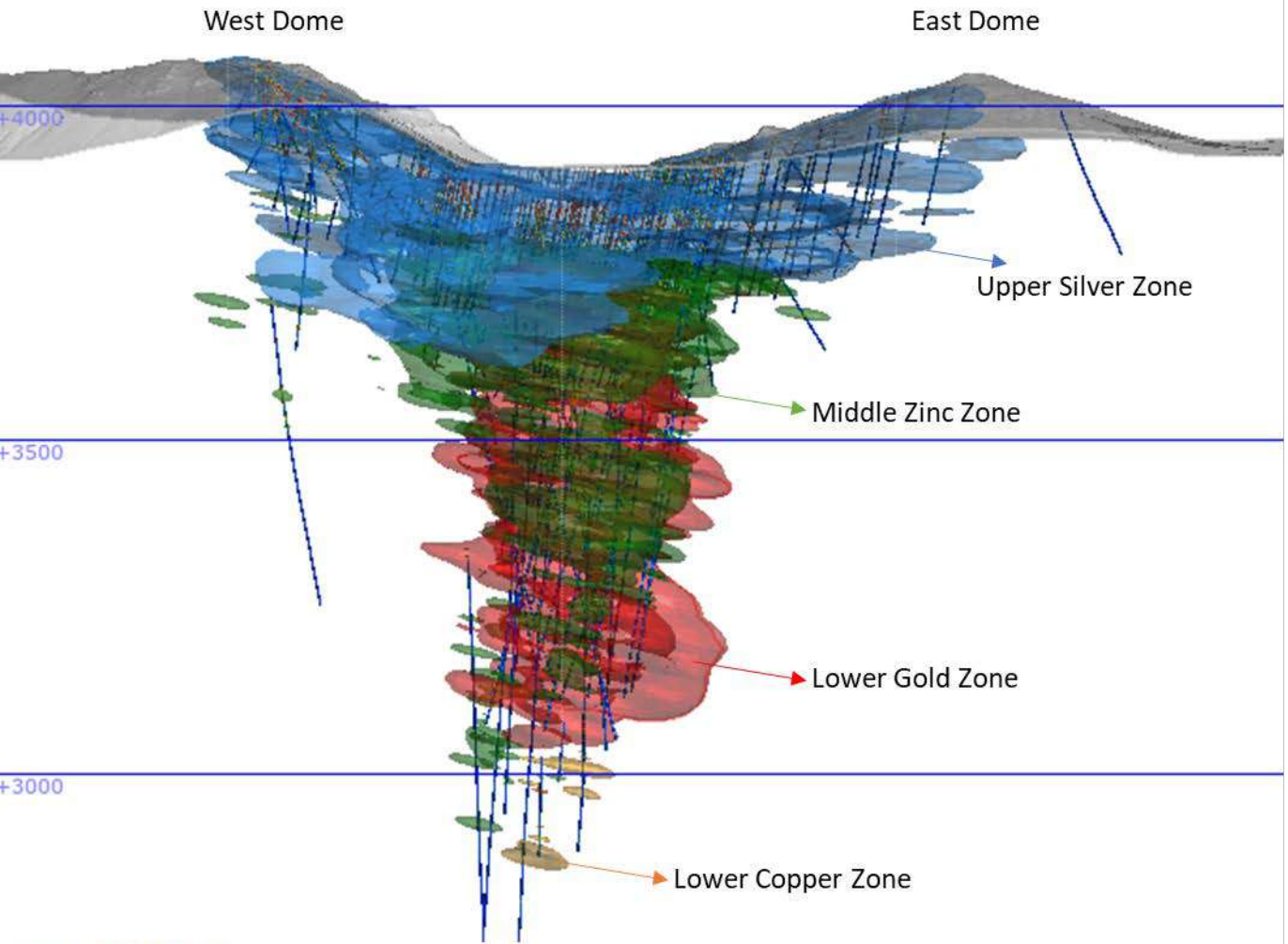
The Central Valley is fully covered by young fluvial sediments from a few meters up to 50 m thick. Logging of drill cores indicates the rock types beneath the valley are mainly altered phreatic breccia and lithic tuff. To the south, at the South Dome, the outcropped rocks are mainly altered phreatic breccia. Rocks in the East Dome are mainly altered lithic tuffs, likely the overlying phreatic breccias of diatreme already eroded.

## 7.3 Mineralization

The mineralization of Carangas consists of a diverse suite of metallic sulfide minerals and gangue minerals, occurring as veins/veinlets, breccia fillings and dissemination. The Company had a joint research program with the San Andrés Major University in La Paz (SAMU) to study the mineralization style and alteration of the Carangas deposit. At least three hydrothermal mineralization phases and one supergene event are identified in the project area.

The mineralization is controlled by the temperature and pressure of the hydrothermal system, i.e., the depth from ground surface or the distance from the source of heat generated by rhyolitic intrusions. Three zones of mineralization can be recognized as zoning of different metals. The Upper Silver Zone is near the surface and dominated by silver plus a moderate amount of lead and zinc. Below the upper zone, the Middle Zinc Zone is dominated by zinc plus minor silver and lead. The Lower Gold Zone is dominated by gold plus a small amount of silver, copper and zinc (**Figure 7-5**). The three mineralized zones are summarized in **Table 7-1**.





**RPM**GLOBAL

LEGEND

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CLIENT
 New Pacific Metals Corp.

PROJECT
NAME Carangas Silver- Gold Project - Department of Oruro, Bolivia - NI 43-101 Mineral Resource Estimate Technical Report
DRAWING Mineralized Zones by Metal Zoning- Oblique Section

FIGURE No. 7-5	PROJECT No. ADV-TO-00079	Date September 2023
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**Table 7-1 Summary of Carangas Mineralized Zones**

Zone	Size	Style of mineralization	Mineralization
Upper Silver Zone	Approximately within 200m from surface. Dimension: 1000m (L) by 800m(W) by 200m (T)	Disseminated silver+lead sulfides in the matrices of breccia in the top portion of diatreme (surface of W Dome) and veining plus stockworks of silver+lead+zinc sulfides hosted in diatreme breccia and older volcanoclastic rocks.	Silver (lead, zinc)
Middle Zinc Zone	700 (L) by 600m(W) by 150m (T)	Disseminated sphalerite and veining of zinc plus a minor amount of silver and lead sulfides hosted in the diatreme breccia and in the surrounding older volcanoclastic rocks	Zinc (lead, silver)
Lower Gold Zone	400m (L) by 400m(W) by 600m (T)	Veining of copper-silver-zinc sulfides and disseminated pyrite hosted in diatreme breccia and rhyolitic intrusions as well as surrounding older volcanoclastic rocks	Gold (copper±silver-zinc)

Source: New Pacific, 2023

### 7.3.1 Upper Silver Zone

The Upper Silver Zone is formed in a relatively low temperature and pressure environment approximately within 150 - 200 m from the surface in an area of about 1,000 m long in an east-west direction by 800 m wide in a north-south direction, spanning across the entire area of West Dome-Central Valley-East Dome-South Dome of Carangas deposit. It is interpreted as the distal phase of hydrothermal alteration and mineralization system arising from the rhyolitic intrusions at the depth of the Central Valley area.

At the top area of West Dome, there is a mineralized horizon of up to 50 m thick, composed of hydrothermal breccia of altered rhyolite clasts cemented by low-temperature silica of chalcedony, heterolithic breccia comprised of clasts of various lithologies and a matrix of fine debris of similar lithology as the clasts as well as unlithified loose sandy tuff layers and lenses with sedimentary beddings. These three types of rocks are intercalated with each other. The hydrothermal breccia generally contains a higher grade of silver compared to heterolithic breccia and sandy tuff. When the cementing chalcedony of hydrothermal breccia looks grey or dark in colour, it may contain silver up to 1,000 ppm. Due to erosion, the current thickness of this silver-lead horizon is from a few meters up to 50 m thick.

### 7.3.2 Middle Zinc Zone

When the temperature and pressure of the hydrothermal system become higher at depth below the Upper Silver Zone, grades of silver and lead in mineralization drop. In contrast, zinc grades rise with low grades of copper and gold locally in the lower portion of the zone.

Mineralization in the Middle Zinc Zone is characterized by the dissemination of marmatite and veining of honey sphalerite, galena, chalcopyrite, pyrite, siderite and small amount of silver sulfosalts. This zinc-dominated zone is generally from 150 m below surface with a thickness of tens of meters up to 150 m. The Zinc Zone is interpreted to be the peripheral zone close to the core Gold Zone formed in a higher temperature/pressure environment in the vicinity of rhyolitic intrusions.

### 7.3.3 Lower Gold Zone

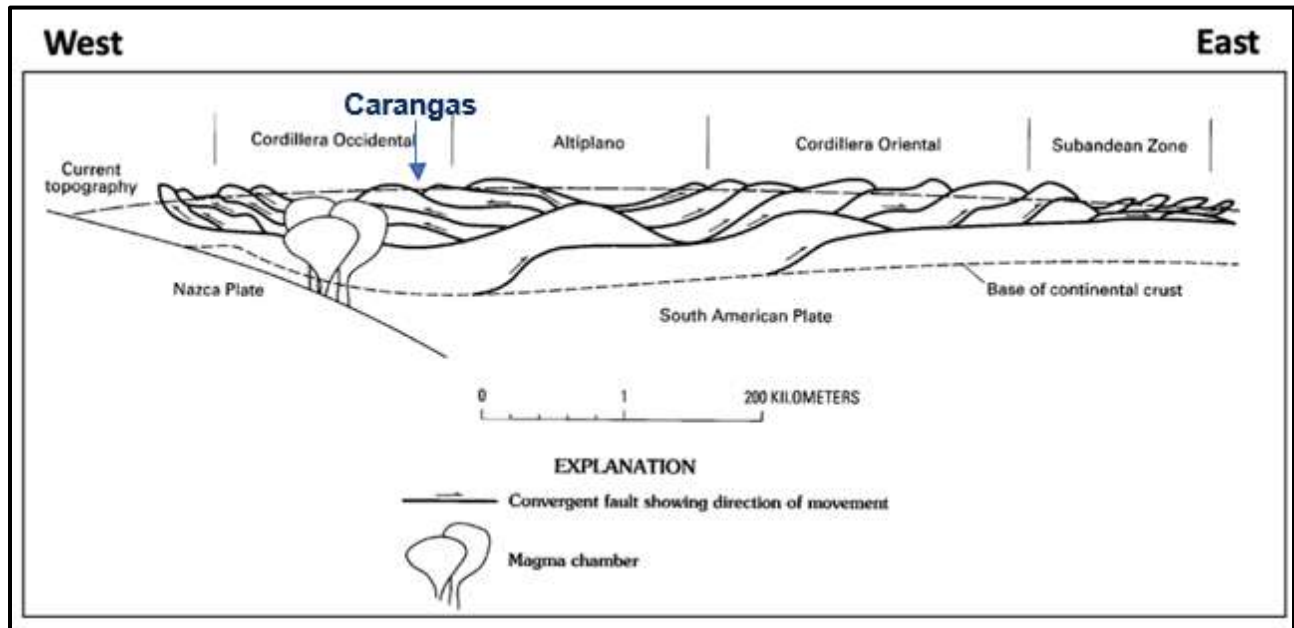
The Lower Gold Zone lies below the Middle Zinc Zone. Mineralization in this zone is characterized by the dissemination of pyrite and sulfides veining of pyrite and chalcopyrite plus a small amount of galena and sphalerite hosted in strongly argillic-sericitic altered phreatic breccia and rhyolite intrusions. This gold zone generally begins from a depth of 200 m. It extends to a depth of more than 800 m with a lateral extent up to 400 m wide, mostly confined to the diatreme pipe body and partially extending laterally into surrounding older volcanoclastic rocks. ASMIN lab studies indicate that gold occurs mainly in the form of free electrum, in minor amounts as native gold and very sparsely as Fe (Au) sulfides, Au-Ag sulfides and galena (Au). The grade of gold generally gets higher with depth and is highest around the elevation of 3500 m in the middle part of the gold zone. The gold grade declines to a further depth, but the copper grade gets relatively higher than in the upper portion. This zoning of metals is likely induced by the higher temperature/pressure environment of hydrothermal activities at depth.

Gold mineralization is fully controlled by the diatreme pipe structure, which is associated with rhyolitic dyke intrusions and perfectly overlays with the IP chargeability anomaly in the Central Valley area. This coincidence may imply that other IP chargeability anomalies beyond the drilled area could be promising targets of additional mineral potential and warrant drill testing in the future.

## 8 DEPOSIT TYPES

Carangas is located within the Cordillera Occidental belt, close to its eastern limit with the Andes Altiplano. The Cordillera Occidental of Bolivia, along with the Altiplano and Cordillera Oriental, altogether known as Central Andes, is part of the Andean Cordillera, a convergent plate margin (USGS and GEOBOL, 1975). The Cordillera Occidental is defined by a chain of late Miocene to Recent volcanic peaks stretching more than 750 km in length and some 40 km wide (Arce, 2009) that straddles the Bolivia-Chile border. This volcanic arc and associated granitic plutonic rocks of the Coastal Batholith in northern Chile and southern Peru (USGS and GEOBOL, 1975) were emplaced in and cut a Jurassic-Cretaceous aged eugeoclinal-miogenclinal mélangé of volcanic flows. Ash flows with associated sedimentary rocks (sandstone, siltstone, conglomerates, tuffaceous sediments and tuffs (Arce, 2009) all developed over Paleozoic-aged basement rocks (**Figure 8-1**).

**Figure 8-1 Schematic Cross-Section of Bolivia Region**



Source: Arce, 2009

The project area mineralization is a silver-gold polymetallic epithermal deposit of low-intermediate sulfidation associated with a rhyolitic maar diatreme cutting into volcanic and volcanoclastic country rocks of Oligocene to Miocene age. The upper portion of the Carangas deposit represents a low sulfidation zone, characterized by argillic and propylitic alterations as well as mineralization of sulfide minerals of silver, lead and zinc featured by argentiferous galena, silver sulfosalts, minor native silver, galena, sphalerite, and various gangue minerals, including crustiform-coloform chalcedony, banded chalcedony, smectite, zeolites, carbonates, and chlorite.

To depth, the low sulfidation zone gradually transitions into an intermediate sulfidation zone at a depth of approximately 200 m with sericitic and phyllic alteration and mineralization dominated by gold and a small amount of copper, represented by minerals of electrum, chalcopyrite, pyrite and native gold. Recent microscopic studies conducted in 2022 have further identified the presence of other copper minerals, including enargite ( $\text{Cu}_3\text{AsS}_4$ ) and famatinite ( $\text{Cu}_3\text{SbS}_4$ ). The zone of intermediate sulfidation extends from a depth of approximately about 200 m to a depth of more than 700 m. The mineralization in this zone is mainly controlled by the diatreme structure and the intrusion of rhyolite.

## 9 EXPLORATION

### 9.1 Sampling and Mapping

The silver mining history of Carangas dates back to the 16th century of the colonial era, evidenced by the widespread historical mining workings and dumps. Systematic exploration programs were completed at Carangas since 2019, including surface and underground (UG) geological mapping, rock chip sampling and mine dumps sampling, geophysical ground magnetometry surveying and induced polarization (IP) surveying. These exploration programs are summarized in **Table 9-1**.

At Carangas, 1,076 samples have been collected from an area covering 2 km<sup>2</sup>, including chip samples and mine dump samples. The sample campaign covers the entire Carangas deposit. Anomalous silver results occur in zones on both domes, confirming the extensive silver mineralization at Carangas.

**Table 9-1 Summary of Exploration Programs at Carangas**

Year	Type of Work	Conducted by	Description	Number of Samples Collected
2019	Surface and UG mapping	New Pacific	Grab mine dump samples	268
2020	Surface and UG Mapping	New Pacific	Grab dump, surface chip and underground channel sampling	729
2021	Surface and UG Mapping	New Pacific	Underground channel sampling	79
2021	Ground magnetometry survey	Arce Geofísicos	309.8-line km, 67 N-S lines, 100 m line spacing	n/a
2022	3D Bipole-Dipole IP-MT survey	Southern Rock Geophysics S.A.	149.2-line km, approx. 10 km <sup>2</sup> .	n/a
2022-2023	3D Bipole-Dipole IP-MT survey	Southern Rock Geophysics S.A.	28.6-line km, approx. 29 km <sup>2</sup> .	n/a
2022	UG mapping	New Pacific		n/a

Source: New Pacific, 2023

During the due diligence study of the Property in 2019, reconnaissance geology mapping and an intensive sampling program of historical mine dumps were carried out to provide an initial understanding of the geology and mineralization of the deposit. Subject to the size of the mine dump, grab samples of random selection at each mine dump were collected at a spacing of every ten meters. At least one grab sample was collected if the size of the mine dump is smaller than ten meters in diameter. The weight of each sample is between 2-4 kilograms. A total of 268 samples were collected, of which 233 (86.94%) returned assay results between 30-1,950 g/t Ag with an average grade of 270 g/t Ag.

During the detailed surface geology mapping in 2020, a total of 383 rock chip samples were collected from 55 outcrops by the Company. Chip samples were collected continuously at 2 m intervals of up to 5 cm deep and 10 cm wide along sample lines oriented approximately perpendicular to the strike direction of mineralized structures for a total length of 769 m. Of the 383 chip samples collected, 117 samples returned a grade between 30 and 2,350 g/t Ag with an average grade of 160 g/t.

Most of the historical underground mining workings are located at the West Dome, and the Company surveyed and mapped all accessible historical mining adits for a total length of 2.4 kilometres in six underground adits. Chip samples were taken continuously every two meters along the wall of underground workings, and each sample weighed about 2-5 kg. A total of 425 samples were collected, of which 112 samples (26.35%) returned assay results between 30 and 1,060 g/t Ag with an average grade of 122 g/t Ag.



During the site visit, the QP examined the mineralized outcrops and sampling sites at Carangas and concluded that the sampling is representative of the mineralization. The QP did not identify any factors that could have resulted in sample biases.

## 9.2 Geophysics

The Company completed geophysical surveying programs, including Ground Magnetometry surveying and Offset (3D) Bipole-Dipole Induced Polarization/Resistivity (IP) and Magneto-Telluric (MT) surveying at Carangas in years 2021, 2022 and 2023.

The Ground Magnetometry Surveying was conducted by Arce Geofiscos, based in Lima, Peru, from November 2021 until January 2022. A total of 309.8-line kilometres in 67 North-South lines (100m spaced lines) were completed to cover the entire Carangas area.

Results of the magnetometry survey at Carangas show a prominent low magnetic response approximately centered in the area of the Carangas village, including the area with surface mineralization and alteration exposed at the West Dome-Central Valley-East Dome. Magnetic inversion modelling indicates the lower magnetic response extends down to more than 1,000 m depth. The vast magnetic low beyond and to the north of the drilled area of the West Dome-Central Valley-East Dome may imply the potential of additional mineralization and justify drill testing in future drilling campaigns.

The 3D Bipole-Dipole IP-MT Surveying at Carangas was conducted in two separate stages:

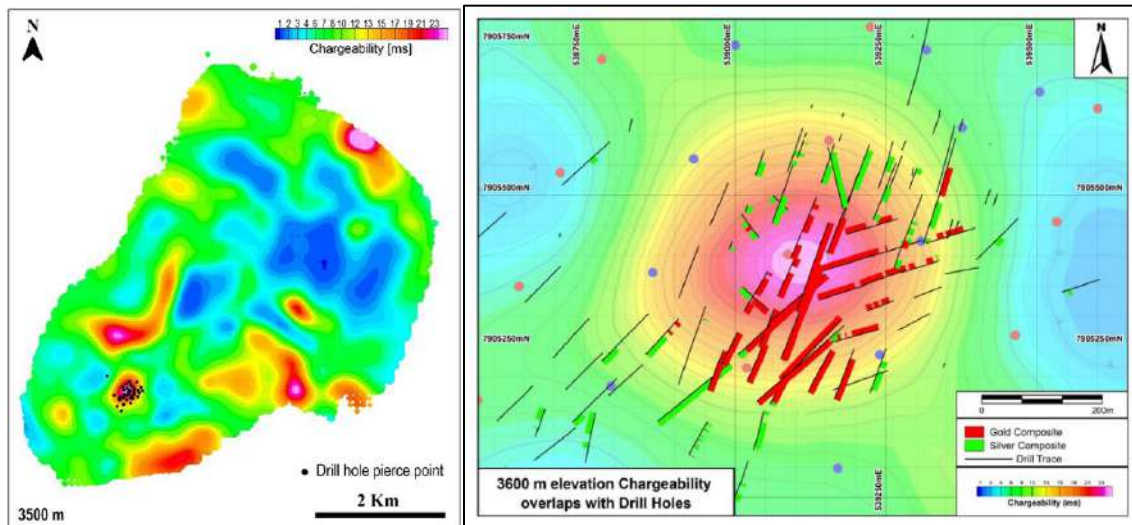
The first stage was a pilot test carried out in the period of July-September 2022 by Southern Rock Geophysics S.A. based in Santiago, Chile, centered in the drilled area for an area of approximately ten square kilometres, aiming to understand the geophysical signature of the known mineralization.

The results of the test surveying are very coherent in that multiple chargeability anomalies were identified in the surveyed area, especially with the strongest one perfectly overlaying with the known gold mineralization in the Central Valley (**Figure 9-1**), which may imply IP surveying is an effective method to identify targets of alteration and sulfidation at Carangas. Other chargeability anomalies beyond the Central Valley could be additional mineralization systems.

The same contractor conducted an expanded second stage surveying from October 2022 to January 2023 to cover the entire Carangas caldera basin area for a total of 130,993 m line meters in an area of 29 square kilometres, aiming to find more chargeability anomaly targets.

The expanded surveying confirmed the anomalies in the central drilled area of Carangas and identified additional anomalies across the Carangas caldera basin. The most prominent anomaly of chargeability exists to the north of West Dome, trending roughly NWW parallel to the striking of the surface mineralized structures, with the intensity of the anomaly increased from a depth of 200m from surface. (elevation 3700 m), similar to the geophysical response of the gold mineralization in the Central Valley area. This anomaly is a good target for future drilling campaigns.

**Figure 9-1 IP Chargeability Anomalies of Carangas Area**



Source: New Pacific, 2023

### 9.3 Exploration Potential

Based on the outcomes of the Mineral Resources estimate, RPM recommends additional drilling be undertaken. There is good potential to expand the Mineral Resource base and increase confidence in the Mineral Resource, which is required to make informed investment decisions.

RPM notes that at this stage, any of the related exploration potential mentioned in this report has not been reported as Mineral Resources, and there is no guarantee that Mineral Resources will be defined through further exploration.

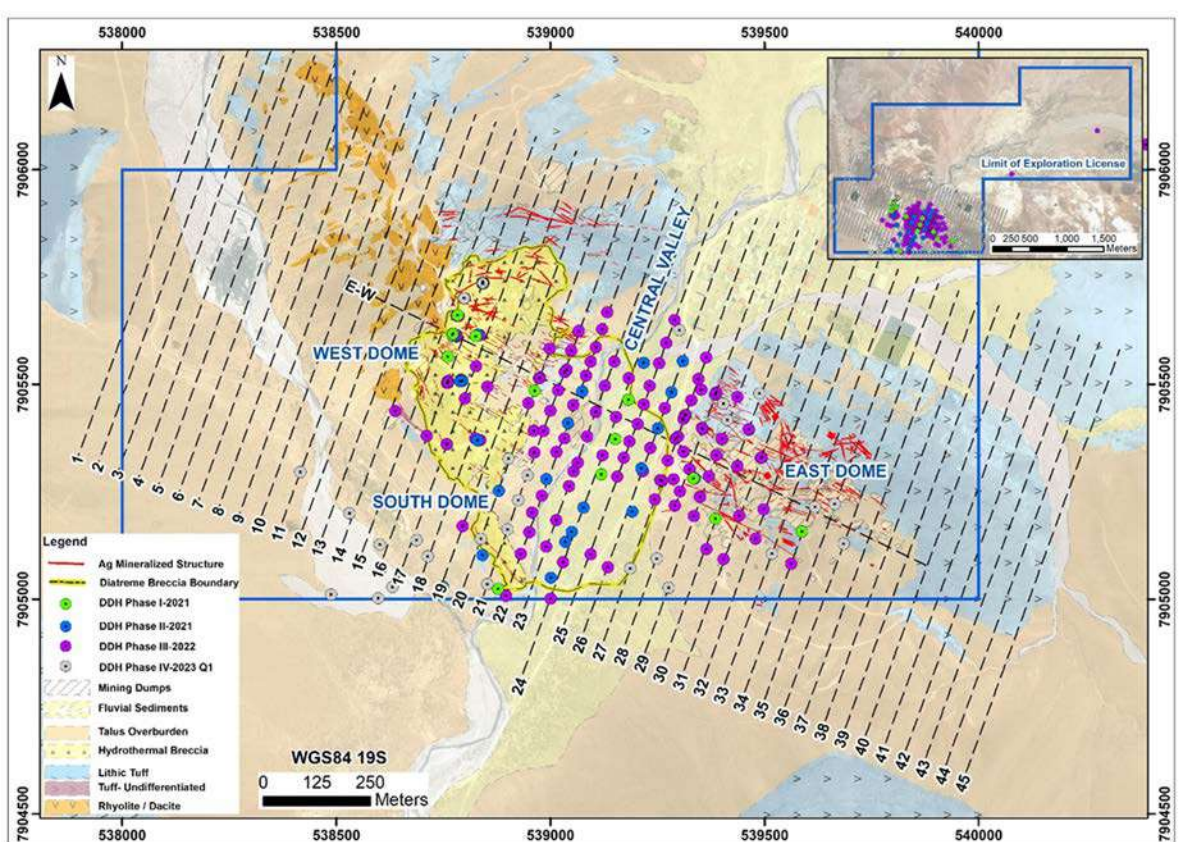
## 10 DRILLING

This section details all drilling activities completed on the Project and all the data provided to RPM to estimate the Mineral Resource. Since 2021, 189 boreholes were drilled at the Carangas Project, totalling 81,145 m of diamond core drilling. These drillholes were used to compile the Mineral Resource. Drill hole spacing averages 50 m by 50 m in the most densely drilled areas and increases to 100 m by 100 m on the peripheries of the deposit and at depth. A summary of drilling data within the Carangas Mineral Resource area is tabulated in **Table 10-1**, and hole locations are shown in **Figure 10-1**.

**Table 10-1 Carangas Drilling History**

Year	Drilling Phase	Carangas	
		Holes	Metres
2021	Phase 1 - Discovery Drilling	13	3,790.4
2021	Phase 2 - Discovery Drilling	22	9,420
2022	Phase 3 - Resource Definition Drilling	115	50,310.92
2023	Phase 4 - Resource Definition Drilling	39	17,623.5
<b>Total</b>		189	81,145

*Source: New Pacific, 2023*



LEGEND

CLIENT

New Pacific Metals Corp.

PROJECT

Carangas Silver- Gold Project - Department of Oruro, Bolivia - NI 43-101 Mineral Resource Estimate Technical Report

DRAWING:

Drillhole Location

FIGURE NO.  
10-1

PROJECT NO.  
ADV-10-00079

DATE  
September 2023

## 10.1 Drilling Type

Drilling was completed using a conventional wire-line diamond drilling technique with a triple tube core barrel inside the drilling rods to produce HQ, NQ or PQ size diamond core. Each drill run was 3 m in length. The drill core was placed in plastic/wood core trays (each holding around 4m of drill core) after extraction from the core barrel, where each run was marked and labelled.

## 10.2 Drilling Locational Data

Company surveyors surveyed all drill hole collar locations using the Real Time Kinematic (RTK) GPS method. RPM noted that all drill collars align well with the topography. The Client's drilling teams utilized a Reflex EZ-track™, SPT GyroMaster and SPT Core Retriever instruments to measure deviations in azimuth and inclination angles. The measurements were taken approximately every 30 m along the drill trace.

## 10.3 Drilling Sample Recovery

Core recoveries were calculated by measuring the length of the core recovered from each 3 m run. The average core recovery is higher than 95%. Recovery was low in the voids (historical mining activities) and overburden (mining dumps and fluvial sediments). More than 89% of core intervals have a core recovery equal to or greater than 95%. In the opinion of the QP, there are no known factors of drilling, sampling and core recovery that could materially impact the accuracy and reliability of the results.

## 10.4 Process Verification

During the site visit, RPM discussed the diamond drilling, core handling, and drilling techniques and considered them appropriate and consistent with the Mineral Resource Estimation and Classification. Further information is provided in **Section 12**.



## 11 SAMPLE PREPARATION, ANALYSES AND SECURITY

The details of the sample preparation, analytical methodology and sample security protocols in place for core samples from the exploration programs carried out by New Pacific Metals are included in this section.

New Pacific managed the 2021-2023 drill programs of the Carangas Project in compliance with the CIM Mineral Exploration Best Practice Guidelines and internal working protocols. All drill cores of the Project were geologically logged and sampled by the Company's exploration team at its core processing facilities in accordance with the Company's core logging and sampling protocols. A total of 58,215 half-sawn core samples were taken and submitted for preparation and analysis.

In RPM's opinion, the QA/QC program, as designed and implemented by New Pacific Metals, is adequate, and the assay results within the database are suitable for use in a Mineral Resource estimate.

### 11.1 Sample Collection

New Pacific systematically sampled and analyzed all drill core from the 2021-2023 exploration drill programs. Core sampling totalled 58,215 half-sawn core regular samples submitted for preparation and analysis. Contracted diamond drillers used HQ-size coring equipment for 189 drill holes and various size tubes TS-HQ-NQ for deep drill holes exceeding 500 m in length.

All drill holes were geologically logged and sampled by company field personnel at the Carangas facility in accordance with Core Logging and Sampling protocols. Geological logging includes the detailed recording of lithology, alteration, mineralization, structure and RQD measurements. Rock Codes were developed to increase the amount and quality of geological data and create a robust geological model for the deposit. Logging data was directly entered into MX Deposit software developed by Seequent. MX Deposit is an industry-standard software that integrates a drill core logging module, drill hole database, and QAQC tool for real-time monitoring of the quality of analytical results.

The driller contractor's staff transported Core boxes from the drilling site to the shed. The core was cleaned or washed, core blocks were checked, and meter marking was completed. Samples were generally 1 meter in length from one whole depth meter to the next, except for where a lithological contact or alteration change was noted. Samples were a maximum of 1.5 meters and a minimum of 1.0 meter (**Figure 11-1**). Geologists also mark noticeable geological, structural and alteration contacts and intervals of poor core recovery (voids and core loss). The core was photographed wet, using a camera mounted in a framed structure to ensure a constant angle and distance from the camera.

**Figure 11-1 Drill Core Box Example – Drill Hole DCAR0171**



Source: New Pacific, 2023

On completion of logging and sample selection, all core boxes were transported to the core saw shed. The core was cut using a diamond saw, and unconsolidated material was split using spoons or trowels. Each sample interval was placed in a plastic bag with a sample ticket. Sample intervals are cross-checked with the sample tag book and the pre-labelled sample bag (**Figure 11-2**). The outer portion of the tear-off sample tag is affixed to the core box at the start of the sample interval, and the inner tear-off tag is placed in the sample bag.

**Figure 11-2 Core Cutting and Sample Bag**



Source: New Pacific, 2023

Once sampling is complete, geologists check the samples and seal the plastic sample bags with staples and tape. QA/QC samples are inserted into the sample sequence according to the Company's QA/QC protocols. Then, every 8 to 12 sample bags are placed into a large poly-weave sample bag for shipping to the laboratory for preparation.

During the site visit, RPM found that company employees understood core sample preparation procedures well. RPM also found that all equipment used for core sample preparation was of reasonable quality and in line with industry standards.

## 11.2 Assay Laboratory Sample Preparation and Analysis

All drill core samples collected by New Pacific between 2021-2023 were dispatched to ALS laboratory (ALS) in Oruro, Bolivia, for sample preparation and then to ALS in Lima, Peru, for geochemical analysis. ALS Oruro and ALS Lima are part of ALS Global, an independent commercial laboratory specializing in analytical geochemistry services. Both labs are certified in accordance with the International Organization for Standardization (ISO) and International Electrotechnical Commission (IES) "General requirements for the competence of testing and calibration laboratories" (ISO/IES 17025:2017).

All samples are prepared in accordance with ALS preparation code PREP-31 and follow the main standard procedure as outlined below:

- Samples were dried and crushed to 70% less than 2 m.
- A 250 g riffle split was taken and pulverized to greater than 85% passing 75 micron sieve prior to aliquot selection for digestion and analysis.
- The pulp samples are transferred to ALS Lima for geochemical analysis.
- Samples were submitted for trace level 51 elements analysis comprising aqua regia digest with Inductively Coupled Plasma - Mass Spectroscopy finish (ICP- MS) ALS Code ME-MS41. Over-limit samples returning results greater than Ag > 100 ppm, Pb > 10,000 ppm, Cu > 10,000 ppm and Zn > 10,000 ppm were sent for ore-grade analysis by aqua regia digestion with Inductively Coupled Plasma - Atomic Emission Spectroscopy finish (ICP-AES or AAS) analysis ALS code OG46. Samples returning Ag assay results greater than 1,500 g/t were analyzed by fire assay and gravimetric finish ALS code Ag-GRA21. Samples returning values over 10,000 ppm Ag were analyzed by high precision analysis by Fire Assay and gravimetric finish ALS code Ag-CON01. Gold by Fire Assay and Atomic Absorption Spectrometry AAS analysis ALS Code Au-AA25 was performed on drill core samples selected from long drill holes exceeding 500 m in length.

For the 2023 drill program, no trace level multi-element ICP analysis of drill core samples was carried out to shorten turnaround time and save costs.

## 11.3 Bulk Density

Specific gravity measurements are completed by company personnel as part of routine core processing procedures. A total of 5,367 measurements were completed with a mean SG of 2.19 for core intervals selected across various lithologies and alteration types in both mineralized and non-mineralized drill cores at a rate of 8-9% of the total core samples. Measurements are carried out at a dedicated density weighing station using the Archimedes principle, whereby water displacement is used to calculate approximate volume (**Figure 11-3**). To avoid water absorption by porous drill cores, core interval is waxed prior to immersion in water. Weighing scale calibration is carried out on a daily basis before measuring.

The bulk density of a sample is calculated by multiplying the SG by the density of water 1 (g/cm<sup>3</sup>).



**Figure 11-3 Specific Gravity Measurement**



Source: New Pacific, 2023

## 11.4 Quality Control Data

New Pacific has established comprehensive QA/QC procedures and protocols covering sampling, preparation, and geochemical analysis. All drilling programs completed on the Project performed with mandatory insertions of certified reference materials (CRMs or standards), blanks, and duplicates into normal sample sequences on a batch-by-batch basis. New Pacific monitors Ag, Au, Pb, Zn, and Cu assay values in CRMs, blanks, and duplicates.

The Client provided QA/QC data for drilling completed by the company during the 2021 – 2023 exploration drilling campaigns. The QA/QC samples comprise 24% of all Carangas samples submitted to the laboratory. RPM is of the opinion that adequate QA/QC protocols were in place for the entire drilling used to compile the Mineral Resource estimate.

The QA/QC procedures utilized various control samples, including Certified Reference Materials (CRM), Coarse and Pulp Blanks, Coarse, Field (1/4 core) and Pulp Duplicate samples, and Umpire Pulp Duplicate samples. Detailed statistics of QA/QC control samples is presented in **Table 11-1**.

**Table 11-1 QA/QC Sample Status**

Type	Number of Samples	% of Total Primary Samples
Standards (CRMs)	3,654	6%
Blanks (Coarse & Pulp)	3,038	5%
Duplicates (Coarse, Pulp & Field)	4,269	7%
Umpire Pulp	3,573	6%
Total	14,534	24%

Source: compiled by RPMGLOBAL, 2023

11.4.1 Certified Reference Materials (CRMs)

Six different CRMs were used. The standards CDN-GEO-1901 (a certified blank material), CDN-ME-1501 and CDN-ME-1603 were discontinued in 2022. All CRMs were supplied by CDN Resource Laboratories of Langley, British Columbia, Canada, with certified values of Ag, Au, Pb, Cu, and Zn. CRM statistics for Ag and Au are presented in **Table 11-2**.

**Table 11-2 CRMs of Carangas Project**

CRM	Ag ppm		Au ppm		CRMs inserted
	Certified value	2SD	Certified value	2SD	2021-2023
CDN-GEO-1901	1	0.3	0.036	0.008	408
CDN-ME-1501	34.6	2.3	1.38	0.11	288
CDN-ME-1603	86	3	0.995	0.066	985
CDN-ME-1707	27.9	2.9	2.02	0.214	893
CDN-ME-1902	349	17	5.38	0.42	780
CDN-ME-2003	106	9	1.301	0.135	300

Source: compiled by RPMGLOBAL, 2023

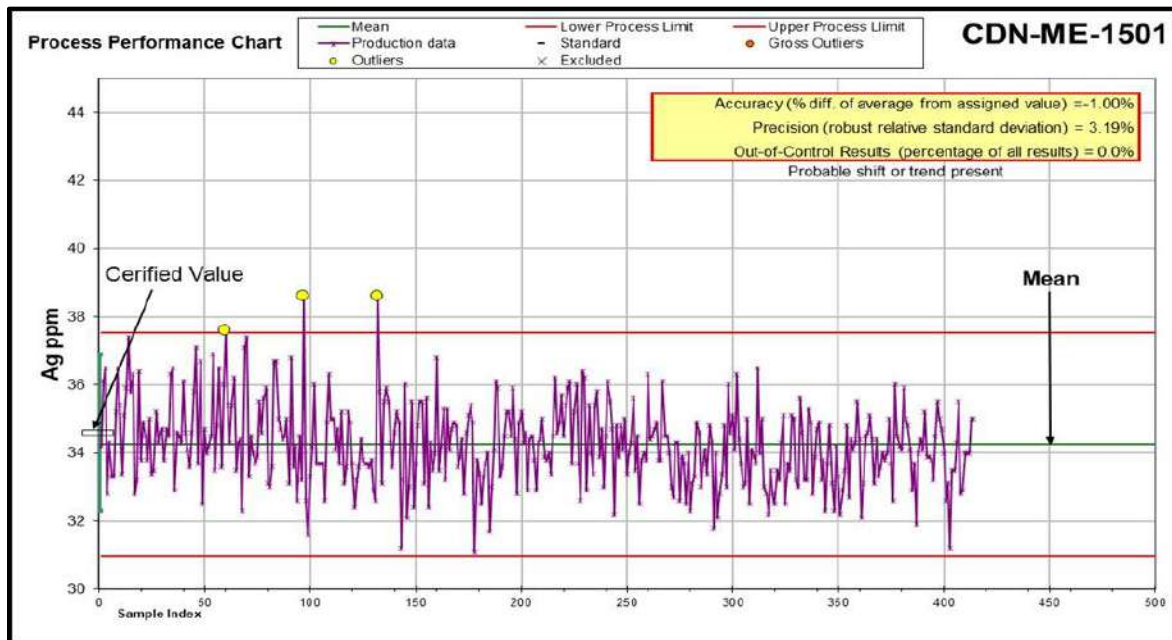
New Pacific’s internal procedures require that one CRM was inserted for every 20 samples or at a rate of 5% into a random insertion protocol. CRM performance is monitored on a batch-by-batch basis. A total of 3,654 CRM samples were submitted in 2021 – 2023, equivalent to a rate of 6.0%.

Control charts are used to monitor the analytical performance of individual CRMs over time. CRM assay results are plotted in order of date of analysis. Charts present certified CRM values, analytical mean line, and control lines for the upper and lower warning limits calculated as an analytical mean of the CRMs plus or minus two standard deviations. The results outside the three standard deviations are considered as failures. These charts show analytical drift, bias, trends, and outside-of-tolerance outliers occurring in the laboratory over time. The analytical mean line shows the variability of the analyzed material.

**Figure 11-4** presents CRM control charts for silver by ICP- MS (AES or AAS) analytical methods. Sporadic outliers (yellow circles) that are slightly higher or less than warning limits don’t affect the laboratory procedure’s analytical mean, accuracy, and precision. Failed standards were re-assayed and investigated by the laboratory. Comparison between original and re-assayed values proved the accuracy of the laboratory’s original assay results. Overall, the CRMs have a very good performance and support the sample database for the resource estimation process.



Figure 11-4 Control Chart for CDN-ME-1501 (Ag) (July 2021 – November 2022)



Source: New Pacific, 2023

Standard CDN-ME-1707 demonstrated relatively poor performance for gold compared with other CRMs. Failed samples were investigated and documented. Occasionally, CRM material may have a concentration of elements different from the certified values. It is possible to have precise results that are not accurate. All other CRMs inserted in the same batches passed control limits. CRMs used at Carangas to monitor Au show acceptable analytical accuracy and provide confidence in analytical results for the span of gold grades at the deposit. All major differences were investigated, and appropriate action was taken to fix it and return a robust data control.

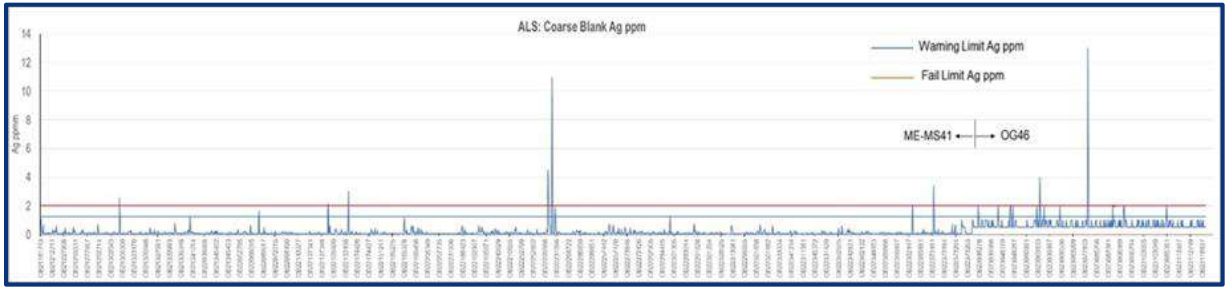
### 11.4.2 Blank Control Samples

Two types of blank material were inserted into the sample sequence prior to delivery to the lab. Coarse Blank is used to assess the potential contamination during sample preparation, and Pulp Blank is used to assess the potential contamination during geochemical analysis.

The Coarse Blank material used at the Carangas Project was taken from a quarry located near Oruro city. The rock is fresh andesite with porphyritic texture containing quartz, plagioclase, biotite, and hornblende grains. The chemical validation of Coarse Blank was developed internally and certified that the material could be used to this purpose. The Company developed the control limits after reviewing the analytical data, removing outliers, and calculating the analytical mean and standard deviation. The warning limit is set at two standard deviations. The failure limit is set at three standard deviations.

Overall, 99.5% of the coarse blanks are within the acceptable limits (Figure 11-5). Failed results exceeding three standard deviations were documented and investigated.

Figure 11-5 Control Chart for Coarse Blank Samples



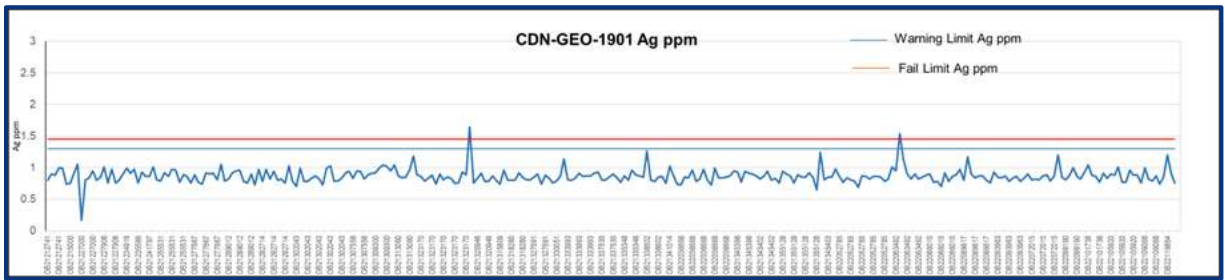
Source: New Pacific, 2023

The Pulp Blank is inserted every 50 samples or at a rate of 2%. 1,031 pulp blank samples were inserted from July 2021 to April 2023, representing an overall insertion rate of 2.3%.

Certified pulp blank CRM CDN-GEO-1901 was used between July 2021 and April 2022. Unlike other CRMs, CDN-GEO-1901 didn't demonstrate high accuracy (-13.57% difference between analytical mean and certified value) for silver analysis. However, 99% of CDN-GEO-1901 samples were within the control limits (Figure 11-6).

Since April 2022, pulp blanks have been produced from pulverized coarse blank material that has been employed to monitor potential contamination during the sample preparation.

Figure 11-6 Control Chart for Pulp Blank CDN-GEO-1901



Source: New Pacific, 2023

Overall, 99.5% of pulp blank samples for silver are within two standard deviations control limit. It is concluded that there is no systematic contamination during geochemical analysis.

A total of 981 coarse blanks were inserted into the sample sequences for gold fire assays in the period 2021-2023. Only eight coarse blanks returned results beyond the failure limit of Au=0.025 ppm. Every out-of-control event was documented and investigated. 97% of the coarse blank samples analyzed for gold returned with assay results equal or below 0.01 g/t Au (twice the detection limit of 0.005 ppm Au). No contamination was identified during sample preparation and analysis.

### 11.4.3 Duplicate Samples

Three types of duplicates were used to monitor the quality of the processes of the Carangas drill programs, from sampling to preparation and analysis: twin samples or field duplicates, coarse reject duplicates, and pulp duplicates. A total of 4,269 duplicate samples were taken during the period July 2021 – April 2023. Table 11-3 provides a statistical summary of the Relative Percent Difference (RPD) for the assay pairs between the original and the duplicate of each type of duplicate samples.

**Table 11-3 Statistical Summary for Duplicate Samples July 2021 – April 2023**

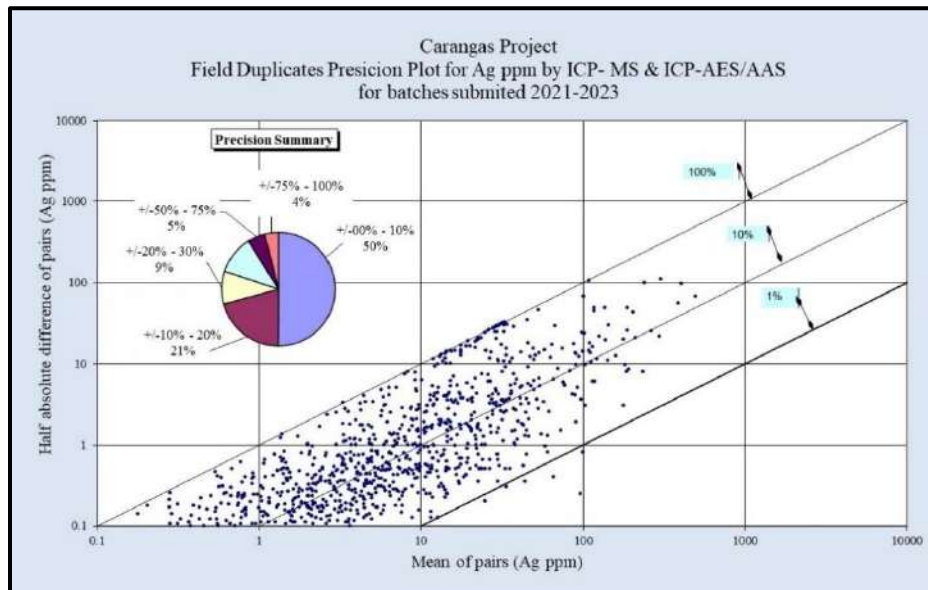
Ag ppm				
Sample Type	Number of samples	Corr Coeff	≤ 10% RPD	≤ 20% RPD
Field Duplicate	1,463	0.939	50%	70%
Coarse Duplicate	1,425	0.997	79%	89%
Pulp Duplicate	1,381	0.997	80%	91%
Au ppm				
Field Duplicate	683	0.95	55%	66%
Coarse Duplicate	670	0.982	62%	72%
Pulp Duplicate	671	0.984	63%	72%

Source: compiled by RPMGLOBAL, 2023

Field duplicates are generated by the quarter core to monitor the representativeness of the sampling process. The insertion rate is 2% according to the quality control protocols, and 1,463 quarter-core duplicates were taken during the 2021-2023 drilling campaigns.

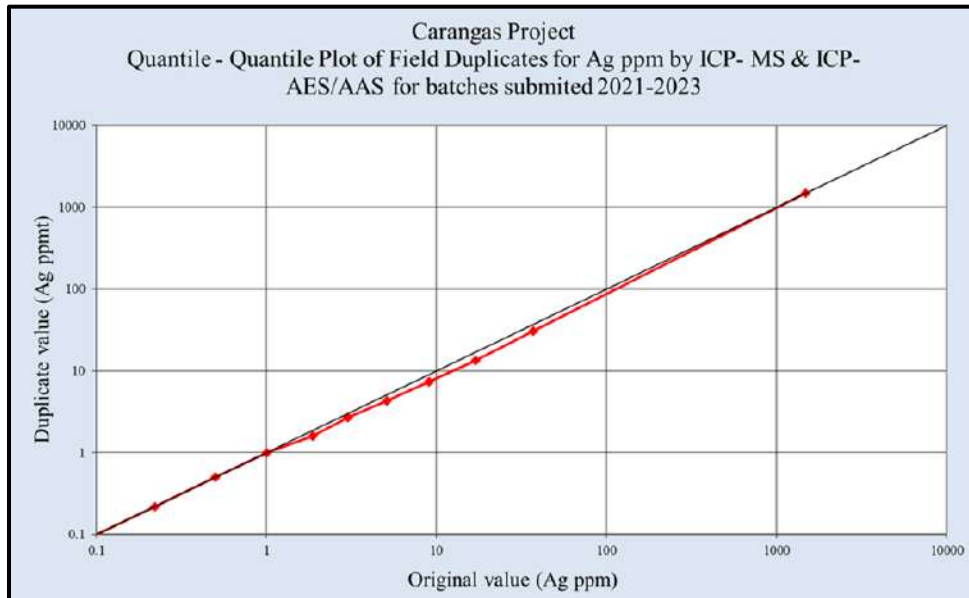
The performance of the field duplicate for silver is presented by the Thompson-Howarth precision plot (Figure 11-7) and the quantile-quantile (Q-Q) plot (Figure 11-8). In both charts, the results are reasonable and support the mineral resource database.

**Figure 11-7 Precision Plot of Field (1/4 core) Duplicates for Silver Assays**



Source: New Pacific, 2023

Figure 11-8 Quantile-Quantile Plot of Field (1/4 core) Duplicates for Silver Assays

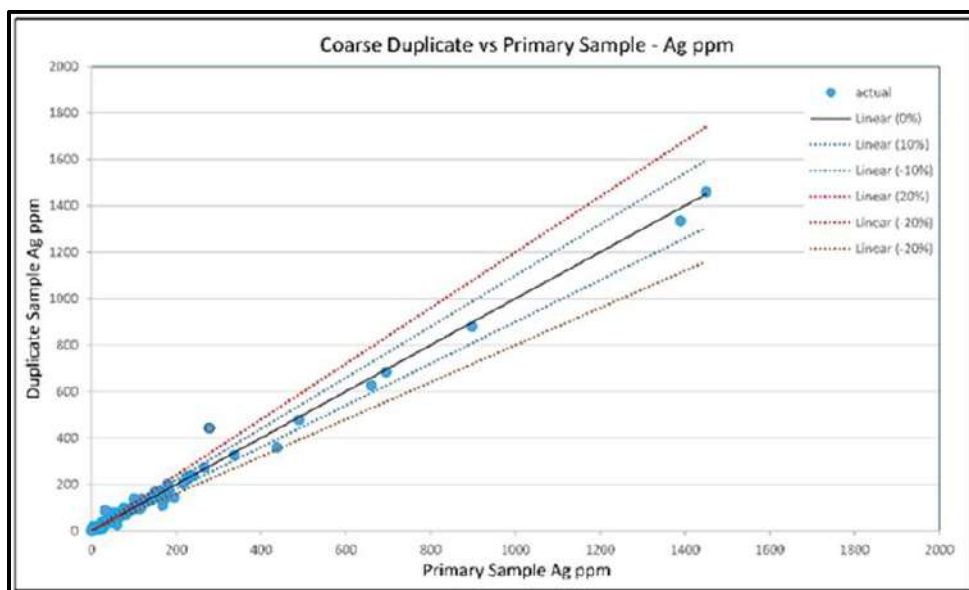


Source: New Pacific, 2023

To monitor the sub-sampling or splitting precision during sample preparation, a coarse (reject) duplicate is taken immediately after the first crushing and splitting step. The duplicate reject has a similar weight to the original sample and follows the same preparation process as the original sample. A total of 1,425 coarse duplicates were taken from the 2021-2023 drilling programs, inserted at a ratio of 2% or one in every 50 samples.

The assay results of silver from the pairs of the originals and the duplicates have a high correlation coefficient of  $R=0.997$ , and 89% sample pairs have an RPD less than 20%, which means that the sampling and splitting process is of high precision quality and is well representative of the mineralization. In **Figure 11-9**, the blue dashed lines mark +10% tolerance and red lines +20% tolerance from the black 1:1 line, respectively. The scatterplot shows that nearly all duplicates are within acceptable tolerance.

Figure 11-9 Coarse Duplicate Precision Scatterplot – Silver Assays



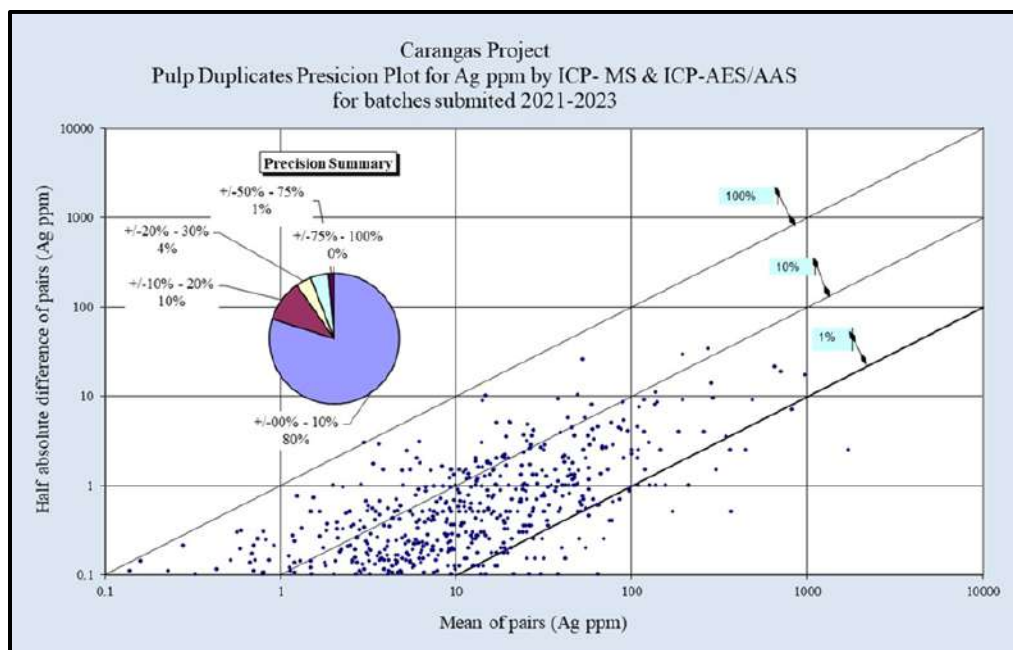
Source: New Pacific, 2023

In conclusion, both the silver and gold assays from the coarse duplicates demonstrate that the sample preparation process of the Carangas Project is well-preserved and acceptable for the Mineral Resource estimate.

Pulp duplicates are used to monitor the precision or repeatability of geochemical analysis. The samples are inserted into the regular sample sequences and are analyzed by the same lab, ALS (Lima). Pulp duplicates are the second split of final pulps with a similar weight as the original sample. The required insertion rate is 2% or one in every 50 samples. A total of 1,381 pulp duplicates were taken for the 2021 - 2023 drill programs.

The assay results of silver from the pairs have a high correlation coefficient of  $R=0.986$ , 90% of sample pairs have an RPD of less than 20%, and 80% of sample pairs have less than 10%, which means that the process of geochemical analysis of the lab has shown high repeatability and precision. **Figure 11-10** is the Thompson-Howarth precision plot of pulp duplicates for silver samples in 2021-2023 drill campaigns.

**Figure 11-10 Precision Plot of Pulp Duplicates for Silver Assays**



Source: New Pacific, 2023

The silver and gold assay results from the pulp duplicates demonstrate high precision or repeatability of the geochemical analysis of ALS lab, and the assay results are acceptable for database validation.

#### 11.4.4 Umpire Laboratory Samples

To assess the analytical accuracy of ALS (Lima) as the primary lab, umpire check samples were sent to Alfred H Knight (AHK) laboratory in Lima, Peru, a second accredited lab for check analysis of the drill core samples from the Carangas Project during August 2021 – May 2023. AHK is an independent geochemical laboratory certified according to ISO/IEC 17025:2005 and ISO 45001:2018. The required ratio of umpire samples collected from the pulp rejects of normal sample sequences is 5-6% or five to six umpires from every 100 primary samples according to the protocols of quality control of New Pacific. **Table 11-4** summarizes the silver and gold assay results of sample pairs of the originals and the umpires for the drill core samples from 2021 to 2023.



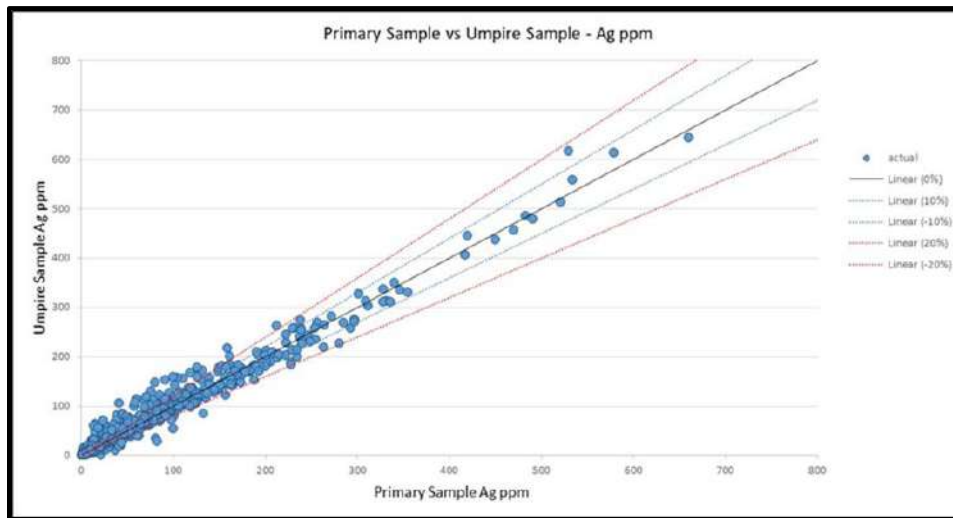
Table 11-4 Statistical Summary for Umpire Duplicates Samples

Sample Type	Element	Number of samples	Cor Coeff	≤ 10% RPD	≤ 20% RPD
Umpire Pulp Duplicate	Ag ppm	2,509	0.986	81%	91%
	Au ppm	1,064	0.935	38%	58%

Source: compiled by RPMGLOBAL, 2023

A total of 2,509 umpire samples were assayed for silver by ICP-OES method by AHK lab, with silver values ranging from 0.2 ppm to 1,725 ppm. The comparison between the original and umpire assay pairs is displayed in **Figure 11-11**. A correlation coefficient of R=0.986 reveals a strong positive correlation between the original and umpire assay results. 91% umpire duplicates have a RPD of less than 20%, evidencing a good reproducibility of assay results for silver.

Figure 11-11 Umpire Pulp Duplicates Precision Scatterplot for Silver Assays



Source: New Pacific, 2023

Gold performs significantly worse than silver, probably deriving from free gold in some areas of the project.

In conclusion, the external laboratory check analysis of silver and gold demonstrates good accuracy and precision of geochemical results produced by ALS (Lima), which supports the database used for resource estimate procedures.

### 11.5 Security and Storage

The Company’s staff takes custody of drill cores and samples at each step of field exploration and drilling activities. No other people were allowed to enter the working areas and the core storage without pre-approval from the Company’s project manager. The Project core is stored in plastic core boxes and transported to the core logging shack. After being logged and sampled, the core boxes are shipped to a secure core yard on a regular basis for permanent storage (**Figure 11-12**). The samples generated from this process are shipped to the ALS preparation laboratory in Oruro.

Core samples are collected from the drill site at least every 24 hours as part of routine drill site inspections and supervision provided by site geologists. Geological “quick logs”, portable XRF analyses and photographs of each core box are completed during the site inspection and before core boxes are transported to the core logging and sampling facility. Sample bags are transported to the laboratory by New Pacific’s personnel using the company’s truck. The Sample Submission Order is reviewed and signed by ALS staff upon arrival, and then the lab takes custody of security.

**Figure 11-12 Secure Core Yard Storage**



*Source: QP's site visit, 2023*

## **11.6 RPM Opinion on Adequacy of Sample Preparation, Analyses, Security and QA/QC**

The RPM Qualified Person is of the opinion that the overall QAQC process is well established and that the results support the Mineral Resources Estimation process.

The procedures and protocols employed by the Company regarding sampling, preparation, sample security, and analysis are in accordance with industry best practices. RPM did not identify any material concerns with the geological and analytical procedures or the quality of the results at the Carangas Project.

The use of different control samples is robust and returns a good variety of verification through the whole process. The umpire lab check analysis gives a good level of reproducibility of the database.

The insertion rate of control samples is 24%, which is higher than the industry benchmark (15-20%).

During the site visit, RPM identified that the sample preparation procedures and geology core logging are well established and contributed to a robust database. Good operational procedures are in place for core preservation and storage.

RPM is of the opinion that the results are acceptable and consistent with industry standards and recommends that New Pacific Metals maintain a continuous QAQC program for future exploration drill campaigns to maintain the database quality.

## 12 DATA VERIFICATION

This data verification discussion herein addresses only the data used to inform the Mineral Resources.

### 12.1 Data Verification Measures

RPM did not identify any data inaccuracy or misrepresentation of the underlying assay results in the database.

The drill database for Mineral Resource estimate was received in digital format, and RPM completed a systematic review of the data in Excel and Leapfrog software.

RPM conducted a site visit to the Carangas Project in March 2023, viewed the outcrops, drill hole locations, artisanal old mining activities, core sheds, and held various discussions with the project geologists of the Company. RPM examined mineralized drill hole intersections, downhole survey and assay data, survey data, acquisition protocols, logging and sample preparation procedures, and quality assurance procedures (QA) and quality control (QC) results.

NPM supplied the digital topographic file. The 1m stereo satellite survey was conducted in 2021 by PhotoSat based in Vancouver, Canada. RPM verified drill collar locations during the site visit and found the RL of the topography at these locations to be within the expected variations. RPM did not find any inaccuracies related to topography surface and collar location.

RPM concluded that the data was adequately acquired and validated following industry best practices.

### 12.2 Database Validation

RPM completed systematic data validation steps after receiving the database. RPM completed the following checks:

- The collar table was checked for duplicate holes;
- Down-hole data (surveys, assays, bulk density, recovery, geology) had no overlapping intervals or duplicate records and did not exceed the hole depth as reported in the collar table;
- Hole dips were within the range of 0° and -90°; and
- Visual inspection of drill hole collars and traces.

The Carangas drill hole database contains 189 drill holes representing 81,145 m. A total of 57,578 samples were analyzed and comprise the current data for Mineral Resource Estimation.

RPM randomly validated approximately 5% of assay certificates against the assay records in the database. RPM did not identify any inconsistencies and believes that the assay database is suitable for geological interpretation and the Resource Estimation process.

### 12.3 Validation of Mineralisation

During the site visit, RPM viewed outcrops, drill hole locations, and mineralized drill hole intersections. RPM viewed the representative mineralized drill core intercepts listed in **Table 12-1** at the core shed located at the Carangas Project site.

**Table 12-1 Drill Core Intervals Viewed**

BHID	FROM	TO
DCAr0179	500.00	700.00
DCAr0096	0.00	950.00

Source: compiled by RPMGLOBAL, 2023

The mineralization intervals were verified in drill core intercepts. **Figure 12-1** presents some core mineralization intercepts.

**Figure 12-1 Drill Core Mineralization Intercept Examples**



Source: QP's site visit, 2023

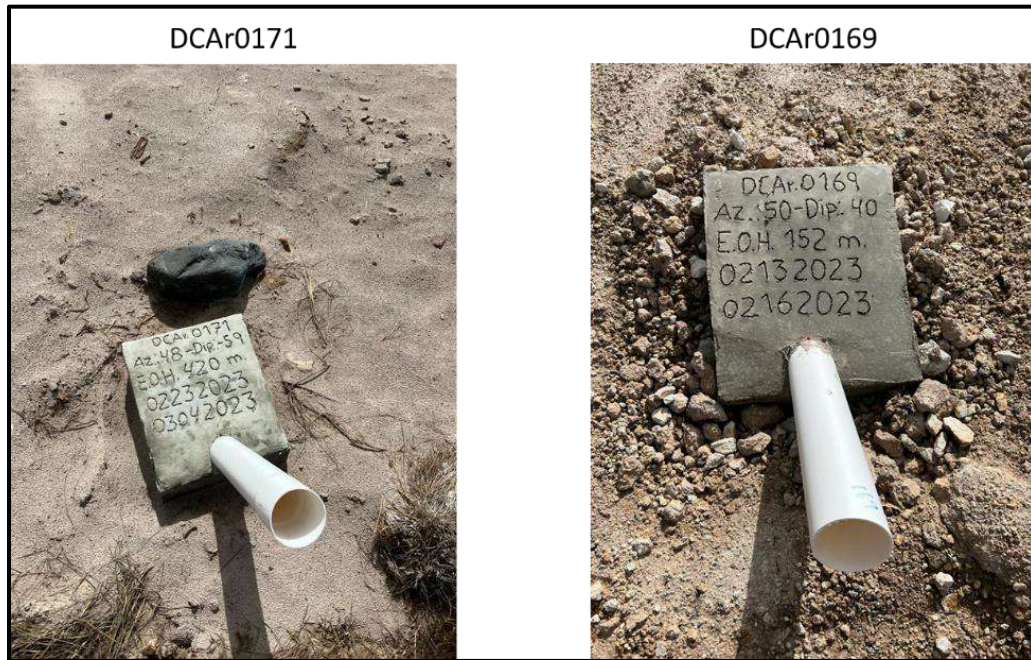
## 12.4 Drill Hole Location Validation

During the site visit, drill collar locations for DCAr0052, DCAr0156, DCAr00169, and DCAr00171 were checked by handheld GPS and drill hole orientations were checked by compass. Variations of up to 1-3 meters were noted, and RPM considers this to be within the accuracy expected from the different measurement systems. Each drill hole was capped and labelled and very visible in the field (**Figure 12-2**).

RPM is of the opinion that drill hole locations and orientation information supplied in the database are of a suitable standard, and the data can be used for Mineral Resource estimation.



**Figure 12-2 Drillholes Collar Field Registration**



Source: QP's site visit, 2023

## 12.5 Core Logging, Sampling, and Storage Facilities

The Company developed logging and sampling procedures based on the experience of the technical team and industry standards. Geological logging included lithology, alteration, weathering, structure, and mineralogy. During the site visit by RPM, a number of representative intervals were checked to assess logging quality. No issues were noted. Core loss was noted as problematic in overburden/saprolitic zones and in voids (historical artisanal mining activities). The overburden zone is considered a waste zone and is not considered in the Mineral Resource Statement.

Core photography and core recovery measurements were carried out by assistants under a geologist's supervision and digitally recorded into the MX Deposit system. During the site visit, RPM reviewed recent core photos and noted that the photo quality aligns with industry expectations.

The core is stored in two different core yards on the project site. The core samples, pulps, and coarse rejects are properly stored at the core shack on the project site.

RPM noted that the technical team maintains a well-organized workflow and a good core storage plan on-site. A new core yard is being prepared to store the core for future drilling programs.

## 12.6 RPM Opinion on the Validity of the Data

RPM is of the opinion that the drill data is adequate for the purposes of geological interpretation and Mineral Resource estimation within the classifications applied.



## 13 MINERAL PROCESSING AND METALLURGICAL TESTING

### 13.1 Introduction

One scoping metallurgical testwork program involving flotation and cyanide leach was started in 2022 by Bureau Veritas Minerals/Metallurgical in Richmond, British Columbia, Canada. Five samples were tested. This program was later continued in 2023 by ALS Metallurgy in Kamloops, British Columbia, Canada. During 2023, another three samples were subjected to comminution testing by ALS Metallurgy in Kamloops. Three reports were issued out of these testwork programs. Important testwork results have been described in a NI43-101 technical report published in August 2023.

- ALS Kamloops, Comminution Testwork on Composites from the Carangas Project, New Pacific Metals Corp, Project KM7065, September 8, 2023
- ALS Kamloops, Metallurgical Testwork on Composites from the Carangas Project, New Pacific Metals Corp, Project KM6848, May 31, 2023
- Bureau Veritas Minerals/Metallurgical, Metallurgical Testing for Gold, Silver, Lead and Zinc Recovery, New Pacific Metals – Carangas Project, Project 2201207, October 26, 2022
- RPMGlobal, Carangas Silver-Gold Project – Department of Oruro, Bolivia – NI43-101 Mineral Resource Estimate Technical Report, New Pacific Metals Corp, August 25, 2023

To support the current preliminary economic assessment (PEA), three composite samples from the oxidized, transitional, and sulfide domains in the Upper Silver Zone and one composite sample from the Lower Gold Zone were identified and collected in December 2023. The samples from the Upper Silver Zone with a targeted silver head grade of 60 g/t were subjected to flotation testing to produce silver/lead concentrate and zinc/silver concentrate. As of September 5, 2024, the testwork for the samples from the Upper Silver Zone is still ongoing at ALS Metallurgy in Kamloops. The sample from the Lower Gold Zone with a targeted gold head grade of 1.0 g/t was subjected to cyanide leach, gravity concentration and flotation. As of September 5, 2024, the cyanide leach, gravity concentration and flotation for the sample from the Lower Gold Zone have been completed. A progress report has been issued by ALS Metallurgy.

ALS Kamloops, Metallurgical Testwork on Composites from the Carangas Project to Support a Pre-Feasibility Study, New Pacific Metals Corp, Project KM7100, August 14, 2024.

### 13.2 Historical metallurgical testwork (2022-2023)

The report of “ALS Kamloops, Comminution Testwork on Composites from the Carangas Project, New Pacific Metals Corp, Project KM7065, September 8, 2023” deals with the comminution testing of three composite samples. The drill holes and quarter core intervals, which were selected for the comminution testing, are presented in **Table 13-1**. **Table 13-2** shows the results of specific gravity, rod mill work index, ball mill work index and abrasion index.

**Table 13-1 Drill Holes and Core Intervals Selected for the Comminution Testing**

Mineralization	Zone	Drill Hole Number	From (m)	To (m)	Length (m)
Silver/Lead/Zinc	Upper Silver Zone	DCAr0003	46.09	56.41	30.9
		DCAr0141	60.94	72.50	
		DCAr0100	61.25	70.26	
	Lower Silver Zone	DCAr0045	110.05	119.00	27.5
		DCAr0163	140.20	149.30	
DCAr0182		168.55	178.00		
Gold	Lower Gold Zone	DCAr0104	415.95	424.99	26.8
		DCAr0112	419.66	428.47	
		DCAr0067	517.00	526.00	

**Table 13-2 Specific Gravity, Rod Mill Work Index, Ball Mill Work and Abrasion Index**

Mineralization			Silver/Lead/Zinc		Gold
Zone			Upper Silver Zone	Lower Silver Zone	Lower Gold Zone
Specific Gravity		t/m <sup>3</sup>	2.59	2.76	2.88
Rod Mill Work Index	Feed (80% passing)		9,201	8,593	9,509
	Screen Closing	µm	1,180	1,180	1,180
	Product (80 passing)		930	913	940
	Rod Mill Work Index	kW.h/t	11.4	10.1	12.3
Ball Mill Work Index	Feed (80% passing)		2,042	1,835	1,848
	Screen Closing	µm	106	106	106
	Product (80% passing)		71	67	69
	Ball Mill Work Index	kW.h/t	12.8	10.7	12.7
Abrasion Index		g	0.075	0.038	0.048

The measured specific gravity values vary between 2.59 and 2.88 t/m<sup>3</sup>. These specific gravity values correspond to small particle sizes after grinding. The in situ density of the mineralized rocks in the deposit is expected to be lower due to the presence of voids.

The rod mill work index values are between 10.1 and 12.3 kW.h/t. Based on these values, these samples are categorized as having moderate hardness regarding the rod mill grinding.

The ball mill work index values range from 10.7 kW.h/t to 12.8 kW.h/t. Based on these values, these samples are characterized as average hardness with respect to the ball mill grinding.

The abrasion index values are between 0.038 and 0.075 g. Based on these values, these samples are classified as mildly abrasive.

The report of “Bureau Veritas Minerals/Metallurgical, Metallurgical Testing for Gold, Silver, Lead and Zinc Recovery, New Pacific Metals – Carangas Project, Project 2201207, October 26, 2022” deals with three samples from the silver/lead/zinc zone for flotation and cyanide leach testing, and two samples from the gold zone for cyanide leach testing.

- The first sample was a silver/lead mineralization (167 g/t silver, 1.18% lead, 0.02% zinc, 0.40% sulfur) in the oxidized zone. 69% of lead minerals in this sample were oxidized.
- The second sample was a silver/lead/zinc mineralization (95 g/t silver, 0.85% lead, 0.48% zinc, 0.70% sulfur) in the transitional zone. 39% of lead minerals in this sample were oxidized.
- The third sample was a silver/lead/zinc mineralization (143 g/t silver, 0.84% lead, 1.27% zinc, 1.86% sulfur) in the sulfide zone. The in situ oxidation in this sample was absent.
- The fourth sample was a gold mineralization with a lower sulfur content (1.82 g/t gold, 0.62% sulfur)
- The fifth sample was a gold mineralization with a higher sulfur content (4.02 g/t gold, 3.07% sulfur)

After Bureau Veritas Minerals/Metallurgical was closed permanently in late September 2022, the remainder of the flotation testwork on the three samples from the silver/lead/zinc zone was continued at ALS Metallurgy in Kamloops. Furthermore, the cyanide leach of the silver/lead concentrate was also investigated. The results, which ALS generated, were presented in the report “ALS Kamloops, Metallurgical Testwork on Composites from the Carangas Project, New Pacific Metals Corp, Project KM6848, May 31, 2023”.

### 13.3 Recent metallurgical testwork (2024)

A comprehensive metallurgical testwork program was started in January 2024 at ALS Metallurgy in Kamloops, British Columbia, Canada, with the purpose of supporting the preliminary economic assessment (PEA) study. For the samples from the Upper Silver Zone, the scope of work included the detailed head assays, specific gravity, sequential selective flotation to generate silver/lead concentrate and zinc/silver concentrate, detailed assays of silver/lead concentrate and zinc/silver concentrate, cyanide leach of silver/lead concentrate to dissolve silver, flotation tailing environmental testing, and flotation tailing thickening and rheology. For the sample from the Lower Gold Zone, the scope of work included the detailed head assays, gravity concentration, whole-ore cyanide leach, bulk flotation, cyanide leach of flotation concentrate, cyanide leach tailing thickening and rheology, flotation tailing environmental testing, and cyanide leach tailing environmental testing. As of the effective date, this testwork program is still ongoing.

### 13.4 Sample selections and head assays

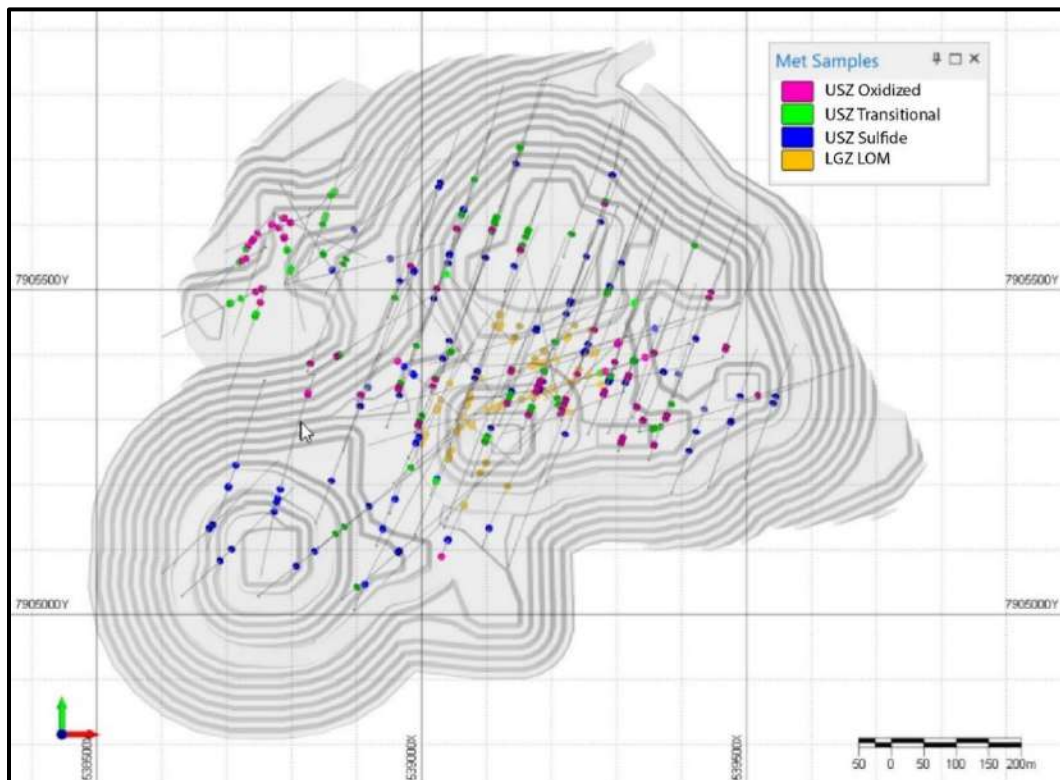
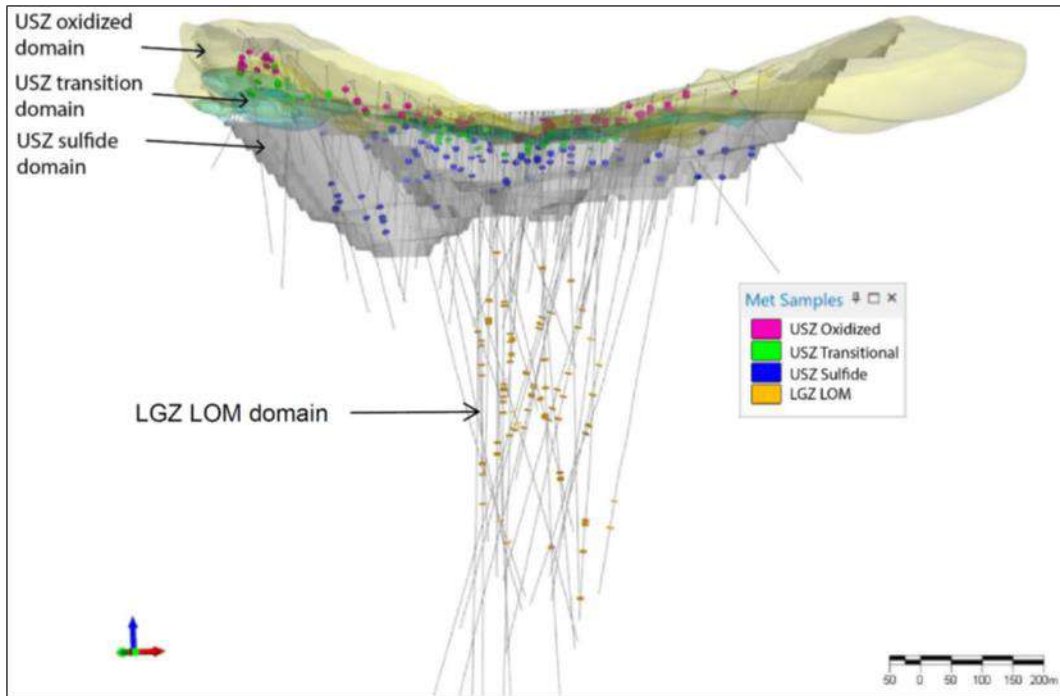
Nine individual samples from the Upper Silver Zone and one sample from the Lower Gold Zone were selected (**Table 13-3**) during December 2023. The locations of the selected intervals for the composite samples of “USZ Oxidized”, “USZ Transitional”, “USZ Sulfide” and “LGZ LOM” are shown graphically in **Figure 13-1**. The coarse assay reject materials were used in each case. From these ten individual samples, five composite samples were prepared, namely:

- The “USZ Oxidized” was a silver/lead/zinc mineralization in the oxidized domain of the Upper Silver Zone with a targeted silver grade of 61 g/t. Contents of lead, zinc and sulfur were expected to be 0.44%, 0.08% and 0.20%, respectively.
- The “USZ Transitional” was a silver/lead/zinc mineralization in the transitional domain of the Upper Silver Zone with a targeted silver grade of 61 g/t. Contents of lead, zinc and sulfur were expected to be 0.48%, 0.65% and 0.89%, respectively
- The “USZ Sulfide” was a silver/lead/zinc mineralization in the sulfide domain of the Upper Silver Zone with a targeted silver grade of 59 g/t. Contents of lead, zinc and sulfur were expected to be 0.42%, 0.89% and 1.75%, respectively.
- The “USZ LOM” was a life-of-mine (LOM) average sample representing the Upper Silver Zone with a target silver grade of 60 g/t. This LOM composite sample consisted of 12.5% “USZ Oxidized”, 2.5% “USZ Transitional” and 85.0% “USZ Sulfide”.
- The “LGZ LOM” was a life-of-mine average sample representing the Lower Gold Zone with a target gold grade of 1.01 g/t. Contents of silver, copper and sulfur were expected to be 11 g/t, 0.060% and 3.07%, respectively.

**Table 13-3 Samples Selected from the Upper Silver Zone and Lower Gold Zone**

Mineralization	Domain	Sample ID	Head Grade	Number of Drill Holes	Number of Intervals	Total Length (m)
Silver, Lead and Zinc	Oxidized	USZ Oxidized	~61 g/t Ag	46	112	139.0
		USZ Oxidized A	~120 g/t Ag	14	19	23.3
		USZ Oxidized B	~30 g/t Ag	16	17	20.8
	Transitional	USZ Transitional	~59 g/t Ag	45	108	132.4
		USZ Transitional A	~120 g/t Ag	13	16	19.9
		USZ Transitional B	~30 g/t Ag	14	16	19.5
	Sulfide	USZ Sulfide	~60 g/t Ag	55	107	134.0
		USZ Sulfide A	~120 g/t Ag	10	14	17.0
		USZ Sulfide B	~30 g/t Ag	10	11	13.7
Gold	/	LGZ LOM	~1.01 g/t Au	23	89	115.1

**Figure 13-1** Locations of the Intervals Selected for the Metallurgical Samples



Source: New Pacific Metals Corp, 2024.



The contents of key elements in these five composite samples were analyzed after compositing and homogenization. These assay values are shown in **Table 13-4**. The “PbOx” represents the amount of the oxidized lead minerals, and the “ZnOx” represents the amount of the oxidized zinc minerals.

**Table 13-4 Head Assays of the Five Composite Samples**

Mineralization	Domain	Sample ID	Au	Ag	Pb	PbOx	Zn	ZnOx	S <sub>T</sub>	S <sup>2-</sup>	Cu
			g/t	g/t	%	%	%	%	%	%	%
Silver, Lead and Zinc	Oxidized	USZ Oxidized	<0.01	69	0.47	0.12	0.09	0.01	0.20	0.02	0.008
	Transitional	USZ Transitional	<0.01	63	0.43	0.05	0.57	0.02	0.70	0.62	0.010
	Sulfide	USZ Sulfide	0.02	61	0.40	0.03	0.74	0.01	1.85	1.84	0.022
	12.5% Oxidized + 2.5% Transitional + 85.0% Sulfide	USZ LOM	0.01	58	0.41	/	0.60	/	1.50	/	0.021
Gold	/	LGZ LOM	1.03	9	0.10	0.01	0.12	<0.01	3.33	3.31	0.057

### 13.5 Mineralogy of the oxidized silver/lead/zinc mineralized samples

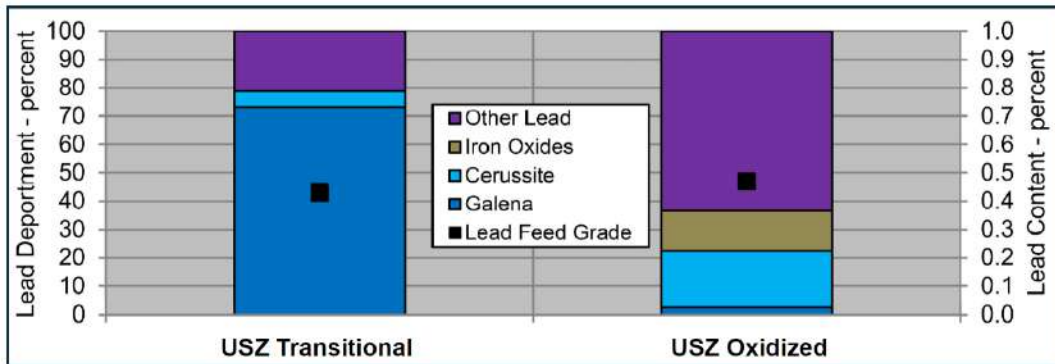
A Particle Mineral Analysis (PMA) by QEMSCAN was completed on the four size fractions of the USZ Oxidized and USZ Transitional composite samples to characterize the lead and zinc minerals at a grind size of 80% passing 70 µm. Due to in situ oxidation, these two composite samples were expected to be problematic in terms of flotation performance. A summary of the mineral composition is shown in **Table 13-5**. The lead and zinc deportments derived from the QEMSCAN PMA results are displayed in **Figure 13-2** and **Figure 13-3**.

**Table 13-5 Mineral Compositions of the USZ Oxidized and USZ Transitional Composite Samples**

Mineral	USZ Oxidized	USZ Transitional
Copper Sulfide	<0.1	<0.1
Galena	<0.1	0.4
Cerussite	0.1	<0.1
Lead Sulfate	1.1	0.5
Lead Phosphate	0.1	0.2
Lead Oxide	0.3	-
Sphalerite	<0.1	0.7
Zinc Oxide	0.1	0.4
Pyrite	0.1	0.7
Iron Oxide	3.3	4.6
Quartz	44.9	39.9
Feldspar	36.0	32.4
Mica	12.4	16.6
Carbonate	0.1	1.9
Titanium Mineral	0.3	0.3
Apatite	<0.1	0.1
Kaolinite	0.3	0.4
Others	0.8	0.7
Total	100	100

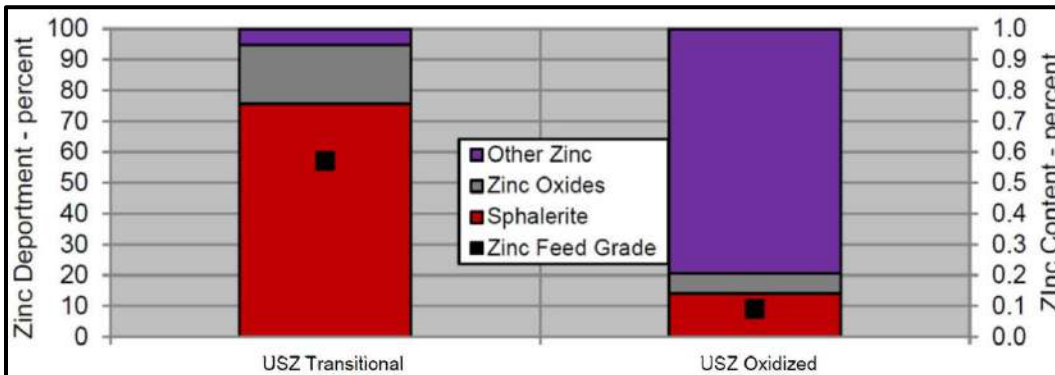
Source: ALS Report, Project KM7100, August 14, 2024.

**Figure 13-2 Department of Lead for the USZ Oxidized and USZ Transitional Composite Samples**



Source: ALS Report, Project KM7100, August 14, 2024

**Figure 13-3 Department of Zinc for the USZ Oxidized and USZ Transitional Composite Samples**



Source: ALS Report, Project KM7100, August 14, 2024

Lead was measured primarily as galena for the USZ Transitional composite sample, with lesser percentages as lead sulfate and lead phosphate minerals. Approximately two-thirds of the lead in the USZ Oxidized composite sample was measured as lead sulfate, lead oxide, and lead phosphate minerals. These non-sulfide lead minerals would be challenging to recover in flotation, even with sulfidization. Cerussite, a lead carbonate mineral which will respond to sulfidization for improved flotation recovery, was measured about one fifth of the lead content for the USZ Oxidized composite sample. Poor lead flotation recovery would be expected with the USZ Oxidized composite sample.

Zinc was measured primarily as sphalerite with the USZ Transitional composite sample, although one-quarter of the zinc was measured within iron oxide and as zinc oxide, which would not be expected to be recoverable by flotation. For the USZ Oxidized composite sample, which measured only about 0.1% zinc, about 80% of the zinc was measured as zinc oxide minerals.

Quartz, feldspars, and micas were the predominant silicate minerals measured in the USZ Oxidized and USZ Transitional composites samples. Pyrite content at about 0.7% was higher for the USZ Transitional composite sample compared to 0.1% in the USZ Oxidized composite sample. Kaolinite content was low between 0.3% and 0.4%.

### 13.6 Bulk flotation of the USZ Oxidized sample

Because of the very low contents of sulfide and zinc for the oxidized sample from the Upper Silver Zone, the bulk flotation procedure was applied to generate a silver/lead concentrate. Copper sulfate (CuSO<sub>4</sub>·5H<sub>2</sub>O) was used as an activator. Three collectors, namely AP3418A, Aero404 and SIPX, were tested. Based on prior experience, soda ash (Na<sub>2</sub>CO<sub>3</sub>) was better than lime and thus was used for pH adjustment. Sulfidizing conditioning was also applied to enable the oxidized lead minerals to be floatable. Three rougher tests were conducted for the USZ Oxidized composite samples. Operating conditions are shown in **Table 13-6**, and the results are presented in **Table 13-7**.

**Table 13-6 Conditions of Rougher Tests for the USZ Oxidized Sample**

Test No.	pH	Na <sub>2</sub> CO <sub>3</sub>	CuSO <sub>4</sub> ·5H <sub>2</sub> O	Redox Potential vs AgCl/Ag	NaHS	Collector			Flotation Time
						AP3418 A	A404	SIPX	
		g/t	g/t	mV	g/t	g/t			min
03R	9.0 ~ 10.1	553	200	-250	2,940	20	20	/	14
07R	9.8	N/A	50	-370	4,705	100	100	/	4
08R	7.8 ~ 8.0	294	50	-155	352	100	100	40	4

Note: 1.7 kg sample, 8-litre flotation cell, grind size 80% passing 75 µm

**Table 13-7 Results of Rougher Flotation Tests for the USZ Oxidized Sample**

Test No.	Stream	Solid Mass	Composition				Recovery			
			Ag	Pb	Zn	S	Ag	Pb	Zn	S
			g/t	%	%	%	%			
03R	Concentrate	4.0	858	3.79	0.28	0.95	50.0	31.9	12.9	14.8
	Tailing	96.0	36	0.34	0.08	0.23	50.0	68.1	87.1	85.2
	Feed	/	69	0.48	0.09	0.26	/			
07R	Concentrate	3.8	476	2.81	0.20	0.65	32.8	23.4	7.2	9.6
	Tailing	96.2	38	0.36	0.10	0.24	67.2	76.6	92.8	90.4
	Feed	/	54	0.45	0.10	0.26	/			
08R	Concentrate	2.0	2,244	6.20	0.36	1.11	76.9	26.3	6.4	10.3
	Tailing	98.0	14	0.36	0.11	0.20	23.1	73.7	93.6	89.7
	Feed	/	59	0.48	0.12	0.22	/			

The highest silver recovery (76.9%) was obtained at 2.0% concentrate mass pull from Test 08R, which had the lowest addition of sodium bisulfide (352 g/t NaHS). The corresponding concentrate contained 2,244 g/t silver and 6.2% lead. The silver recovery is expected to increase if the concentrate mass pull increases. Lead recovery was low, between 23.4% and 31.9%. This low lead recovery is consistent with the findings from the QEMSCAN PMA investigation.

### 13.7 Selective flotation of the USZ Transitional sample

Two selective rougher tests were conducted for the transitional sample from the Upper Silver Zone. A selective collector, AP3418A, was applied. The pH was adjusted using soda ash in one test, and hydrated lime was used in another test. Sulfidizing conditioning was included in both cases to a targeted redox potential. The zinc circuit followed a traditional procedure where copper sulfate was added as an activator at high pH. The conditions of these two rougher tests are shown in **Table 13-8**, and the results are presented in **Table 13-9**.

**Table 13-8 Conditions of Rougher Flotation Tests for the USZ Transitional Sample**

Test No.	Grinding			Silver/Lead Rougher						
	ZnSO <sub>4</sub> ·7H <sub>2</sub> O	Na <sub>2</sub> CO <sub>3</sub>	Ca(OH) <sub>2</sub>	pH	Na <sub>2</sub> CO <sub>3</sub>	Ca(OH) <sub>2</sub>	Redox Potential vs AgCl/Ag	NaHS	AP3418A	Flotation Time
	g/t	g/t	g/t		g/t	g/t	mV	g/t	g/t	min
04R	1,000	/	300	9.6~9.8	/	N/A	-253 ~ -220	2,940	5	14
06R	1,000	150	/	9.4~9.6	N/A	/	-250	1,911	15	14

Test No.	Zinc Rougher				
	pH	Ca(OH) <sub>2</sub>	CuSO <sub>4</sub> ·5H <sub>2</sub> O	SIPX	Flotation Time
		g/t	g/t	g/t	min
04R	11.0	1,729	300	38	8
06R	11.0	1,106	600	90	8

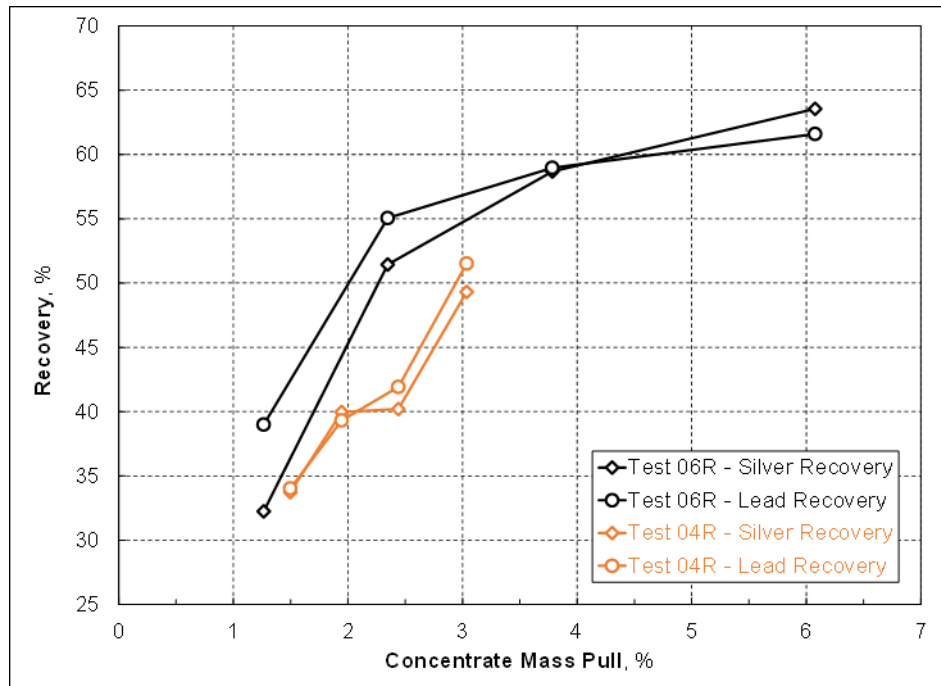
Note: 1.7 kg sample, 8-litre flotation cell, grind size 80% passing 69 µm

**Table 13-9 Results of Rougher Flotation Tests for the USZ Transitional Sample**

Test No.	Steam	Solid Mass %	Composition				Recovery			
			Ag	Pb	Zn	S	Ag	Pb	Zn	S
			g/t	%	%	%	%			
04R	Silver/Lead Concentrate	3.0	868	7.47	2.35	14.2	49.3	51.5	12.1	55.3
	Zinc/silver concentrate	2.2	840	2.83	3.87	3.0	34.2	14.0	14.2	8.3
	Tailing	94.8	9	0.16	0.46	0.3	16.5	34.5	73.7	36.4
	Feed	/	53	0.44	0.59	0.8	/	/	/	/
06R	Silver/Lead Concentrate	6.1	610	4.51	2.05	7.6	63.6	61.6	19.3	59.0
	Zinc/silver concentrate	3.6	414	1.48	4.68	2.7	25.6	12.0	26.2	12.2
	Tailing	90.3	7	0.13	0.39	0.3	10.8	26.4	54.6	28.7
	Feed	/	53	0.44	0.59	0.8	/	/	/	/

Because the USZ Transitional composite sample was partially oxidized, its flotation performance was relatively poor for both the silver/lead and zinc/silver concentrates. With respect to the silver/lead flotation, Test 06R, which had a lower addition of sodium bisulfide, generated better results in comparison, achieving 63.6% silver recovery (at a concentrate grade of 610 g/t silver) and 61.6% lead recovery (at a concentrate grade of 4.51% lead) (**Figure 13-7**). When sulfur recovery is compared with silver recovery or lead recovery, one can see that rejection of pyrite was poor in both tests. In the zinc circuit, zinc recovery was low, between 14.2% and 26.2%, although a significant amount (300 ~ 600 g/t) of copper sulfate was added as an activator. When the silver/lead circuit and zinc circuit were combined, zinc recovery was only 26.3% for Test 04R and 45.5% for Test 06R. This level of low zinc recovery is not consistent with the findings of the QEMSCAN PMA measurements described above.

Figure 13-4 Silver and Lead Recoveries of Rougher Flotation for the USZ Transitional Sample



### 13.8 Flotation testing of the USZ Sulfide sample

Three selective rougher tests were conducted for the sulfide sample from the Upper Silver Zone. A selective collector, AP3418A, and another collector, Aero 404, were investigated. The pH was adjusted using soda ash in one test, and hydrated lime was used for the other two tests. Because this was a sulfide sample, sulfidizing conditioning was not included. The addition of sodium cyanide was tried to depress pyrite in the silver/lead circuit. The zinc circuit followed a traditional procedure where copper sulfate was added as an activator at high pH. The conditions of these three rougher tests are shown in **Table 13-10**, and the results are presented in **Table 13-11**.



**Table 13-10 Conditions of Rougher Flotation Tests for the USZ Sulfide Sample**

Test No.	Grinding		Silver/Lead Rougher						Flotation Time min
	ZnSO <sub>4</sub> ·7H <sub>2</sub> O	NaCN	Cell Volume L	pH	Na <sub>2</sub> CO <sub>3</sub> g/t	Ca(OH) <sub>2</sub> g/t	Collector		
	g/t	g/t					AP3418A	A404	
02R	1,000	/	4	9.0	/	624	9	/	8
05R	120	40	8	9.0	117	/	9	/	8
10R	1,000	/	8	9.0	/	358	18	4	10

Test No.	Zinc Rougher					
	Cell Volume	pH	Ca(OH) <sub>2</sub>	CuSO <sub>4</sub> ·5H <sub>2</sub> O	SIPX	Flotation Time
	L		g/t	g/t	g/t	min
02R	4	11.0	1,100	300	60	16
05R	8	11.0	1,176	300	60	16
10R	N/A					

Note: 1.7 kg sample, grind size 80% passing 71 µm

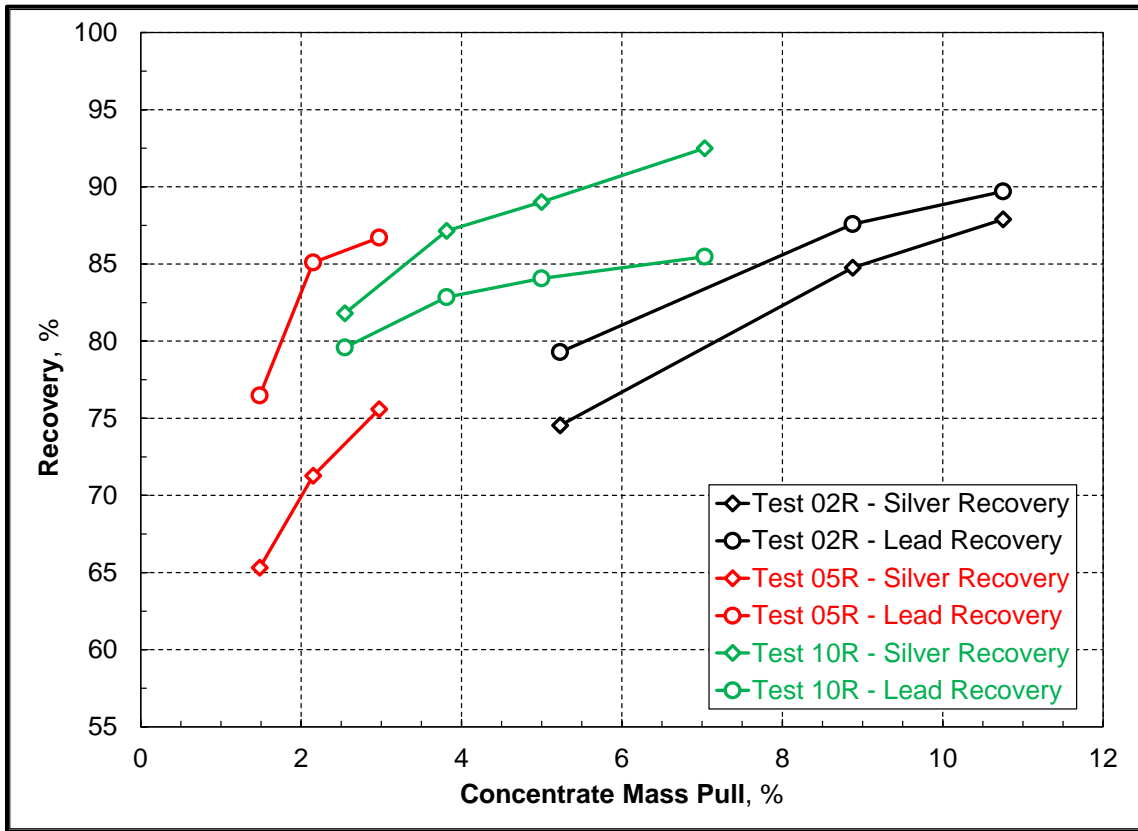
**Table 13-11 Results of Rougher Flotation Tests for the USZ Sulfide Sample**

Test No.	Steam	Solid Mass %	Composition				Recovery			
			Ag	Pb	Zn	S	Ag	Pb	Zn	S
			g/t	%	%	%	%			
02R	Silver/Lead Concentrate	10.8	514	3.63	1.64	7.5	87.9	89.7	22.0	42.2
	Zinc/Silver Concentrate	16.8	30	0.09	3.21	5.5	8.0	3.6	67.2	48.4
	Tailing	72.4	4	0.04	0.12	0.3	4.1	6.7	10.8	9.5
	Feed	/	63	0.44	0.80	1.9	/			
05R	Silver/Lead Concentrate	3.0	1,402	12.16	2.56	12.9	75.6	86.7	9.9	19.6
	Zinc/Silver Concentrate	9.5	121	0.21	6.60	15.4	20.9	4.9	82.1	75.4
	Tailing	87.5	2	0.04	0.07	0.1	3.5	8.4	8.0	4.9
	Feed	/	55	0.42	0.77	2.0	/			
10R	Silver/Lead Concentrate	7.0	799	5.44	2.65	16.2	92.5	85.5	24.4	59.9
	Tailing	93.0	5	0.07	0.62	0.8	7.5	14.5	75.6	40.1
	Feed	/	61	0.45	0.76	1.9	/			

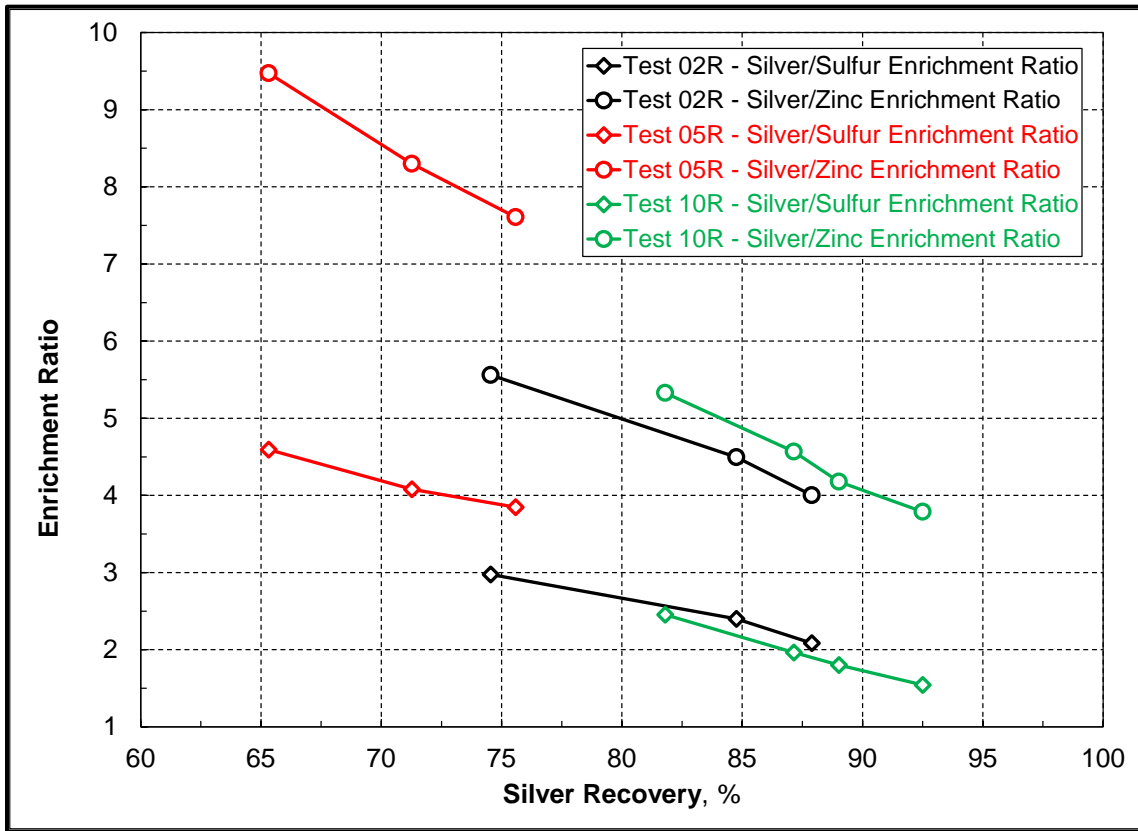
The addition of cyanide improved the rejection of pyrite (**Figure 13-6**), but silver recovery suffered (**Figure 13-8**), although lead rougher recovery was not impacted by cyanide. Test 10R generated the best results for silver/lead concentrate, which contained 799 g/t silver and 5.44% lead at 7.0% concentrate mass pull, which corresponds to 92.5% silver recovery and 85.5% lead recovery. The rejection of zinc in the silver/lead circuit was relatively strong. The rejection of pyrite in the silver/lead circuit was apparent, although it was weaker than the rejection of zinc.

In the zinc circuit, zinc flotation performance was reasonably good. Test 02R resulted in 67.2% net zinc recovery at 16.8% net concentrate mass pull, corresponding to 86% stage zinc recovery. For Test 05R, net zinc recovery was 82.1% at 9.5% net concentrate mass pull, corresponding to 91% stage zinc recovery.

Figure 13-5 Silver and Lead Recoveries of Rougher Flotation for the USZ Sulfide Sample



**Figure 13-6 Enrichment Ratios of Silver/Lead Rougher Flotation for the USZ Sulfide Sample**



### 13.9 Flotation testing for the USZ LOM composite sample

A life-of-mine (LOM) composite sample was prepared according to the mine production schedule. The LOM composite sample consisted of 12.5% oxidized material, 2.5% transitional material and 85.0% sulfide material with the targeted silver head grade of 60 g/t. The LOM composite sample was subjected to a series of rougher tests, open-circuit cleaner tests, closed-circuit cleaner tests and finally, the locked cycle tests.

#### 13.9.1 Rougher tests for the USZ LOM composite sample

Ten rougher tests for silver/lead concentrate were carried out to investigate the following parameters. Details of the conditions are presented in **Table 13-12**. The results of these ten rougher tests are shown in **Table 13-13**.

- Depressants in the silver/lead circuit to reject zinc and pyrite – (1) zinc sulfate, (2) zinc sulfate plus sodium cyanide, and (3) sodium metabisulfite (SMBS)
- Included a sulfidizing conditioning step to the 5th stage (Test 13R)
- pH adjustment using soda ash vs hydrated lime
- Lower pH while SMBS was used
- An alternative collector, known as X5000, which was supplied by Ecolab (former Flottec).

**Table 13-12 Ag/Pb Rougher Flotation Tests for the USZ LOM Composite Sample**

Test No.	Grinding			Silver/Lead Rougher									
	ZnSO <sub>4</sub> ·7H <sub>2</sub> O	NaCN	SMBS	pH	Redox Potential	NaCN	SMBS	Na <sub>2</sub> CO <sub>3</sub>	Ca(OH) <sub>2</sub>	Collector			Flotation Time
	g/t	g/t	g/t		mV	g/t	g/t	g/t	g/t	g/t			
										AP3418A	X5000	A404	min
13R	/	/	/	8.3/9.9	145/-300	/	/	/	/	38	/	23	12
23R	/	/	/	8.3/8.4	/	/	/	/	/	/	33	18	8
28R	1,000	/	/	9.0	/	/	/	/	447	18	/	4	8
29R	1,000	/	/	9.0	/	/	/	764	/	18	/	4	8
30R	1,000	30	/	9.0/9.1	/	/	/	/	411	18	/	4	8
31R	/	/	500	5.4/5.5	/	/	/	/	/	18	/	4	8
32R	/	/	500	7.4/7.6	/	/	/	/	/	18	/	4	8
33R	/	/	/	7.1/7.5	/	/	500	/	/	18	/	4	8
34R	1,000	30	/	9.0	/	/	/	/	341	40	/	10	14
38R	1,000	/	/	9.0	/	10	/	/	176	40	/	10	14

Note: 1.7 kg sample, 8-litre flotation cell, grind size 80% passing 71 µm

**Table 13-13 Results of Rougher Flotation Tests for the USZ LOM Composite Sample**

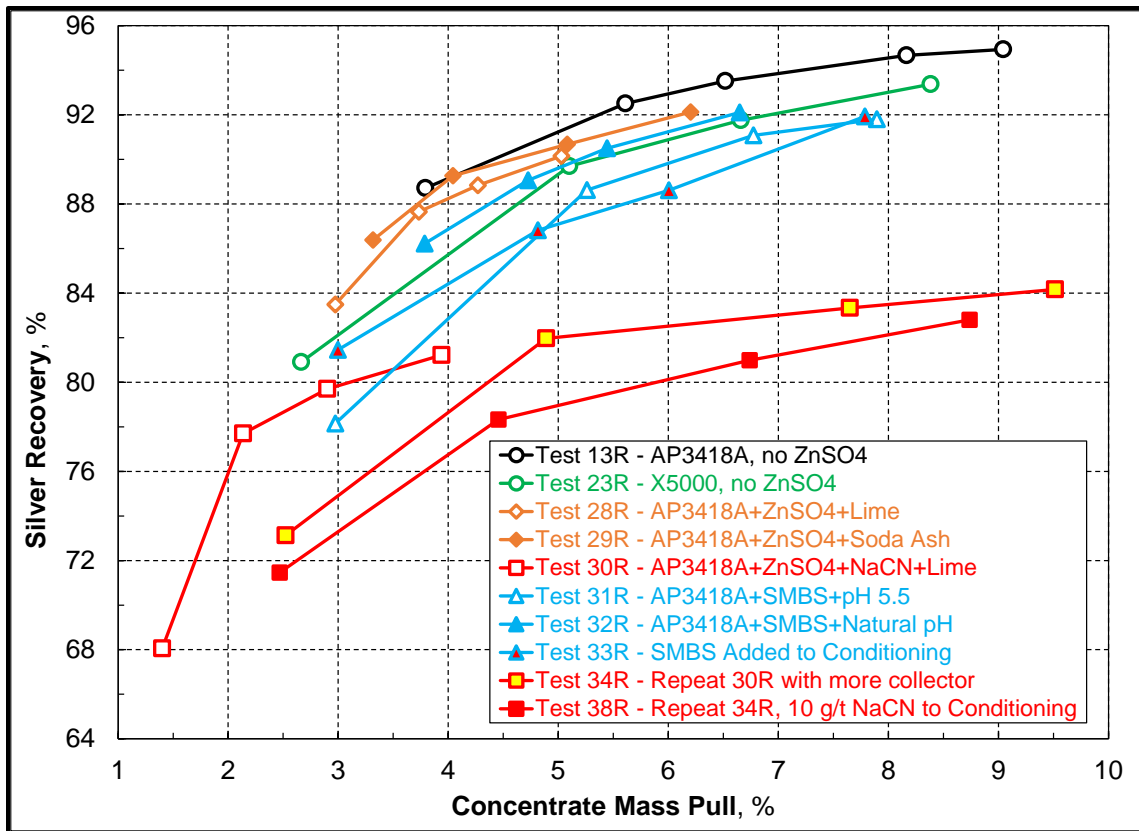
Key Chemicals	Test No.	Stream	Solid Mass %	Composition				Recovery			
				Ag	Pb	Zn	S	Ag	Pb	Zn	S
				g/t	%	%	%	%			
AP3418A, no ZnSO <sub>4</sub>	13R	Silver/Lead Concentrate	9.0	603	3.68	5.32	16.7	94.9	76.9	72.6	89.3
		Tailing	91.0	3	0.11	0.20	0.2	5.1	23.1	27.4	10.7
		Feed	/	57	0.43	0.66	1.7	/			
X5000, no ZnSO <sub>4</sub>	23R	Silver/Lead Concentrate	8.4	630	4.00	4.96	17.5	93.4	78.6	59.4	87.9
		Tailing	91.6	4	0.10	0.31	0.2	6.6	21.4	40.6	12.1
		Feed	/	57	0.43	0.70	1.7	/			
AP3418A + ZnSO <sub>4</sub>	28R	Silver/Lead Concentrate	5.0	1,157	6.67	4.44	20.8	90.1	77.9	31.6	63.6
		Tailing	95.0	7	0.10	0.51	0.6	9.9	22.1	68.4	36.4
		Feed	/	65	0.43	0.71	1.6	/			
	29R	Silver/Lead Concentrate	6.2	919	5.55	3.86	20.6	92.1	78.6	34.3	72.8
		Tailing	93.8	5	0.10	0.49	0.5	7.9	21.4	65.7	27.2
		Feed	/	62	0.44	0.70	1.8	/			
	Average	Silver/Lead Concentrate	5.6	1,038	6.11	4.15	20.7	91.1	78.3	32.9	68.2
AP3418A + ZnSO <sub>4</sub> + NaCN	30R	Silver/Lead Concentrate	3.9	1,286	7.85	1.99	8.9	81.2	74.5	11.5	21.4
		Tailing	96.1	12	0.11	0.63	1.3	18.8	25.5	88.5	78.6
		Feed	/	62	0.42	0.68	1.6	/			
	34R	Silver/Lead Concentrate	9.5	536	3.59	1.14	5.4	84.2	77.4	16.7	29.7
		Tailing	90.5	11	0.11	0.60	1.3	15.8	22.6	83.3	70.3
		Feed	/	61	0.44	0.65	1.7	/			
	38R	Silver/Lead Concentrate	8.7	603	3.97	2.32	5.4	82.8	76.0	28.0	27.0
		Tailing	91.3	12	0.12	0.57	1.4	17.2	24.0	72.0	73.0
		Feed	/	64	0.46	0.72	1.7	/			
Average	Silver/Lead Concentrate	7.4	808	5.14	1.82	6.5	82.7	76.0	18.7	26.0	
AP3418A + SMBS	31R	Silver/Lead Concentrate	7.9	731	4.00	7.07	20.2	91.8	77.4	80.2	91.1
		Tailing	92.1	6	0.10	0.15	0.2	8.2	22.6	19.8	8.9
		Feed	/	63	0.41	0.70	1.8	/			
	32R	Silver/Lead Concentrate	6.6	852	5.13	6.14	19.7	92.1	78.5	58.5	78.7
		Tailing	93.4	5	0.10	0.31	0.4	7.9	21.5	41.5	21.3
		Feed	/	61	0.43	0.70	1.7	/			
	33R	Silver/Lead Concentrate	7.8	768	4.45	4.84	17.9	91.9	79.0	53.2	78.3
		Tailing	92.2	6	0.10	0.36	0.4	8.1	21.0	46.8	21.7
		Feed	/	65	0.44	0.71	1.8	/			
Average	Silver/Lead Concentrate	7.4	783	4.53	6.02	19.3	91.9	78.3	63.9	82.7	

Concerning silver recovery (**Figure 13-7**), the alternative collector, X5000, did not show any benefit compared with the collector AP3418A (Test 13R vs Test 23R). Silver recovery was similar between soda ash and hydrated lime for pH adjustment (Test 28R vs Test 29R). The use of sodium cyanide, either added to the grinding or to the conditioning, was once again confirmed to be detrimental to silver recovery (Tests 30R, 34R and 38R). The



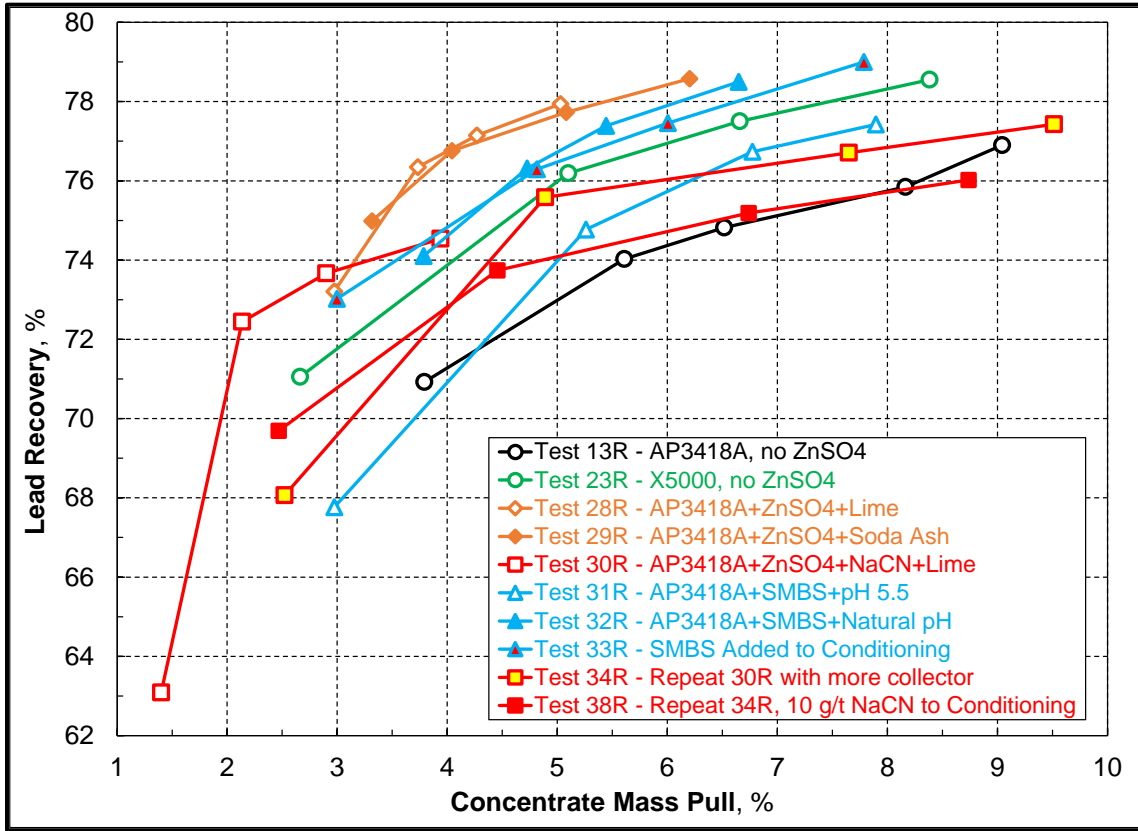
use of sodium metabisulfite, either added to the grinding or the conditioning, slowed down the silver flotation kinetics (Tests 31R, 32R and 33R).

**Figure 13-7 Silver Recovery of Silver/Lead Rougher Flotation for the USZ LOM Composite Sample**



With respect to lead recovery (Figure 13-8), the addition of sodium cyanide was detrimental (Tests 30R, 34R and 38R). The addition of sodium metabisulfite (SMBS) also reduced lead recovery at a given concentrate mass pull (Tests 31R, 32R and 33R). It does not appear that the alternative collector, X5000, was beneficial. The best case remained zinc sulfate as a depressant and AP3418A as a collector (Tests 28R and 29R).

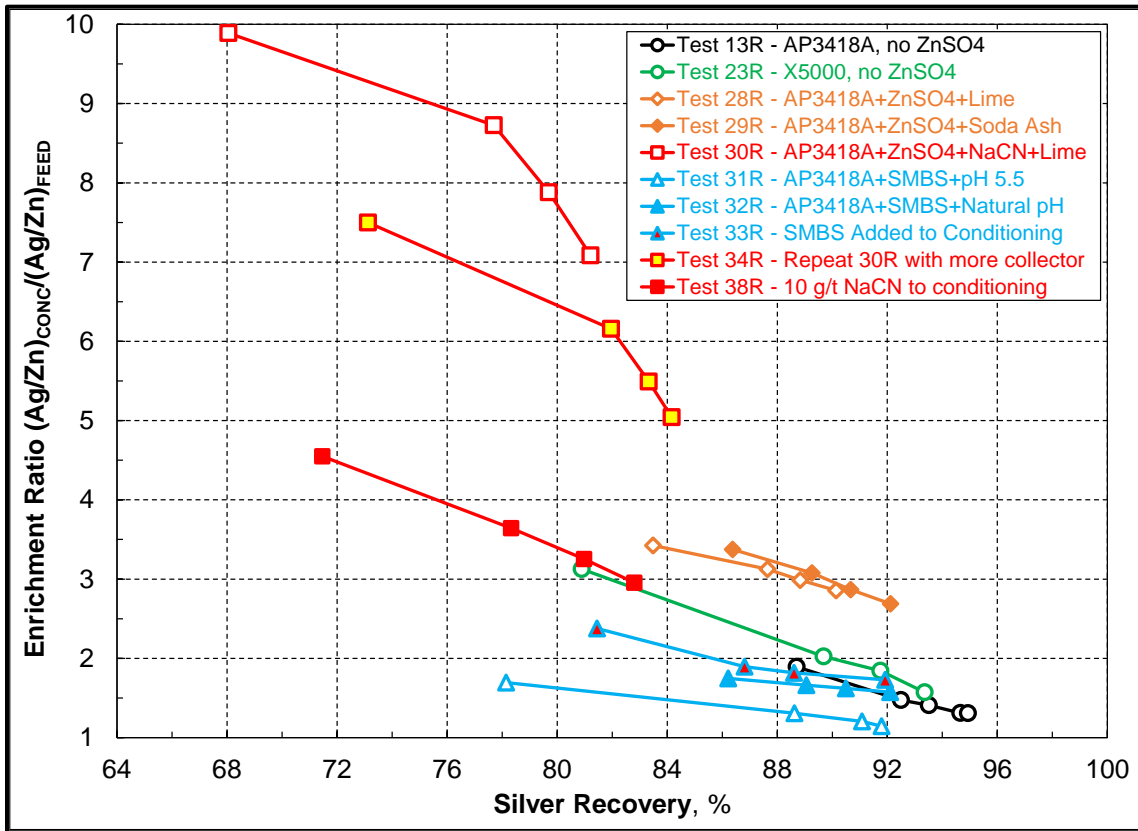
**Figure 13-8 Lead Recovery of Silver/Lead Rougher Flotation for the USZ LOM Composite Sample**



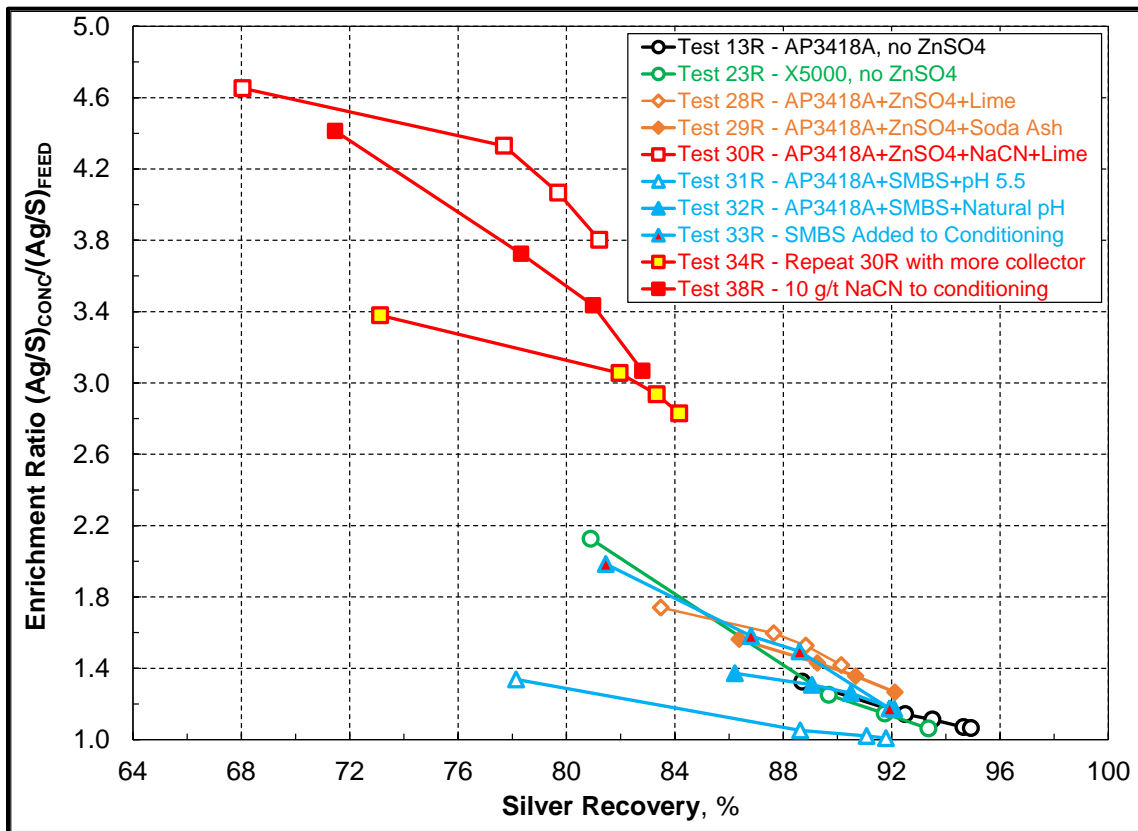
The silver/zinc and silver/sulfur enrichment ratio for the silver/lead rougher flotation was assessed for USZ LOM composite sample. The benefit was apparent in terms of the enrichment ratio between silver and zinc when sodium cyanide was added to the grinding (Tests 30R and 34R in **Figure 13-12**). As expected, the addition of sodium cyanide improved the enrichment ratio between silver and sulfur (**Figure 13-10**). The alternative collector, X5000, did not improve the enrichment ratio between silver and zinc or between silver and sulfur. Likewise, sodium metabisulfite (SMBS) did not improve the enrichment ratio between silver and zinc or silver and sulfur.

The addition of zinc sulfate improved the enrichment ratio between silver and zinc (Tests 28R and 29R compared with Test 13R in **Figure 13-9**) and the enrichment ratio between silver and sulfur.

Figure 13-9 Silver/Zinc Enrichment Ratio for the USZ LOM Composite Sample



**Figure 13-10 Silver/Sulfur Enrichment Ratio for the USZ LOM Composite Sample**



### 13.9.2 Cleaner flotation tests for the USZ LOM composite sample

Seven cleaner flotation tests were completed for the life-of-mine (LOM) composite sample from the Upper Silver Zone. Among these seven cleaner tests:

- Three tests (Tests 37Cl, 41Cl and 42Cl) covered only the silver/lead circuit.
- Two cleaner tests (Tests 49Cl and 50Cl) covered both the silver/lead circuit and zinc circuit. Only the silver/lead rougher tail was forwarded to the zinc circuit.
- Two cleaner tests (Tests 51Cl and 52Cl) covered both the silver/lead circuit and zinc circuit. The rougher tail, 1<sup>st</sup> cleaner tail and 2<sup>nd</sup> cleaner tail in the silver/lead circuit were forwarded to the zinc circuit.

**Table 13-14** shows the conditions for these seven cleaner flotation tests. One issue encountered in the zinc circuit was the high slurry viscosity when pH was raised with the addition of hydrated lime. It was suspected that some gangue minerals reacted with hydrated lime. To move the testwork forward, sodium hydroxide was used instead in the zinc circuit. When the high slurry viscosity issue is resolved, the hydrated lime will be tested again in the future in the zinc circuit because the hydrated lime is significantly cheaper than sodium hydroxide for the future commercial operations.

**Table 13-15** shows the results for both silver/lead and zinc/silver concentrates. For the silver/lead concentrate, further data analyses are provided in **Figure 13-11**, **Figure 13-12**, **Figure 13-13** and **Figure 13-14**. The data analysis is used to understand the relationship between concentrate grade and silver/lead recoveries and to determine the concentrate mass pull target for the locked cycle test. **Figure 13-11** shows the relationship between silver recovery in the silver/lead circuit as a function of concentrate mass pull when the results of seven cleaner tests are plotted together. Silver recovery from the locked cycle test is generally expected to be 2 ~ 3% higher than the open-circuit cleaner test because the intermediate tailings are recirculated during the locked cycle test. Therefore, in order to achieve over 80% silver recovery from the locked cycle test, the required

concentrate mass pull will be around 1.25%. Based on the trend line in **Figure 13-12**, lead recovery from the open-circuit cleaner test is expected to be around 68% at 1.25% concentrate mass pull. Lead recovery from the locked cycle test is expected to be approximately 2% higher than the open-circuit cleaner test when the intermediate tailings are recirculated.



**Table 13-14 Conditions of Cleaner Flotation Tests for the USZ LOM Composite Sample**

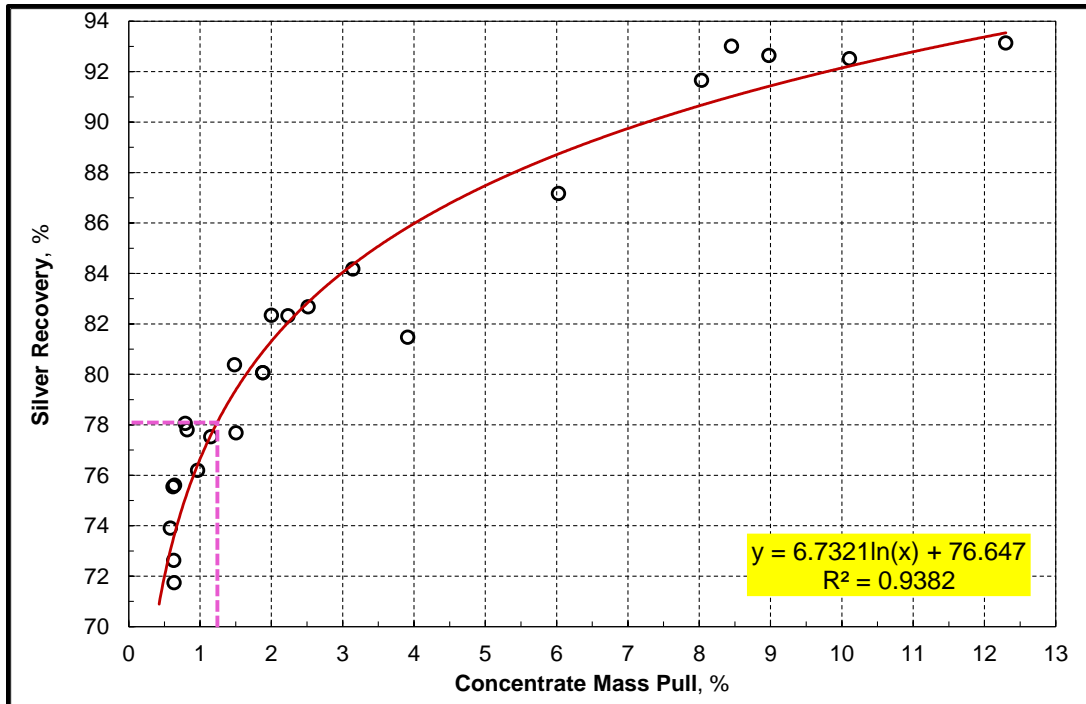
Test No			37CI	41CI	42CI	49CI	50CI	51CI	52CI
Circuit			Ag/Pb only			Ag/Pb + Zn		Ag/Pb+Zn closed circuit	
<b>Primary Grinding</b>	ZnSO <sub>4</sub> ·7H <sub>2</sub> O	g/t	1,000			1,000		1,000	
	Grind Size (P80)	µm	68			68		68	
<b>Ag/Pb Rougher</b>	pH		9.0			9.0		9.0	
	Ca(OH) <sub>2</sub>	g/t	241	276	294	/		/	
	Na <sub>2</sub> CO <sub>3</sub>	g/t	/			/	687	/	
	NaOH	g/t	/			335	/	300	
	AP3418A	g/t	18			18		18	
	A404	g/t	4			4		4	
	Flotation Time	min	14			14		14	
<b>Ag/Pb Regrinding</b>	Regrind Time	min	5	No	3	10	10	10	10
	Regrind Size (P80)	µm	19	/	22	15	15	12	14
	ZnSO <sub>4</sub> ·7H <sub>2</sub> O	g/t	300	/	300	300	300	300	300
<b>Ag/Pb 1<sup>st</sup> Cleaner</b>	ZnSO <sub>4</sub> ·7H <sub>2</sub> O	g/t	/	300	/	/		/	
	pH		9.0			9.5	9.0	9.0	
	Ca(OH) <sub>2</sub>	g/t	71	88	71	/		/	
	Na <sub>2</sub> CO <sub>3</sub>	g/t	/			/	176	/	/
	NaOH	g/t	/			64	/	180	185
	AP3418A	g/t	5			5		5	
	Flotation Time	min	5			5	7	7	
<b>Ag/Pb 2<sup>nd</sup> Cleaner</b>	pH		9.0			9.2	9.0	9.0	
	AP3418A	g/t	2			2		2	
	Flotation Time	min	4			4		4	
<b>Ag/Pb 3<sup>rd</sup> Cleaner</b>	pH		9.0			9.1	9.0	/	
	AP3418A	g/t	1			1		/	
	Flotation Time	min	3			3		/	
<b>Zn Rougher</b>	pH		/			11.0	10.2	11.0	11.5
	Na <sub>2</sub> CO <sub>3</sub>	g/t	/			/	3,811	/	
	NaOH	g/t	/			1,011	/	1,100	1,752
	CuSO <sub>4</sub> ·5H <sub>2</sub> O	g/t	/			100		100	
	SIPX	g/t	/			40		40	5
	Flotation Time	min	/			6		6	
<b>Zn Regrinding</b>	Regrind Time	min	/			8	8	8	7
	Regrind Size (P80)	µm	/			19	19	12	14
	CuSO <sub>4</sub> ·5H <sub>2</sub> O	g/t	/			50		50	
<b>Zn 1<sup>st</sup> Cleaner</b>	pH		/			11.0	10.8	11.0	11.5
	Na <sub>2</sub> CO <sub>3</sub>	g/t	/			/	1,763	/	
	NaOH	g/t	/			164	/	202	294
	SIPX	g/t	/			15		15	1
	Flotation Time	min	/			2		3	
<b>Zn 2<sup>nd</sup> Cleaner</b>	pH		/			11.0	10.8	11.0	11.5
	SIPX	g/t	/			10		10	1
	Flotation Time	min	/			2		2	

**Table 13-15 Results of Cleaner Flotation Tests for the USZ LOM Composite Sample**

Test No.	Product		Solid Mass	Composition				Recovery			
				Ag	Pb	Zn	S	Ag	Pb	Zn	S
			%	g/t	%	%	%	%			
37CI	Ag/Pb Conc	3 <sup>rd</sup> Cleaner Conc	0.64	7,050	39.3	9.2	26.8	71.7	63.2	8.8	10.5
		2 <sup>nd</sup> Cleaner Conc	0.97	4,931	27.5	9.6	26.3	76.2	67.0	14.0	15.7
		1 <sup>st</sup> Cleaner Conc	3.91	1,302	7.2	4.0	12.8	81.5	70.7	23.4	30.9
		Rougher Conc	12.3	474	2.5	2.3	10.2	93.1	77.9	43.1	77.3
	Tailing		87.7	5	0.10	0.43	0.4	6.9	22.1	56.9	22.7
	Feed		/	63	0.40	0.66	1.6	/			
41CI	Ag/Pb Conc	3 <sup>rd</sup> Cleaner Conc	1.88	2,460	16.6	5.9	39.1	80.1	72.3	15.9	44.8
		2 <sup>nd</sup> Cleaner Conc	2.24	2,129	14.2	5.9	38.2	82.3	73.4	18.8	52.0
		1 <sup>st</sup> Cleaner Conc	3.14	1,548	10.2	5.0	29.6	84.2	74.4	22.5	56.7
		Rougher Conc	6.0	836	5.5	3.6	18.5	87.2	76.1	31.3	68.0
	Tailing		94.0	8	0.11	0.51	0.6	12.8	23.9	68.7	32.0
	Feed		/	58	0.43	0.70	1.6	/			
42CI	Ag/Pb Conc	3 <sup>rd</sup> Cleaner Conc	1.15	4,490	27.8	9.2	33.6	77.5	67.9	13.7	22.3
		2 <sup>nd</sup> Cleaner Conc	1.48	3,617	22.3	8.6	31.4	80.4	70.0	16.4	26.8
		1 <sup>st</sup> Cleaner Conc	2.52	2,192	13.4	6.3	24.9	82.7	71.5	20.4	36.1
		Rougher Conc	9.0	689	4.0	2.9	15.4	92.6	76.9	33.1	79.6
	Tailing		91.0	5	0.12	0.57	0.4	7.4	23.1	66.9	20.4
	Feed		/	67	0.47	0.78	1.7	/			
49CI	Ag/Pb Conc	3 <sup>rd</sup> Cleaner Conc	0.62	7,330	45.8	10.4	24.9	75.5	68.6	10.7	10.1
		2 <sup>nd</sup> Cleaner Conc	0.79	5,942	37.0	10.3	26.1	78.1	70.6	13.5	13.6
		1 <sup>st</sup> Cleaner Conc	2.00	2,484	15.2	7.8	20.4	82.3	73.4	25.6	26.7
		Rougher Conc	8.45	665	3.9	3.1	13.4	93.0	79.8	43.2	73.9
	Zn Conc	2 <sup>nd</sup> Cleaner Conc	0.42	162	0.25	53.2	34.2	1.1	0.2	36.4	9.3
		1 <sup>st</sup> Cleaner Conc	0.71	136	0.24	36.1	27.5	1.6	0.4	42.4	12.8
		Rougher Conc	1.99	78	0.17	13.3	16.9	2.6	0.8	43.6	22.0
	Tailing		89.6	3	0.09	0.09	0.1	4.4	19.4	13.3	4.1
Feed		/	60	0.42	0.61	1.5	/				
50CI	Ag/Pb Conc	3 <sup>rd</sup> Cleaner Conc	0.43	8,990	56.1	7.5	21.0	67.1	58.6	4.7	5.6
		2 <sup>nd</sup> Cleaner Conc	0.63	6,548	40.6	9.6	22.4	72.6	62.9	8.9	8.9
		1 <sup>st</sup> Cleaner Conc	1.51	2,939	17.9	6.9	17.2	77.7	66.1	15.1	16.3
		Rougher Conc	8.03	650	3.7	2.7	13.6	91.7	72.5	31.8	69.1
	Zn Conc	2 <sup>nd</sup> Cleaner Conc	0.80	126	0.25	43.5	31.4	1.8	0.5	51.0	15.9
		1 <sup>st</sup> Cleaner Conc	1.82	78	0.20	20.0	17.2	2.5	0.9	53.1	19.7
		Rougher Conc	4.58	47	0.16	8.5	9.2	3.8	1.8	56.7	26.5
Tailing		87.4	3	0.12	0.09	0.1	4.6	25.7	11.5	4.4	
Feed		/	57	0.41	0.69	1.6	/				
51CI	Ag/Pb Conc	2 <sup>nd</sup> Cleaner Conc	0.64	7,100	41.6	12.0	24.1	75.6	66.4	11.9	10.1
		1 <sup>st</sup> Cleaner Conc	1.32	418	1.5	34.4	36.5	9.1	4.8	69.8	31.2
	Zn Conc	1 <sup>st</sup> Cleaner Conc	2.30	293	1.0	20.3	26.3	11.1	5.9	71.9	39.2
		Rougher Conc	5.82	153	0.6	8.4	15.8	14.7	8.1	75.2	59.6
	Tailing		93.5	6	0.11	0.09	0.5	9.7	25.5	12.9	30.3
Feed		/	61	0.40	0.65	1.5	/				
52CI	Ag/Pb Conc	2 <sup>nd</sup> Cleaner Conc	0.59	6,810	44.6	11.9	25.9	73.9	65.7	10.4	10.2
		1 <sup>st</sup> Cleaner Conc	0.62	562	2.9	58.7	33.2	6.5	4.6	54.4	13.8
	Zn Conc	1 <sup>st</sup> Cleaner Conc	0.78	540	2.8	50.1	31.4	7.8	5.4	58.4	16.4
		Rougher Conc	3.29	206	0.9	13.8	20.3	12.6	7.7	68.1	44.7
	Tailing		96.1	8	0.11	0.15	0.7	13.5	26.6	21.5	45.1
Feed		/	54	0.40	0.67	1.5	/				

**Figure 13-11** shows the relationship between silver recovery in the silver/lead circuit as a function of concentrate mass pull when the results of seven cleaner tests are plotted together. Silver recovery from the locked cycle test is generally expected to be 2 ~ 3% higher than the open-circuit cleaner test because the intermediate tailings are recirculated during the locked cycle test. Therefore, to achieve over 80% silver recovery from the locked cycle test, the required concentrate mass pull will be around 1.25%. Based on the trend line in **Figure 13-12**, lead recovery from the open-circuit cleaner test is expected to be around 68% at 1.25% concentrate mass pull. Lead recovery from the locked cycle test will probably be 2% higher than the open-circuit cleaner test.

**Figure 13-11 Silver Recovery of Silver/Lead Cleaner Tests for the USZ LOM Composite Sample**



**Figure 13-12 Lead Recovery of Silver/Lead Cleaner Tests for the USZ LOM Composite Sample**

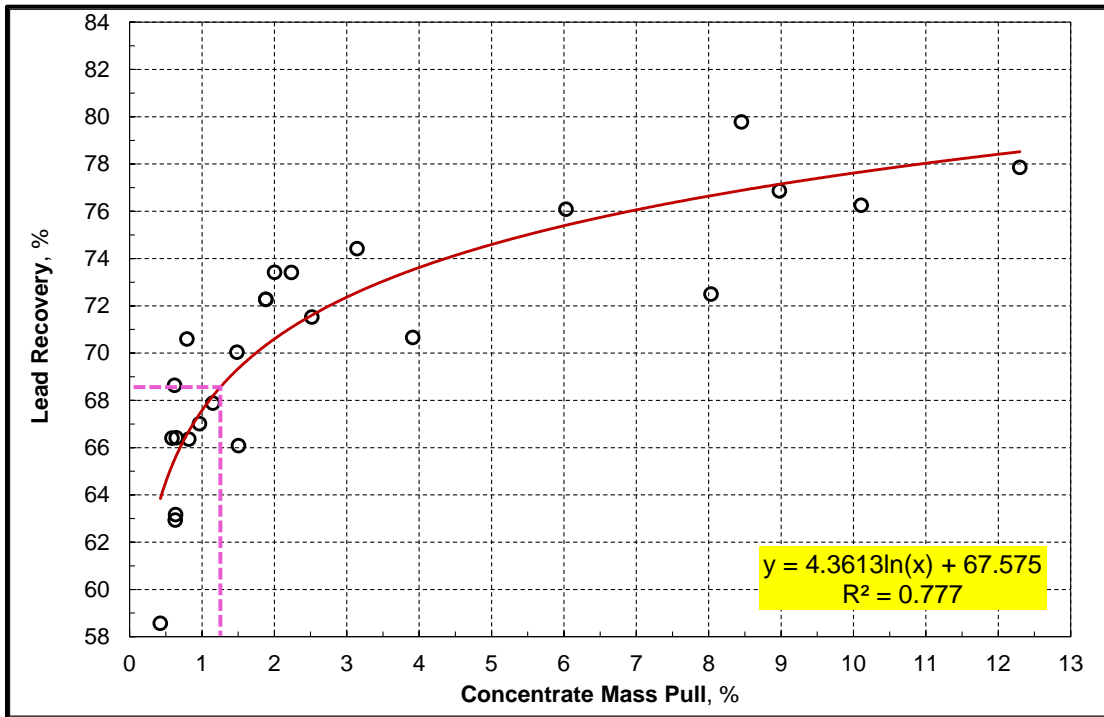
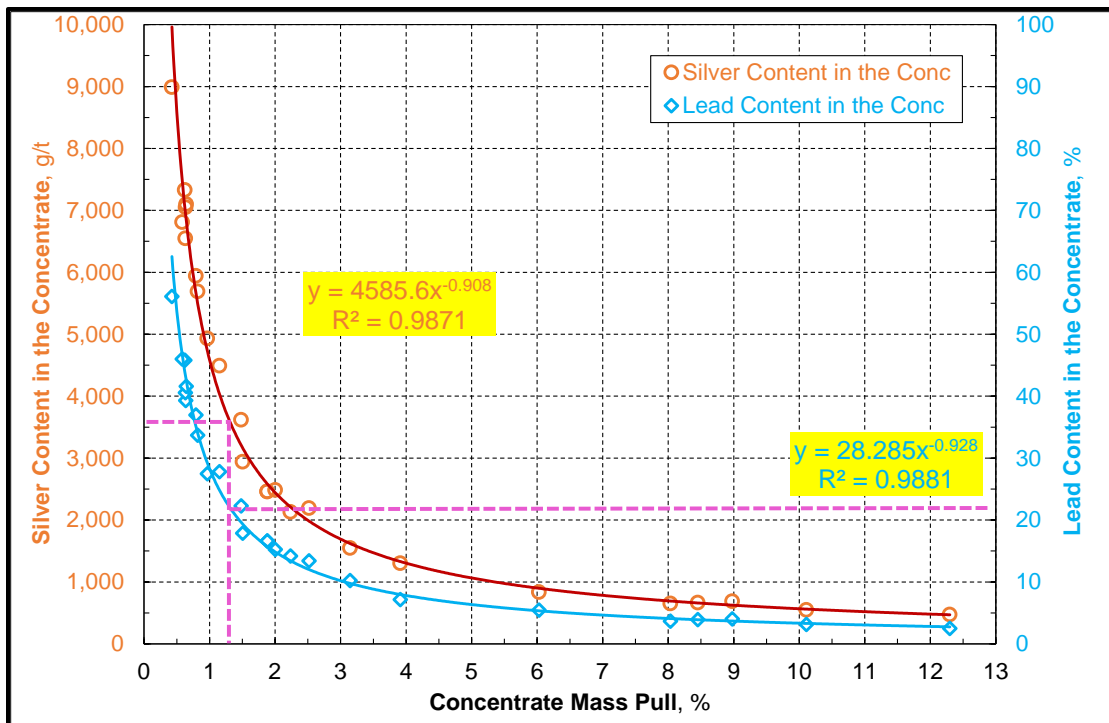


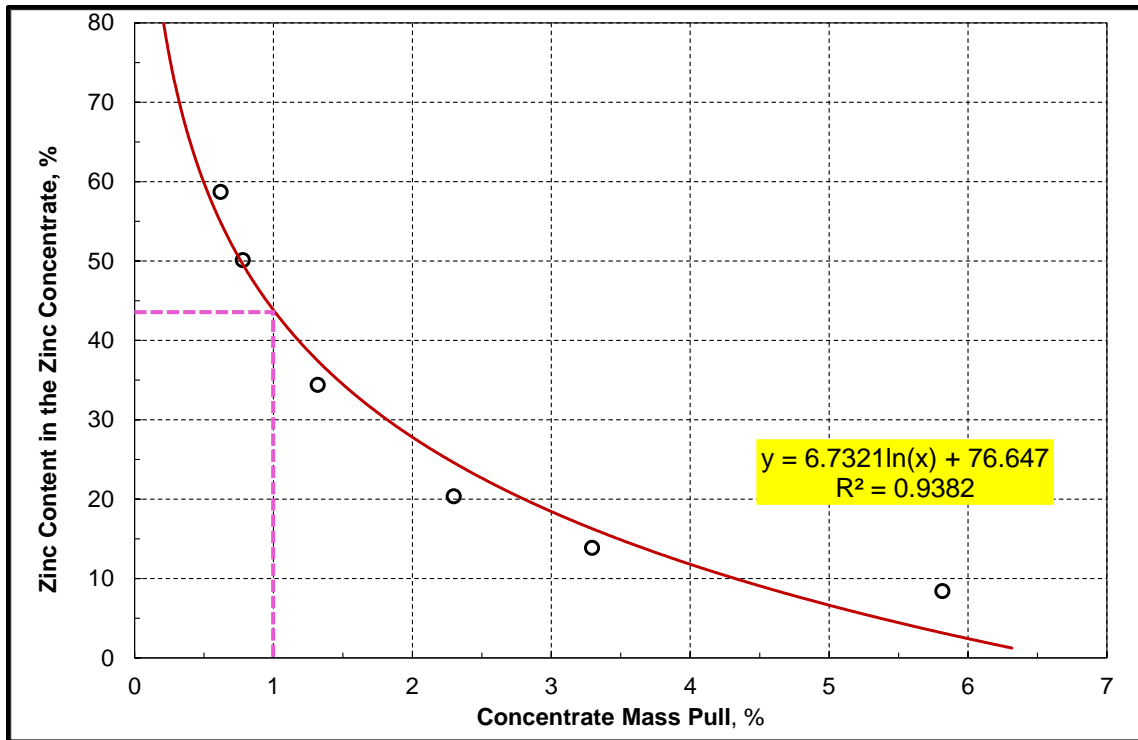
Figure 13-13 shows the silver/lead concentrate grades generated by cleaner tests as a function of the silver/lead concentrate mass pull. At 1.25% concentrate mass pull, the concentrate is expected to contain about 3,500 g/t silver and 22% lead. The 2,000 g/t silver content is a critical threshold for achieving a favourable payable rate when selling the silver/lead concentrate.

**Figure 13-13 Silver and Lead in the Concentrate for the USZ LOM Composite Sample**



**Figure 13-14** shows zinc content in the zinc/silver concentrate generated by cleaner tests as a function of zinc/silver concentrate mass pull when the silver/lead rougher tail, 1st cleaner tail and 2nd cleaner tail were all forwarded to the zinc circuit for Tests 51Cl and 52Cl. Based on the trend line of this graph, the appropriate zinc/silver concentrate mass pull will be around 1.0% in order to reach over 40% zinc content in the zinc/silver concentrate.

**Figure 13-14 Zinc Content in the Concentrate for the USZ LOM Composite Sample**



### 13.9.3 Locked cycle tests for the USZ LOM composite sample

Four locked cycle tests were completed. The first two locked cycle tests suffered from inadequate concentrate mass pulls in the cleaner stage for both silver/lead concentrate and zinc/silver concentrate. The third locked cycle test (Test 55) was carried out to meet the concentrate mass pull targets described above, and the flotation performance improved. The fourth locked cycle test (Test 57) was carried out with further change by running the first cleaner stage in the zinc circuit in a closed loop in order to improve zinc recovery in the zinc/silver concentrate.

To alleviate the issue of high slurry viscosity in the zinc circuit, sodium hydroxide was used to adjust the pH in the silver/lead and zinc circuits. In the future, when the slurry viscosity issue is resolved, the hydrated lime will be used for pH adjustment. The conditions for the locked cycle Test 55 are presented in

**Table 13-16.** The conditions for Test 57 were same as Test 55, except that the first cleaner stage in the zinc circuit was run in a closed circuit.



**Table 13-16 Conditions of the Locked Cycle Test for the USZ LOM Composite Sample**

			Silver/Lead Circuit	Zinc Circuit
Primary Grinding	Zinc Sulfate ZnSO <sub>4</sub> ·7H <sub>2</sub> O	g/t	1,000	/
	Grind Size (P80)	µm	68	/
Rougher	pH		9.0	11.5
	Sodium Hydroxide NaOH	g/t	300	625
	Collector AP3418A	g/t	18	/
	Collector A404	g/t	4	/
	Copper Sulfate CuSO <sub>4</sub> ·5H <sub>2</sub> O	g/t	/	100
	Collector SIPX	g/t	/	8
	Flotation Time	min	14	6
Regrinding	Regrind Time	min	11	10
	Regrind Size (P80)	µm	19	16
	Zinc Sulfate ZnSO <sub>4</sub> ·7H <sub>2</sub> O	g/t	300	/
	Copper Sulfate CuSO <sub>4</sub> ·5H <sub>2</sub> O	g/t	/	50
1 <sup>st</sup> Cleaner	pH		9.0	11.5
	NaOH	g/t	50	75
	Collector AP3418A	g/t	8	/
	Collector SIPX	g/t	/	3
	Flotation Time	min	8	3
2 <sup>nd</sup> Cleaner	pH		9.0	11.5
	Collector AP3418A	g/t	2	/
	Collector SIPX	g/t	/	1
	Flotation Time	min	5	2

*Note: 1.7 kg sample each cycle. Five cycles total. Open circuit for the 1st cleaner. Closed circuit for the 2nd cleaner. 8.0-litre cell for rougher. 2.2-litre cell for cleaners*

The results of the locked cycle Test 55 and Test 57 are shown in **Table 13-17**. For the silver/lead concentrate, average results between Test 55 and Test 57 were:

- Concentrate mass pull was 1.20%.
- Silver recovery was 81.6%.
- Lead recovery was 73.4%.
- The concentrate contained 3,658 g/t silver and 24.0% lead.

**Table 13-17 Results of the Locked Cycle Tests 55 and 57 for the USZ LOM Composite Sample**

Stream	Test No.	Mass	Concentrate Grade			Recovery		
			Ag	Pb	Zn	Ag	Pb	Zn
		%	g/t	%	%	%		
Head Grade	Test 55	/	54	0.41	0.64	/	/	/
	Test 57	/	53	0.38	0.68	/	/	/
Silver/Lead Concentrate	Test 55	1.21	3,644	24.2	12.5	81.8	71.9	23.5
	Test 57	1.18	3,672	23.8	11.6	81.4	74.9	20.3
	Average	1.20	3,658	24.0	12.0	81.6	73.4	21.9
Zinc Concentrate	Test 55	1.06	264	0.9	34.5	5.5	2.2	57.0
	Test 57	0.99	325	0.9	45.8	6.0	2.3	66.9

Note: The first cleaner for the zinc circuit was run in an open circuit for Test 55 and in a closed circuit for Test 57.

The performance of the zinc circuit was significantly improved in Test 57 when the first cleaner stage was run in a closed loop. Based on the results of Test 57, the zinc/silver concentrate had the following performances.

- Concentrate mass pull was 0.99%.
- Silver recovery was 6.0%.
- Zinc recovery was 66.9%.
- The concentrate contained 325 g/t silver and 45.8% zinc.

### 13.10 Metallurgical testing for the sample from the Lower Gold Zone

The sample (1.05 g/t gold, 10 g/t silver, 0.059% copper and 3.33% sulfur) from the Lower Gold Zone was subjected to a series of metallurgical tests, including gravity concentration, whole ore cyanide leach, bulk flotation, selective flotation to produce a copper-rich gold concentrate and cyanide leach of flotation concentrate.

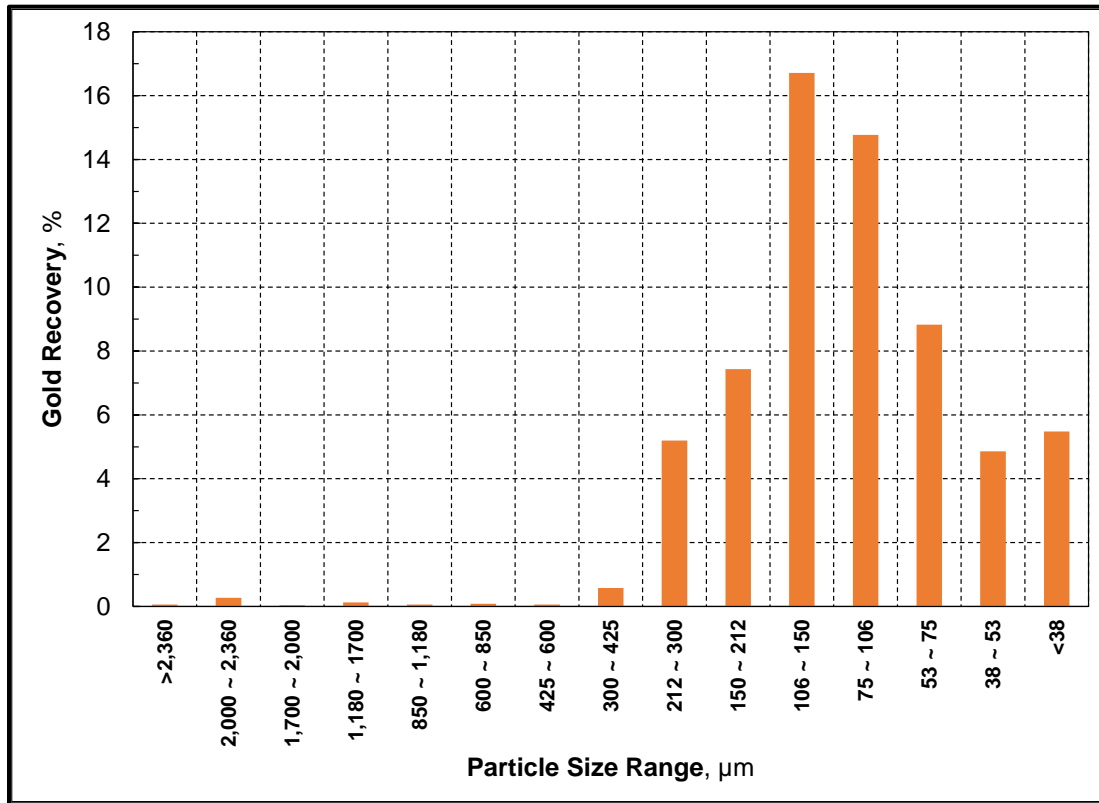
#### 13.10.1 Gravity concentration testwork and simulation

A three-stage gravity concentration test was carried out by following Knelson’s E-GRG procedure. The obtained results are presented in **Table 13-18**. Total gravity recoverable gold recovery was 67.3%, corresponding to 1.47% concentrate mass pull and 48.4 g/t gold grade in the concentrate. The size-by-size gold recoveries are shown in **Figure 13-15** Size-by-Size Gravity Recoverable Gold for the Sample from the . Most of the gold particles in the gravity concentrate were between 53 µm and 300 µm, which are considered to be moderate to coarse.

**Table 13-18 Results of Gravity Concentration for the Sample from the Lower Gold Zone**

Stage	Particle Size (80% Passing)		Mass Pull	Gold Grade	Gold Recovery
	Feed	Concentrate			
	µm	µm	%	g/t	%
1 <sup>st</sup>	911	1,321	0.60	34.0	19.3
2 <sup>nd</sup>	266	313	0.38	77.8	27.7
3 <sup>rd</sup>	76	122	0.49	43.3	20.3
Total Concentrate			1.47	48.4	67.3
Head Grade			/	1.06	/

Figure 13-15 Size-by-Size Gravity Recoverable Gold for the Sample from the Lower Gold Zone



A simulation was carried out by FLSmidth (former Knelson Concentrators) for a gravity concentration circuit which treats a portion of cyclone underflow for a process plant treating 500 t/h mill throughput. The simulated results are shown in **Table 13-19**. At a primary grind size of 80% passing 100 µm, the expected gold recovery from the gravity concentration circuit is between 41.5% and 43.7% when 500 to 700 t/h cyclone underflow is fed to a gravity concentration circuit which consists of two QS48 centrifugal concentrators. When the primary grind size is reduced to 80% passing 75 µm, the expected gold recovery from the gravity concentration circuit increases slightly to approximately 44.1% to 46.4%.

Table 13-19 Expected Gravity Recoverable Gold Recovery for a Commercial Operation

Particle Size of Cyclone Overflow (P80) µm	Circulating Load Treated %	Solid Throughput to Gravity Concentration Circuit t/h	Gold Recovery %	Equipment
100	33%	500	41.5	2 x QS48 (250 t/h per unit)
	47%	700	43.7	2 x QS48 (350 t/h per unit)
75	33%	500	44.1	2 x QS48 (250 t/h per unit)
	47%	700	46.4	2 x QS48 (350 t/h per unit)

Note: 500 t/h mill throughput. 300% recirculation load in the grinding circuit

### 13.11 Bulk flotation to produce the gold concentrate

To produce a gold concentrate, bulk flotation was applied to the sample (1.05 g/t gold, 10 g/t silver, 0.059% copper, and 3.33% sulfur). Seven rougher flotation tests were completed to investigate the impact of grind size, pulp density and collector dosage on gold flotation performance. The conditions for these seven rougher

flotation tests are shown in **Table 13-20**Table 13-20, and the obtained results are presented in **Table 13-21**. Gold flotation performance was consistently good even at a very coarse grind size (80% passing 266 µm). The average values of these seven rougher flotation tests were 10.9% concentrate mass pull, 98.0% gold recovery and 94.7% silver recovery.

**Table 13-20 Conditions of Rougher Flotation Tests for the Gold Sample**

Test No.	Sample Weight	Grind Size (P80)	Flotation Cell Volume	pH	Collector Dosage		Flotation Time
	kg				µm	L	
					g/t		
01R	1.7	76	4.4	9.0	12	12	8
11R	3.4	76	8.0	8.9	12	12	8
14R	1.7	140	8.0	8.9	12	12	8
16R	3.4	76	8.0	8.9	12	12	8
17R	3.4	76	8.0	8.9	12	12	8
19R	1.7	171	8.0	8.8	12	12	8
22R	1.7	266	8.0	8.9	24	24	8

**Table 13-21 Results of Rougher Flotation Tests for the Gold Sample**

Test No.	Concentrate Mass Pull	Content in the Concentrate			Recovery		
		Gold	Silver	Sulfur	Gold	Silver	Sulfur
	%	g/t	g/t	%	%		
01R	10.8	7.49	100	30.4	97.8	94.5	97.9
11R	11.1	5.90	86	29.2	97.3	93.0	97.3
14R	9.8	10.50	88	35.6	98.3	95.0	97.5
16R	11.1	7.59	78	31.3	97.9	95.1	97.5
17R	11.6	9.92	84	28.2	99.2	95.7	96.4
19R	11.2	8.67	76	29.4	98.2	95.1	97.9
22R	10.9	8.88	83	29.8	97.3	94.4	96.3
<b>Average</b>	<b>10.9</b>	<b>8.42</b>	<b>85</b>	<b>30.6</b>	<b>98.0</b>	<b>94.7</b>	<b>97.2</b>

### 13.11.1 Selective flotation to produce the copper-enriched concentrate

The sample from the lower gold zone contained 0.059% (590 ppm) copper. Some copper minerals will likely dissolve during cyanide leach and thus consume sodium cyanide. The dissolved copper will load onto activated carbon. If the dissolved copper is carried over to the electrowinning circuit, it will be plated together with gold on cathode and thus contaminate the quality of gold dore. Two exploratory flotation tests were conducted to generate a copper-enriched gold concentrate. The first test started with a bulk flotation approach in the rougher stage, and then the resultant rougher concentrate was upgraded by following a selective flotation approach. The second test followed the selective flotation approach in rougher and cleaner stages. The conditions of these two tests are shown in **Table 13-22**, and the results are presented in **Table 13-23**.

**Table 13-22 Conditions of Flotation Tests to Produce a Copper-Enriched Concentrate**

Test No.	Conditions for Rougher				Conditions for 3-Stage Cleaner							
	pH	Collector Dosage			Flotation Time min	Regrind Size (P80) µm	pH	NaCN g/t	Collector Dosage			Flotation Time min
		SIPX	AF208	AP3418A					SIPX	AF208	AP3418A	
		g/t							g/t			
24Cl	8.9	12	12	/	8	19	11.5	20	4+3+2	4+3+2	/	5+4+3
25Cl	10.5	/	12	12	8	8	11.5	5	/	5+4+3	5+4+3	5+4+3

Note: 3.4 kg sample, 8.0-litre cell for rougher, 2.2-litre cell for cleaner

**Table 13-23 Results of Selective Flotation Tests to Produce a Copper-Enriched Concentrate**

Test No.	Product	Solid Mass %	Composition				Recovery			
			Cu	Au	Ag	S	Cu	Au	Ag	S
			%	g/t	g/t	%	%			
24Cl	3 <sup>rd</sup> Cleaner Conc	0.16	9.10	350	2,272	14.8	23.5	55.2	36.6	0.7
	2 <sup>nd</sup> Cleaner Conc	0.38	6.25	159	1,242	13.9	39.0	60.6	48.3	1.6
	1 <sup>st</sup> Cleaner Conc	1.66	2.54	41	377	20.2	70.2	69.9	64.9	10.3
	Rougher Conc	11.2	0.52	9	83	28.4	97.0	99.1	95.4	97.5
	Feed	/	0.060	0.99	9.7	3.3	/			
25Cl	3 <sup>rd</sup> Cleaner Conc	0.14	17.2	370	1,564	20.4	38.7	51.5	22.8	0.8
	2 <sup>nd</sup> Cleaner Conc	0.27	11.5	212	1,126	16.5	51.3	58.3	32.4	1.3
	1 <sup>st</sup> Cleaner Conc	0.78	5.55	84	616	15.2	70.7	66.3	50.7	3.4
	Rougher Conc	4.52	1.29	20	172	18.9	95.1	89.2	81.8	24.8
	Feed	/	0.061	0.99	9.5	3.5	/			

Both tests recovered a significant amount of copper. In comparison, Test 25Cl, which followed the selective flotation approach in rougher and cleaner stages, was more successful. For Test 25Cl, the concentrate quality and recoveries are as follows:

- After the rougher concentrate was upgraded in three stages, the concentrate contained 17.2% copper, 370 g/t gold and 1,564 g/t silver, and the corresponding recoveries were 38.7% for copper, 51.5% for gold and 22.8% for silver. This copper-enriched gold/silver concentrate is believed to be readily saleable.
- When the rougher concentrate was upgraded in two stages, the concentrate quality was slightly poorer, containing 11.5% copper, 212 g/t gold and 1,126 g/t silver, and the corresponding recoveries were 51.3% for copper, 58.3% for gold and 32.4% for silver. Although copper content was reduced, this copper-enriched gold/silver concentrate remains attractive.
- When the rougher concentrate was upgraded in one stage, copper content in the concentrate was further decreased to 5.55%, but the concentrate still contained 84 g/t gold and 616 g/t silver. This concentrate quality is still attractive.

### 13.11.2 Whole-ore cyanide leach

Two preliminary cyanide leach tests were completed for the sample from the lower gold zone. The conditions and results are presented in **Table 13-24**. Primary grind size ranged from 80% passing 90 to 107 µm, and cyanide concentration was between 0.75 and 1.00 g/L NaCN. The total cyanide leach retention time was 48 hours. The first 30-hour cyanide leach was carried out in the absence of activated carbon (DCN). Then, activated carbon was added, and cyanide leach was continued for another 18 hours (CIP). Gold recovery was

between 92.2% and 94.0%, and silver recovery was 42.4% and 50.8%. Sodium cyanide consumption was between 0.42 and 0.55 kg/t NaCN.

**Table 13-24 Conditions and Results of Cyanide Leaching for the Sample from the Lower Gold Zone**

Test No	Grind Size (80) µm	pH	Cyanide Concentration g/L NaCN	Head Grade		Tail Grade		Recovery		Reagent Consumption	
				Au	Ag	Au	Ag	Au	Ag	Cyanide	Lime
	g/t			g/t		%		kg/t NaCN	kg/t CaO		
21CN	107	11.0	0.75	1.29	8.7	0.10	5.0	92.2	42.4	0.42	0.93
27CN	90	12.0	1.00	0.83	10.0	0.05	4.9	94.0	50.8	0.55	4.35

Note: Bottle roll, 40% solid, 30-hour DCN +18-h CIP, continuous oxygen sparging

### 13.11.3 Cyanide leach of the gold flotation concentrate

The gold concentrate, produced from the bulk flotation, was subjected to cyanide leach to recover gold and silver. Four preliminary cyanide leach tests were completed to investigate the impact of particle size, retention time, lead nitrate and activated carbon. The conditions and results are shown in **Table 13-25** Table 13-25. The abbreviation “DCN” stands for direct cyanide leach in the absence of activated carbon, and the abbreviation “CIP” stands for carbon in pulp, which means that cyanide leach is carried out in the presence of activated carbon. Gold recovery was between 94.0% and 96.2%, and silver recovery was between 55% and 68%. Although the back-calculated head grade for gold was quite variable, the tail grade was relatively consistent, between 0.25 g/t and 0.28 g/t gold for the reground concentrate. Without regrinding, the tail contained 0.48 g/t gold. These results imply that modest regrinding is helpful to gold recovery, but ultrafine grinding is unnecessary. Fine regrinding resulted in increased cyanide consumption.

**Table 13-25 Conditions and Results for the Cyanide Leach of Flotation Concentrate**

Test No.	Particle Size (P80) µm	pH	Retention Time h	Lead Nitrate kg/t	Head Grade		Recovery		Reagent Consumption	
					Au	Ag	Au	Ag	Cyanide	Lime
	g/t				%		kg/t NaCN	kg/t CaO		
12CN	~76	10.5~12.0	72-h DCN	/	9.01	70	94.7	55	3.0	3.1
20CN	8	11.0~11.6	55-h DCN+17-h CIP	0.5	6.57	63	96.2	68	14.2	1.2
26CN	10	11.5~12.0	30-h DCN + 18-hCIP	/	4.70	70	94.0	68	8.7	1.7
36CN	15	11.2~11.5	72-h DCN	/	6.62	68	96.2	64	5.1	1.3

Note: Bottle roll, 25% solid, 6.0 g/L NaCN, continuous oxygen sparging



## 14 MINERAL RESOURCE ESTIMATE

A Mineral Resource Estimate has been independently completed by RPM in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and mineral reserves (CIM (2014) definitions).

A “Mineral Resource” is defined by CIM Definition Standards as a concentration or occurrence of solid material of economic interest in or on the Earth’s crust in such form, grade (or quality) that there are reasonable prospects for eventual economic extraction. The location, quantity, grade (or quality), continuity and other geological characteristics of a Mineral Resource are known, estimated, or interpreted from specific geological evidence and knowledge, including sampling. Mineral Resources are subdivided, in order to increase geological confidence, into Inferred, Indicated, and Measured categories.

Mineral Resource Estimates are not precise calculations, being dependent on the interpretation of limited information on the location, shape, and continuity of the occurrence and the available sampling results.

Information contained in this Report is based on information provided to RPM by NPM and verified where possible by RPM. All statistical analyses and Mineral Resource Estimates were carried out by RPM.

The Company has developed 3D mineralized models for Ag, Au, Zn and Cu zones, and RPM has developed independent models and validated the company models through volume/geometry comparison. RPM constructed a three-dimensional digital estimate workflow for the Ag, Au, Zn and Cu grades and compiled the Mineral Resource model based on the statistical analysis of the data provided. RPM considers the Mineral Resource Estimate meets the general guidelines for CIM Definition Standards for reporting of Mineral Resources at the Indicated and Inferred confidence levels.

RPM is not aware of any other factors, including environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimate.

### 14.1 Resource Database

The primary source documents for the Mineral Resource Estimate were:

- Drill hole files (collar, downhole survey, lithology, assay, RQD, core recovery, alteration, structure and mineralization) in CSV format;
- Specific Gravity (density) measurements from drill core samples in CSV format;
- 3-D models for the main mineralized zones;
- An orthophoto file in tif format; and
- A 1m detailed topography file in shp format.

#### 14.1.1 Sample Data

A comprehensive dataset of drill hole collar, survey, assay, and geological records in digital format was provided to RPM on 01 June 2023.

The Carangas drill hole database contains 189 drill holes representing 81,145 m. A total of 58,215 samples were analyzed and comprise the current database for Mineral Resource estimation. Assays below the detection limit were assigned to one-half of the detection limit by NPM personnel.

A total of 27,170 RQD and 27,173 core recovery measurements from 189 drill holes existed in the database. The average core recovery within the modelled mineralized zone is 98%, ranging from 0% to 100%. Poor

sample recovery is concentrated in the overburden zone or in cavities (historical artisanal mining or natural cavities).

RPM is of the opinion that the core recovery is acceptable for geological interpretation, modelling, and Mineral Resource classification.

## 14.1.2 Bulk Density Data

A total of 5,366 SG measurements from 189 diamond drill holes exist from the Carangas deposit. Measurements were calculated using the weight in air versus the weight in water method (Archimedes), by applying the following formula:

$$\text{Specific Gravity} = \frac{\text{Weight in Air}}{(\text{Weight in Air} - \text{Weight in Water})}$$

The average bulk density for each block into the 3D mineralized domain was estimated within each domain separately, using hard boundaries and inverse distance (ID2) function and considering a minimum of 2 and maximum of 4 samples to estimate a block value. The estimated density values were used for tonnage calculations in the Mineral Resource Statement. The density sample statistics for each domain is presented in **Table 14-1** Table 14-1.

**Table 14-1 Density Statistics Table**

Domain	N Samples	Density (t/m <sup>3</sup> )	Stdev	Minimum	Maximum
Upper Silver Zone	1,666	2.08	0.23	1.33	3.49
Middle Zinc Zone	713	2.30	0.19	1.37	3.01
Lower Gold Zone	877	2.27	0.21	1.20	3.22
Lower Copper Zone	21	2.34	0.21	1.94	2.77

Source: compiled by RPMGLOBAL, 2023

## 14.2 Depletion Areas

Historic artisanal mining activities have been involved in the project area. However, this activity was limited to a few meters within the surface. The Client did not supply RPM with the 3D artisanal mining models for depletions. Thus, artisanal mining has not been excluded from the Mineral Resource. RPM does not envisage that this will materially influence the Mineral Resource Statement as the artisanal mining was not extensive and only in the West and East Dome area and not into the Central Valley area where the bulk of mineralization is located. Currently, there is no artisanal mining activities at the Carangas project.

## 14.3 Geological Interpretation

Geological interpretations of the lithological units and the geological structure were used to guide and interpret the shape of the mineralized wireframes, along with assay results.

The 3-D mineralized zones were interpreted based on a silver equivalent variable (AgEq) and geological knowledge from the geology team. The AgEq formula is as follows:

$$\text{AgEq g/t} = \text{Ag g/t} + \text{Au g/t} * 82.6 + (\text{Pb \%} * 2094 / 100 + \text{Zn \%} * 2755 / 100 + \text{Cu \%} * 8816 / 100) / 0.74$$

The price assumptions for the metals are Ag: 23 \$/oz, Au: 1900 \$/oz, Pb: 0.95 \$/lb, Zn: 1.25 \$/lb, Cu: 4 \$/lb. Prices are based on bank and industry forecasts as of August 2023.

A cut-off grade of 20 g/t AgEq was used to create wireframes of mineralization. Although mineralization modelling was based on this cut-off grade approach, some unmineralized material was included in the envelopes to maintain mineralization continuity. This is considered suitable for the style of mineralization.

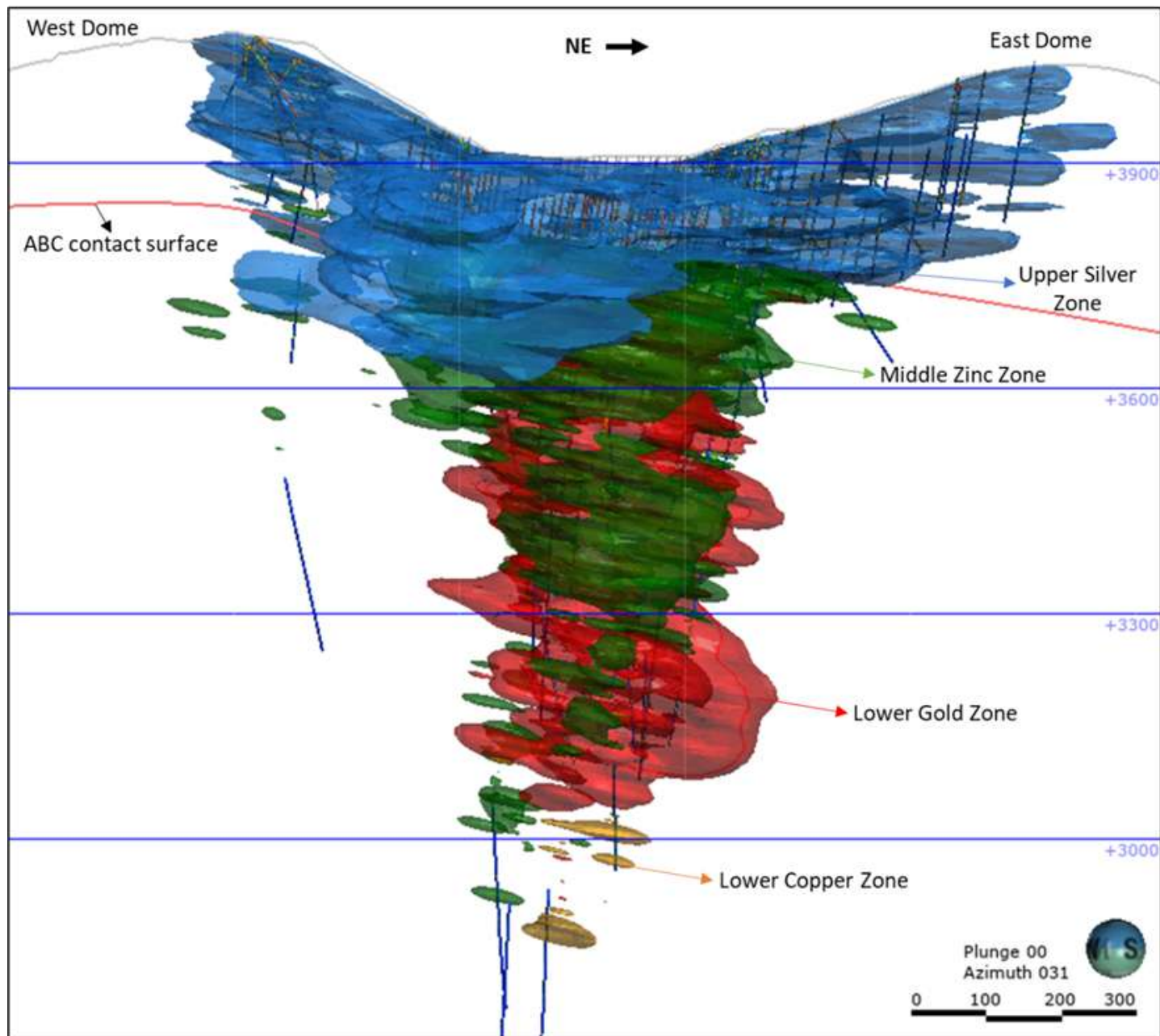
The mineralization zones were relatively continuous. However, they may terminate against or be displaced by structural features. In some areas, primarily in the down-dip direction, internal unmineralized material was included to maintain continuity.

The mineralized domains were built using Leapfrog Geo™ software, considering all major lithologies and the transitions from each domain. The main modelled domains were developed for Ag, Au, Zn (PbZn) and Cu (**Figure 14-1**) as described below:

- Upper Silver Zone (GM\_Ag): generated using AgEq cutoff of 20 g/t. The upper boundary is the bottom of Overburn lithology, and the lower boundary is the bottom of ABC (andesitic basalt).
- Middle Zinc Zone (GM\_PbZn): the grade shell was built using an AgEq cutoff grade of 20g/t. The upper boundary is the bottom of ABC (andesitic basalt), and the other boundaries are GM\_Au and GM\_Cu 3D wireframes.
- Lower Gold Zone (GM\_Au): generated grade shell using Au cutoff of 0.14 g/t. The upper boundary is the bottom of ABC (andesitic basalt).
- Lower Copper Zone (GM\_Cu): This domain was generated using a Cu cutoff of 0.15%. The boundary used was the GM\_Au wireframe domain. This Zone is not considered material due to a shortage of drill information at the depth of the mineralization system.

Following the geological knowledge, a variable orientation was used for Silver domains. The variable orientation is based on ABC (Andesitic basalt) surface contact, which controls the ellipsoid direction to build the 3D model on the Ag domain.

The Carangas deposit is described as a suite of metallic sulfide and gangue minerals occurring in volcanic and intrusive rocks as veins/veinlets, breccia fillings and dissemination. The mineralization is controlled by the temperature and pressure of the hydrothermal system, i.e., the depth from ground surface or the distance from the source of heat generated by rhyolitic intrusions.



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DRAWING  
Three-Dimensional View of the Carangas Geological Model

FIGURE No.  
14-1

PROJECT No.  
ADV-TO-00079

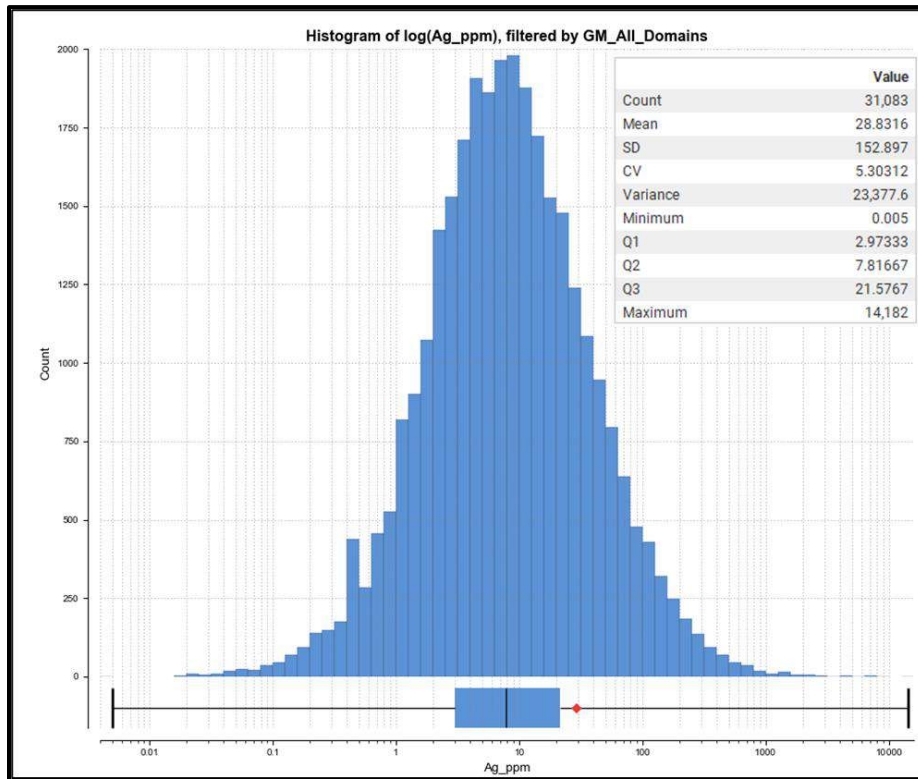
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### 14.4 Resource Assays

A complete exploratory data analysis was performed. Univariate statistics, histograms, and box-whisker plots were constructed to investigate the dataset and determine grade capping and compositing requirements. A log histogram for silver composites is shown in **Figure 14-2**, and univariate statistics for all main grades are shown in Table 14-2.

**Figure 14-2 Ag Log Histogram for 1.5 m Composites**



Source: RPMGLOBAL, 2023

**Table 14-2 Univariate Statistics of Grade Composites, by Domain**

Domain	Variable	N Sample	Mean	Standard deviation	Minimum	Maximum
Upper Silver Zone	Ag_ppm	15,743	47.80	203.16	0.04	14,182.00
	Au_ppm	3,046	0.02	0.12	0.01	3.29
	Cu_pct	15,743	0.01	0.03	0.00	1.61
	Pb_pct	15,743	0.38	0.51	0.00	14.22
	Zn_pct	15,743	0.68	0.86	0.00	16.76
Middle Zinc Zone	Ag_ppm	6,803	9.92	93.29	0.01	7,332.35
	Au_ppm	4,871	0.05	0.06	0.01	0.58
	Cu_pct	6,803	0.01	0.03	0.00	0.60
	Pb_pct	6,803	0.29	0.33	0.00	7.39
	Zn_pct	6,803	0.67	0.58	0.00	5.13
Lower Gold Zone	Ag_ppm	8,383	8.81	26.91	0.02	1,158.93
	Au_ppm	8,349	0.82	2.15	0.01	53.98
	Cu_pct	8,383	0.07	0.16	0.00	6.30
	Pb_pct	8,383	0.10	0.29	0.00	10.94
	Zn_pct	8,383	0.17	0.41	0.00	7.43
Lower Copper Zone	Ag_ppm	154	15.33	28.27	0.13	247.88
	Au_ppm	140	0.07	0.06	0.01	0.34
	Cu_pct	154	0.30	0.23	0.00	1.45
	Pb_pct	154	0.17	0.85	0.00	9.89
	Zn_pct	154	0.37	0.99	0.00	9.02

Source: compiled by RPMGLOBAL, 2023

## 14.5 Treatment of High-Grade Assays

Applying high-grade cuts reduces the impact of extreme grade outliers on the grade estimate and aims to prevent these statistical outliers from having a significant impact on the Mineral Resource estimate. The high-grade cuts applied to the composites were determined from the histograms and log probability plots for each element. A detailed domain study was completed, and the same global top-cut values were concluded. The high-grade cut values are shown in Table 14-3.

**Table 14-3 Top Cut Values into all Domains**

Variable	Minimum	Maximum	Capping Value
Ag_ppm	0.0	9,626	7.000
Au_ppm	0.0	53.977	40.0
Pb_pct	0.0	14.220	No Capping
Zn_pct	0.0	16.760	No Capping
Cu_pct	0.0	1.612	No Capping

Source: compiled by RPMGLOBAL, 2023



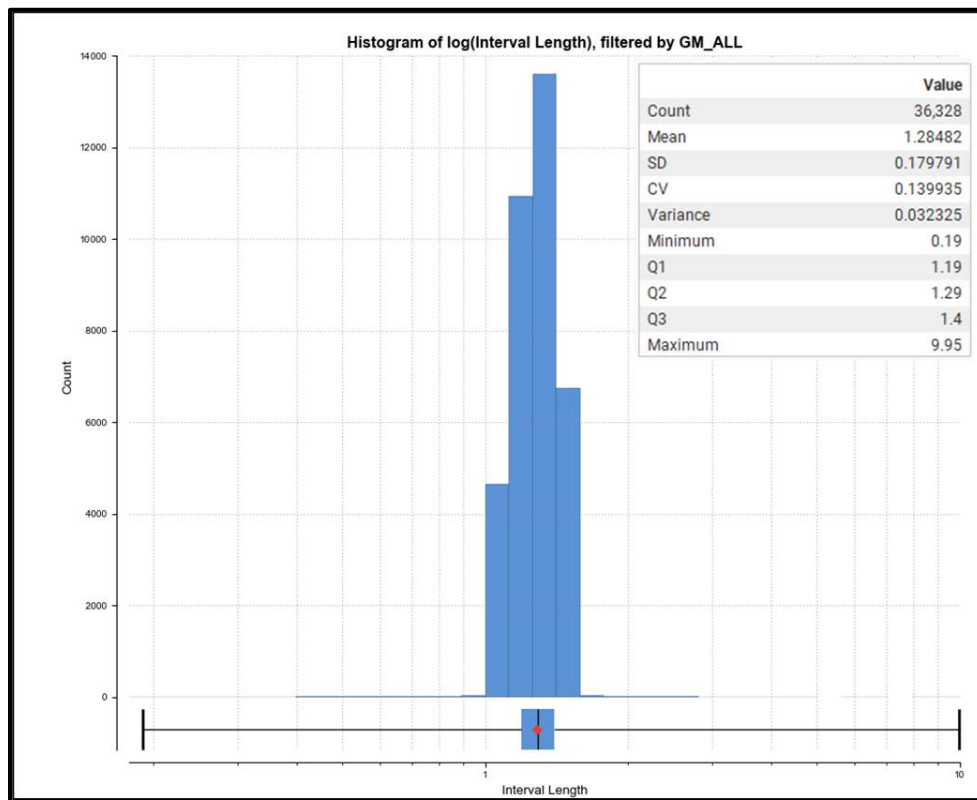
## 14.6 Compositing

This compositing section discussion herein addresses only the data used to estimate the Mineral Resources.

Although the most common sample length inside the mineralized wireframes was 1.28 m (**Figure 14-3**), RPM selected a composite length of 1.5 meters to decrease the variability and coefficient of variation. Decreasing the coefficient of variation during the compositing stage reduces the risk of metal loss when applying high-grade cuts.

The composites were checked visually in Leapfrog Geo™ software for spatial correlation with the wireframed mineralized envelopes and to assess the impact of the 1.5-meter composite length. RPM considered the chosen composite length to be representative of local variations.

**Figure 14-3 Length Histogram for Raw Assay Intervals**



Source: RPMGLOBAL, 2023

## 14.7 Search Strategy and Grade Interpolation Parameters

### 14.7.1 Block Model Strategy and Analysis

A series of upfront test modelling was completed to define an estimation methodology to meet the following criteria:

- Representative of the current Carangas geological and structural models.
- Accounts for the variability of grade, orientation, and continuity of mineralization.
- Controls the smoothing (grade spreading) of grades and the influence of outliers.

- It is robust and repeatable within the mineral domains.
- Supports multiple domains.

Multiple test scenarios were evaluated to determine the optimum processes and parameters to use in order to achieve the stated criteria. Each scenario was based on NN, inverse-distance squared (“ID2”), inverse-distance cubed (“ID3”), and OK interpolation methods.

All test scenarios were evaluated based on global statistical comparisons, visual comparisons of composite assays versus block grades, and the assessment of overall smoothing. Based on the results of the testing, it was determined that the final resource estimation methodology would constrain the mineralization by using hard wireframe boundaries to control the spread of high-grade and low-grade mineralization. Inverse-distance squared (ID2) was selected as the interpolation method that best represents both the current Carangas database and deposit characteristics.

### 14.7.2 Grade Interpolation

The Inverse-distance squared (“ID2”) algorithm was used for the estimation of grades, using hard boundaries of each individual domain. The Nearest Neighbor (NN) estimation method was also performed for comparison grade validation and swath plot analysis.

The estimation parameters were based on the outcomes of the geospatial analysis and reflect the interpreted variability of the underlying grade continuity. A minimum and maximum number of samples was set to limit over-smoothing. A minimum of 1 sample was required for estimation, and a maximum of 40 samples. The search quadrant sector was also applied with a maximum of 10 samples per sector. The search ellipsoid ranges were based on AgEq continuity of grades and drill grid spacing.

Search orientations for the Upper Silver Zone and Middle Zinc Zone were based on the shape of the ABC (andesitic basalt) contact surface. The grade interpolation strategy and parameters are presented in **Table 14-4**.

**Table 14-4 Carangas Grade Estimation Search Parameters**

General		Value clipping	Ellipsoid Ranges			Ellipsoid Directions			
Domain	Numeric Values	Upper bound	Maximum	Intermediate	Minimum	Dip	Dip Azimuth	Pitch	Variable Orientation
Upper Silver Zone	Ag_ppm	7000	175	175	75				Yes
Upper Silver Zone	Au_ppm	40	175	175	75				Yes
Upper Silver Zone	Cu_pct	-	175	175	75				Yes
Upper Silver Zone	Pb_pct	-	175	175	75				Yes
Upper Silver Zone	Zn_pct	-	175	175	75				Yes
Lower Gold Zone	Ag_ppm	7000	175	175	75	14.216	90.9	45.0	No
Lower Gold Zone	Au_ppm	40	175	175	75	14.216	90.9	45.0	No
Lower Gold Zone	Cu_pct	-	175	175	75	14.216	90.9	45.0	No
Lower Gold Zone	Pb_pct	-	175	175	75	14.216	90.9	45.0	No
Lower Gold Zone	Zn_pct	-	175	175	75	14.216	90.9	45.0	No
Lower Copper Zone	Ag_ppm	7000	150	150	50	10	45.0	75.0	No
Lower Copper Zone	Au_ppm	40	150	150	50	10	45.0	75.0	No
Lower Copper Zone	Cu_pct	-	150	150	50	10	45.0	75.0	No
Lower Copper Zone	Pb_pct	-	150	150	50	10	45.0	75.0	No
Lower Copper Zone	Zn_pct	-	150	150	50	10	45.0	75.0	No
Middle Zinc Zone	Ag_ppm	7000	150	150	50				Yes
Middle Zinc Zone	Au_ppm	40	150	150	50				Yes
Middle Zinc Zone	Cu_pct	-	150	150	50				Yes
Middle Zinc Zone	Pb_pct	-	150	150	50				Yes
Middle Zinc Zone	Zn_pct	-	150	150	50				Yes

Source: compiled by RPMGLOBAL, 2023

### 14.8 Bulk Density

As discussed in **Section 14.1.2**, a total of 5,366 specific gravity (SG) measurements from 189 diamond drill holes were used in the Density estimation for resource block model. RPM determined that the required amount and distribution of SG measurements allowed for direct estimation of SG within the block model. The inverse distance squared (ID2) method was used and produced a good result compared to other methods. The Density interpolation strategy and parameters are presented in **Table 14-5**.

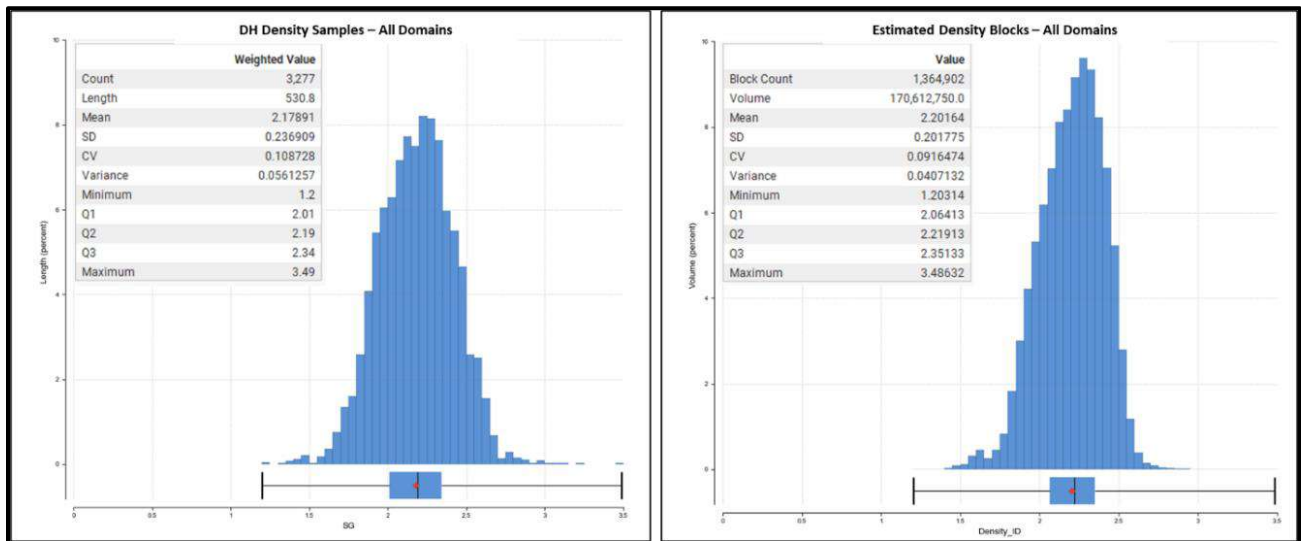
**Table 14-5 Density Estimation Parameters**

General		Ellipsoid Ranges			Ellipsoid Directions			
Domain	Numeric Values	Maximum	Intermediate	Minimum	Dip	Dip Azimuth	Pitch	Variable Orientation
Upper Silver Zone	SG	330	195	130				Yes
Middle Zinc Zone	SG	330	195	195				Yes
Lower Gold Zone	SG	330	195	130	0	0	110	No
Lower Copper Zone	SG	380	210	210	0	0	110	No

Source: compiled by RPMGLOBAL, 2023

The overall results are strongly related to the density database, as expected, and the validation process shows a reasonable comparison as presented in histograms from samples and block model in **Figure 14-4**. The samples histogram geometry is reproducible into the estimated blocks, and the mean and standard deviation shows a good comparison.

**Figure 14-4 Estimation Density Histogram Validation**



Source: RPMGLOBAL, 2023

### 14.9 Block Models

RPM constructed a three-dimensional digital estimate for Ag, Au, Pb, Zn, and Cu and compiled the Mineral Resource model based on the statistical analysis of the data provided. RPM considers that the Mineral Resource estimate meets the general guidelines for CIM Definition Standards for reporting Mineral Resources at the Indicated and Inferred confidence levels.

A block model was created for the Carangas Project, covering the main mineralized and adjacent areas. There is no rotation for the block model, and the block sizes were selected considering the geometry of mineralization, drill grid spacing, density of assay data and selected mining unit. The block model dimensions selected were 5m by 5m by 5m (X,Y,Z) with no sub-cells. The block model origins, extents and attributes are shown in **Table 14-6**.

**Table 14-6 Carangas Block Model Definition Parameters**

Model Parameters	X	Y	Z
<b>Block Model Origin</b>	538,490	7,904,850	2810
<b>Number of Blocks</b>	276	210	258
<b>Parent Block Size (m)</b>	5	5	5
<b>Rotation Degree</b>	No	No	No
<b>FIELD NAME</b>	<b>DESCRIPTION</b>		
<b>GM (Zone Domain)</b>	Ag – Upper Silver Zone Au – Lower Gold Zone PbZn – Middle Zinc Zone Cu – Lower Copper Zone		
<b>IJK</b>	Block IJK No		
<b>XC</b>	Cell Centroid – X		
<b>YC</b>	Cell Centroid – Y		
<b>ZC</b>	Cell Centroid – Z		
<b>XINC</b>	Cell Size – X		
<b>YINC</b>	Cell Size – Y		
<b>ZINC</b>	Cell Size – Z		
<b>XMORIG</b>	Model Origin – X		
<b>YMORIG</b>	Model Origin – Y		
<b>ZMORIG</b>	Model Origin – Z		
<b>NX</b>	Number of Cells – X		
<b>NY</b>	Number of Cells – Y		
<b>NZ</b>	Number of Cells – Z		
<b>DENSITY</b>	Density		
<b>Ag_ID2</b>	Estimated Ag – Inverse distance		
<b>Ag_NS</b>	Number samples in estimation of Ag grade		
<b>Ag_AvgD</b>	Average distance of samples used in Ag estimation		
<b>Au_ID2</b>	Estimated Au – Inverse distance		
<b>Cu_ID2</b>	Estimated Cu – Inverse distance		
<b>Pb_ID2</b>	Estimated Pb – Inverse distance		
<b>Zn_ID2</b>	Estimated Zn – Inverse distance		
<b>AgEq_ID2</b>	Calculated Silver equivalent		
<b>Class_Fim</b>	Resource Classification: Indicated Inferred		

Source: compiled by RPMGLOBAL, 2023

**14.10 Cut off Grade and Optimization Parameters**

A Reasonable Prospects for Eventual Economic Extraction (RPEEE) was implemented for the Carangas deposit, and the process and assumptions are detailed below and include:

- The Independent and Qualified Person responsible for the Mineral Resource Estimate is Anderson Candido, Principal Geologist of RPMGlobal and Fellow AusIMM member, and the effective date of the estimate is August 25, 2023.
- CIM Definition Standards on Mineral Resources and Reserves were used for the Carangas Project Mineral Resource Estimate.
- Industry 5 year long-term consensus average prices (consensus from long-term forecasts from banks, financial institutions, and other sources) of metals as of August 2023 were used for all calculations as itemized in **Table 14-7** Mineral Resources are not mineral reserves and do not have demonstrated economic viability.
- Minor variations may occur during the addition of rounded numbers.
- The pit shell (June 2023) was generated based on the assumptions listed in **Table 14-7**. These assumptions were based on regional benchmarks and preliminary metallurgical data.
- There are no other factors of environmental, permitting, legal, marketing, or other relevant issues which could materially affect the Mineral Resource estimate.

**Table 14-7 Commodity Prices Used in the Resource Calculation**

Commodity		Unit	Value Assumption
Metal Prices	Silver (Ag)	\$/oz	23.00
	Gold (Au)	\$/oz	1,900.00
	Lead (Pb)	\$/lb	0.95
	Zinc (Zn)	\$/lb	1.25
	Copper (Cu)	\$/lb	4.00

Source: compiled by RPMGLOBAL, 2023

Input Parameters for Resource Calculation

The Cutoff Grade calculation was based on assumptions as follows: mining operating cost, onsite milling operating cost, tailings management facility operating cost, G&A cost, royalty cost, selling cost, onsite milling metal recoveries percentages, metal payable percentages, and other variables.

The cost assumptions are presented below:

- Mining operating cost: 2.00 \$/t
- Onsite process operating cost: 10.50 \$/t
- Tailings management facility operating cost: 0.65 \$/t
- G&A cost: 1.50 \$/t
- Royalty cost: 6.0 %
- Selling cost: 0.5 \$/oz AgEq
- Metal processing recoveries percentages: Ag 90%, Au 98%, Pb 83% and Zn 58%
- Metal payable percentages: Ag 83%, Au 99.5%, Pb 83% and Zn 45%

For resource cutoff calculation purposes, a mining recovery of 100.0% and 0.0% mining dilution were applied.



RPM has developed an independent maximum pit study to verify the accuracy and reproducibility of the current maximum pit provided by the Company. The QP is of the opinion that the current maximum pit calculation is reasonable to constrain the Mineral Resources.

## Pit Optimization Disclaimer

RPM highlights that the pit shell used to define the depth and extent to report the open pit Mineral Resource is preliminary. The pit shell constraint may be subject to minor change after further pit optimization study in future stages of the Project.

RPM notes that the pit shell-constrained Mineral Resources demonstrates reasonable prospects for eventual economic extraction (RPEEE) and highlights that the pit does not constitute a scoping study or a detailed mining study which is required to be completed to confirm the economic viability of the Project with additional drilling and metallurgy test work. It is further noted that CAPEX is not included in the mining costs assumed. RPM has verified the utilized operating costs based on the Company's databases and the processing recoveries based on the preliminary test work outlined in Section 13, along with the price noted above in determining the appropriate cut-off grade. In conclusion, RPM considers the open pit-constrained Mineral Resources to demonstrate reasonable prospects for eventual economic extraction; however, it highlights that additional studies and drilling are required to confirm economic viability.

## 14.11 Classification

Definitions for resource categories used in this report are consistent with those defined by CIM (2014) and adopted by NI 43-101. In the CIM classification, a Mineral Resource is defined as "a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction". Mineral Resources are classified into Measured, Indicated, and Inferred categories. A Mineral Reserve is defined as the "economically mineable part of a Measured and/or Indicated Mineral Resource" demonstrated by studies at Pre-Feasibility or Feasibility level as appropriate. Mineral reserves are classified into Proven and Probable categories.

At the Carangas Project, the Mineral Resource was classified as Indicated and Inferred Mineral Resource on the basis of data quality, sample spacing, mineralization and grade continuity.

As noted in the geology interpretation, the mineralization varies throughout the deposit, resulting in geological and grade continuity variations. The mineralization domains are controlled by silver, gold and zinc grade relations where the silver grade is concentrated in the upper zone and gold into the lower portions. While there are grade variations observed within the closer spaced drillholes (70m by 70m), the deposit shows good continuity of the main mineralized zones along strike. While there is good geological continuity along strike, local variation of grade and thickness occurs between the current drill spacing, which arises from structures and results in discontinuity of mineralization.

Given the likelihood of further local grade variation with further drilling, RPM considers the current data suitable to provide a good estimate of tonnage and metal content on a global scale and considers the 70m by 70m spacing suitable for an Indicated classification. RPM considers that further drilling is required to allow for better estimates of local grade and metal distribution and as such, no Measured Resources are reported.

The classification criteria used by RPM for the Mineral Resource was as follows:

### Indicated:

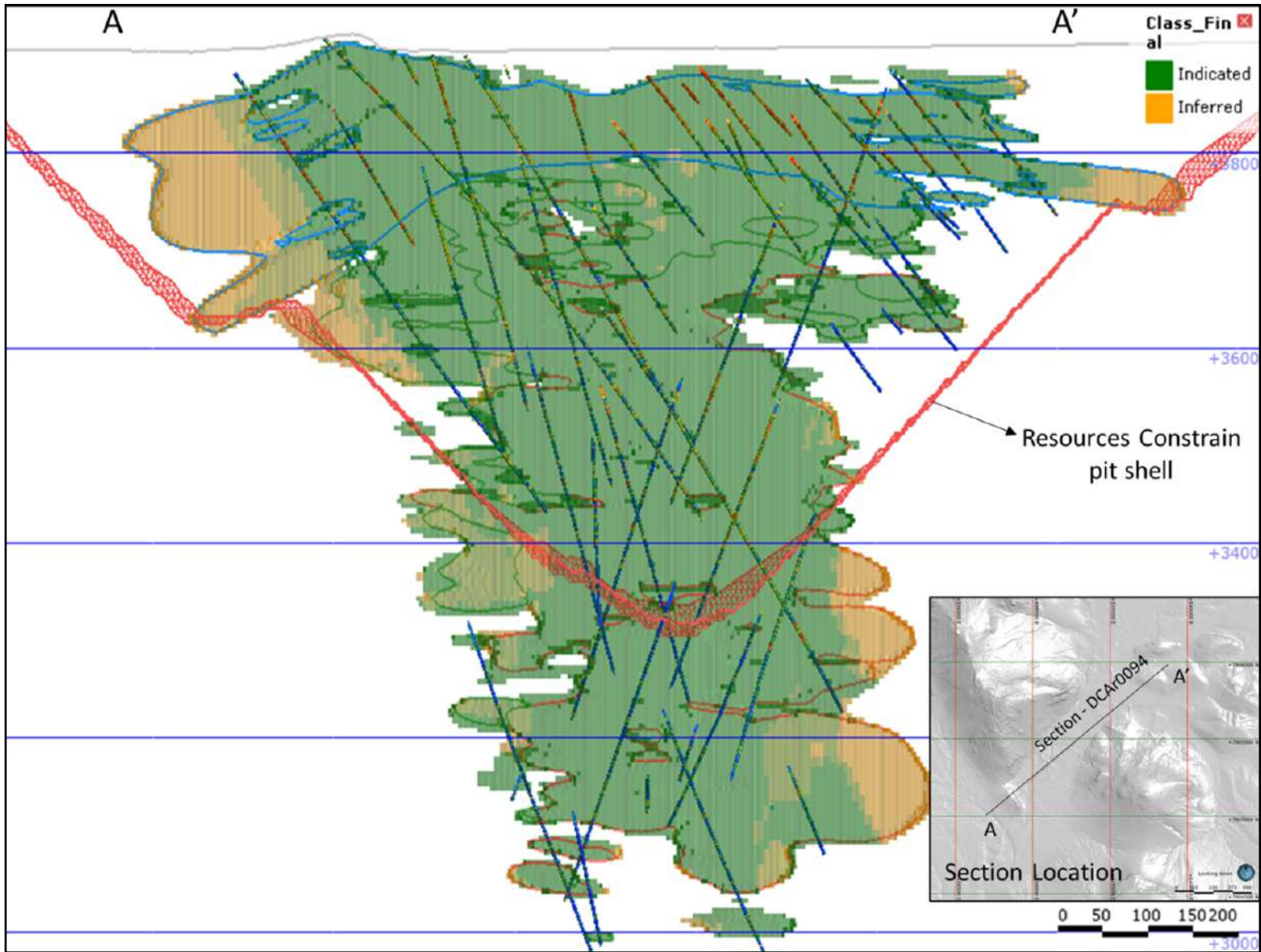
- Average ID<sup>2</sup> sample distance of less than 70 m or Nearest Neighbor (NN) sample distance of less than 35 m;
- Drill grid spacing of approximately 50-100 m; and

- Confirmed visualization of mineralization continuity.

Inferred:

- Blocks that do not satisfy the requirements for Indicated Resources and had an average sample distance of less than 220 m were classified as Inferred Resources.

A block model view of the Mineral Resource classification is shown in **Figure14-5**.



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DRAWING Classified Mineral Resources Block Model - Section 22		
FIGURE No. 14-5	PROJECT No. ADV-T0-00079	Date September 2023

14.12 Block Model Validation

The block model validation process included visual comparisons between block estimates and composite grades in section views, local versus global estimates for ID2 and NN, and swath plots. A three-step process was used to validate the estimation as outlined below:

- Mean grade comparison in each domain;
- Swath plots comparing estimation methods; and
- Visual inspection of the blocks against drill hole composites.

A quantitative assessment of the estimate was completed by comparing the average grades of the top-cut composite file against the block model grades for each domain. The results of the main element for each domain are tabulated in **Table 14-8** and indicate a good correlation.

**Table 14-8 Composite vs. Block Model Grade Statistical Validation**

DOMAIN	GRADE	Sample Grade	Model Grade	Difference in Grade	Difference (%)
Upper Silver Zone	Ag (g/t)	42.39	41.20	1.19	3%
Lower Gold Zone	Au (g/t)	0.77	0.75	0.02	3%
Middle Zinc Zone	Pb (%)	0.29	0.30	-0.01	-3%
Middle Zinc Zone	Zn (%)	0.67	0.72	-0.05	-7%
Lower Copper Zone	Cu (%)	0.30	0.31	-0.01	-3%

Source: compiled by RPMGLOBAL, 2023

A volumetric verification was undertaken to confirm that the block model represents the mineralization wireframe volumes, and no significant discrepancy was detected. This comparison is presented in **Table 14-9**, indicating an excellent comparison for all mineralization veins.

**Table 14-9 3D Volumetric Model comparison**

DOMAIN	Wireframe Volume (m <sup>3</sup> )	Model Volume (m <sup>3</sup> )	Difference (m <sup>3</sup> )	Difference (%)
Upper Silver Zone	80,734,000	80,760,500	-26,500	0.0%
Lower Gold Zone	52,072,000	52,063,625	8,375	0.0%
Middle Zinc Zone	37,254,000	37,242,125	11,875	0.0%
Lower Copper Zone	547,590	546,500	1,090	0.2%
TOTAL	170,607,590	170,612,750	-5,160	0.0%

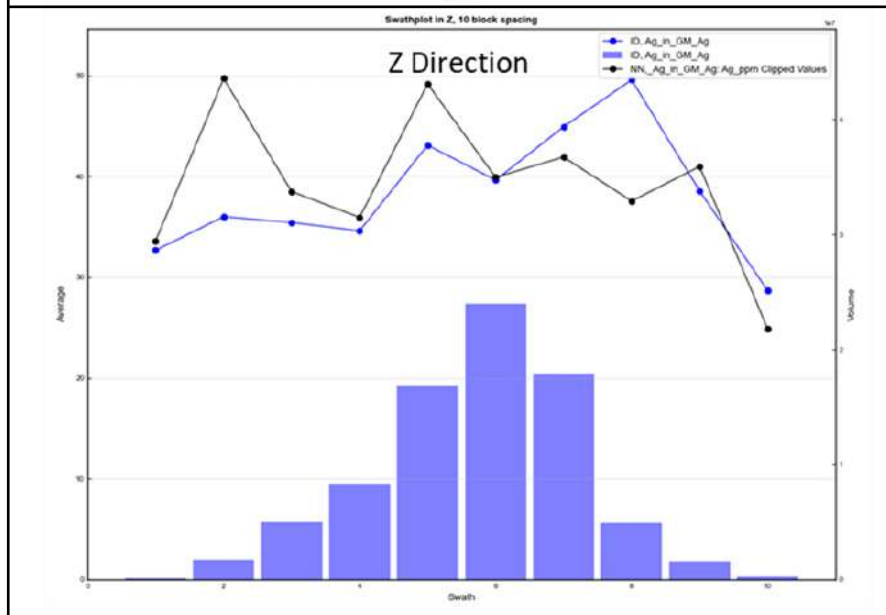
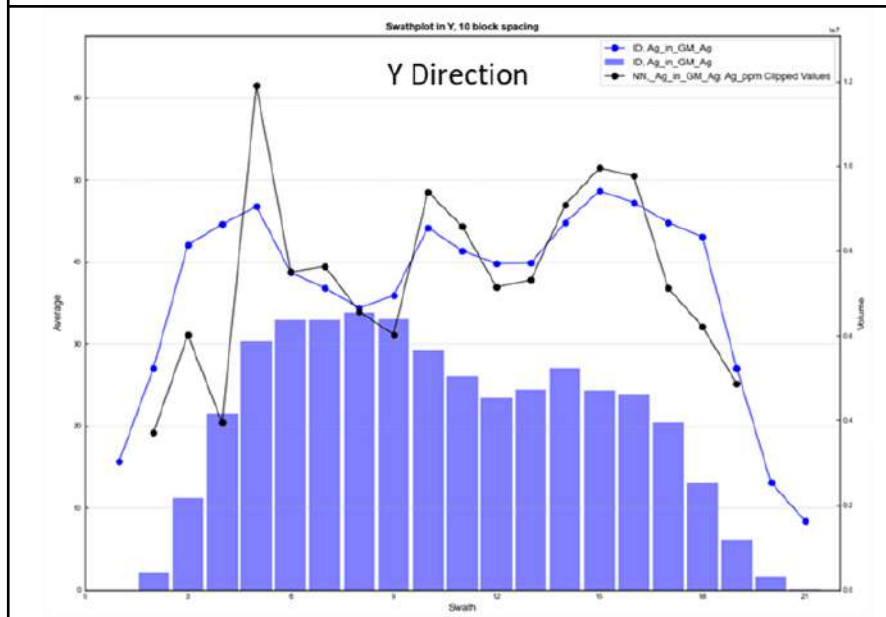
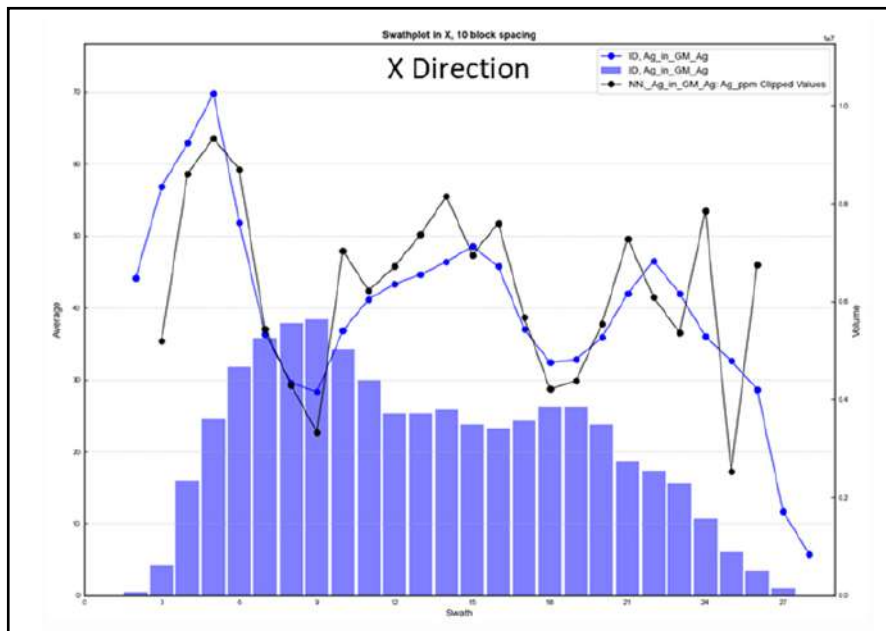
Source: compiled by RPMGLOBAL, 2023

Swath plots were developed to compare interpolated block grades with the sample composite data along distance slices in the X, Y and Z directions. The swath plot analysis, shown in **Figure 14-6**, shows that the estimated grades had a reasonable correlation with the cut composite grades. While the swath plots preserve the overall trend between the composite and block model grades, there is variation in the composites on individual slices. This often results from the smoothing of block grades that is inherent in the Inverse Distance algorithm and the estimation parameters used. It is particularly notable when variations in grade occur over short distances or the search ellipse used for sample selection is significantly wider than the width of the swath plot slice.

The interpolated block model's validation was assessed using visual assessments and validation plots of block grades versus capped assay grades and composites. The review demonstrated a good comparison between local block estimates and nearby assays without excessive smoothing in the block model.

**Figure 14-7** and **Figure 14-8** provide the visual comparisons for the Ag grade of the Carangas Deposit. Visual comparisons for all elements were developed, and the results are acceptable. The block model grade fits the composite samples and maintains grade continuity. Overall, the visual comparison indicated that the model grades were reasonably consistent with the drill hole composite grades both at a local scale-down dip and in areas of closer-spaced drilling grade continuity major direction. A reasonable degree of smoothing was observed due to a combination of the block dimensions, the ID2 algorithm and the wide drill spacing at some locations.

Based on the results of the validation, RPM considers the estimate to be a reasonable representation of the composites and matches the known controls of mineralization and the underlying data.



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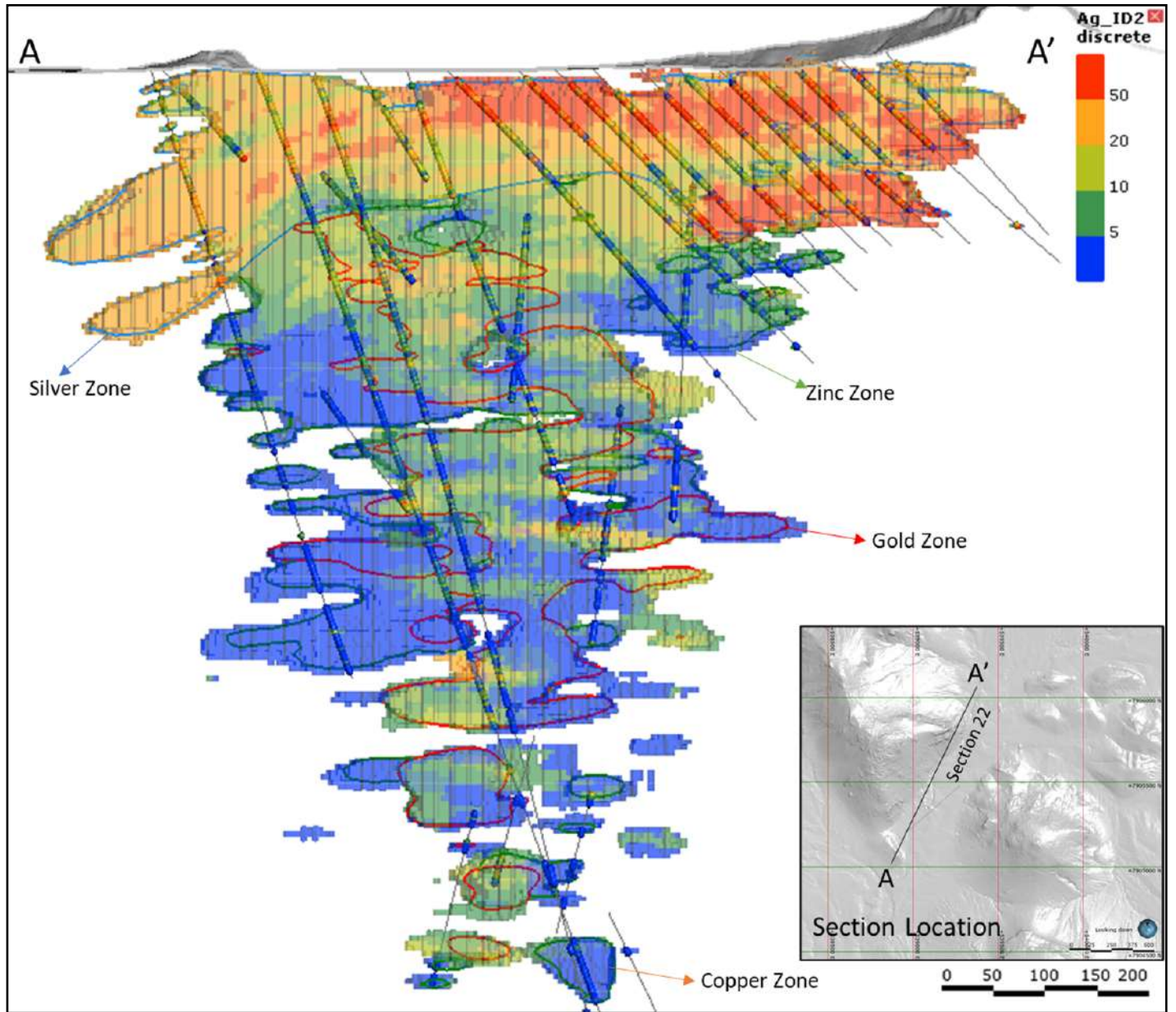
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**Swath Plot along X,Y,Z Direction for Ag (g/t) Validation**

FIGURE No.  
14-6

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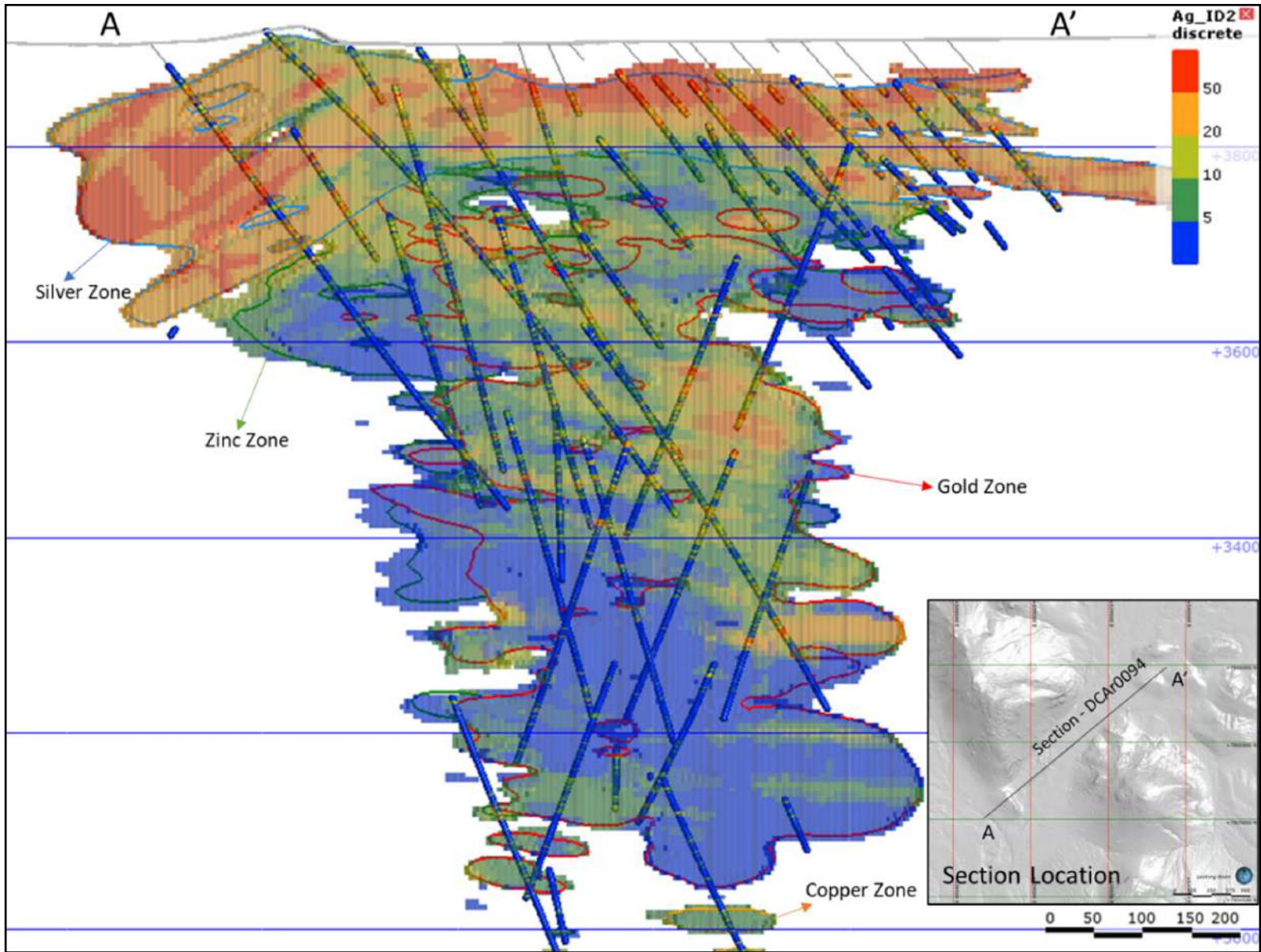
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Ag (g/t) grade Section View Validation  
of Block Model - Section 22

FIGURE No.  
14-7

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DRAWING Ag (g/t) grade Section View Validation of Block Model - Section DCAr0094		
FIGURE No. 14-8	PROJECT No. ADV-T0-00079	Date September 2023

### 14.13 Mineral Resource Reporting

RPM has independently estimated the Mineral Resources of the Project based on the data collected by NPM. The Mineral Resource Estimate and the underlying data comply with the guidelines provided in the CIM Definition Standards under NI 43-101. Therefore, RPM believes it is suitable for public reporting. The Mineral Resources were completed by Anderson Candido, Principal Geologist of RPMGlobal and Fellow AusIMM member.

The Statement of Mineral Resources has been constrained by the topography and maximum optimized pit shell and reported using a 40 g/t AgEq cut-off grade. This cut-off value was calculated using the metal prices presented in **Table 14-7** and the cost assumptions above.

Results of the independent Mineral Resources Estimate for the Project are tabulated in the Statement of Mineral Resources within the three main zones: Upper Silver Zone, Middle Zinc Zone and Lower Gold Zone, shown in **Table 14-10**.

**Table 14-10 Statement of Mineral Resources\* at the Carangas Project as of 25<sup>th</sup> August 2023**

Domain	Category	Tonnage	AgEq		Ag		Au		Pb		Zn	
		Mt	g/t	Mozs	g/t	Mozs	g/t	Kozs	%	Mlbs	%	Mlbs
Upper Silver Zone	Indicated	119.18	85	326.8	45	171.2	0.06	216.4	0.35	916.6	0.66	1,729.6
	Inferred	31.30	80	80.8	43	43.3	0.10	104.6	0.29	202.4	0.51	350.0
Middle Zinc Zone	Indicated	43.42	56	78.1	11	15.0	0.06	77.4	0.36	343.6	0.77	739.4
	Inferred	9.32	54	16.2	9	2.6	0.05	15.6	0.36	74.1	0.79	162.3
Lower Gold Zone	Indicated	52.28	92	154.9	11	19.1	0.77	1,294.4	0.16	184.7	0.16	184.7
	Inferred	4.37	91	12.8	13	1.8	0.69	97.5	0.22	21.4	0.22	21.4

Source: compiled by RPM GLOBAL, 2023

\* Notes:

1. CIM Definition Standards (2014) were used for reporting the Mineral Resources.
2. The Qualified Person (as defined in NI 43-101) for the purposes of the MRE is Anderson Candido, FAusIMM, Principal Geologist with RPM (the "QP").
3. Mineral Resources are constrained by an optimized pit shell at a metal price of \$23.00/oz Ag, \$1,900.00/oz Au, \$0.95/lb Pb, \$1.25/lb Zn, \$4.00/lb Cu, recovery of 90% Ag, 98% Au, 83% Pb, 58% Zn and Cut-off grade of 40 g/t AgEq and reported as per Section 14.
4. Drilling results up to June 1, 2023.
5. The numbers may not compute exactly due to rounding.
6. Mineral Resources are reported on a dry in-situ basis.
7. Mineral Resources are not mineral reserves and have not demonstrated economic viability.

## 15 MINERAL RESERVE ESTIMATE

This section is not relevant to this Technical Report.



## 16 MINING METHODS

### 16.1 Introduction

The deposit is amenable to open pit mining practices. Open pit mine designs, mine production schedules and mine capital and operating costs have been developed for the Carangas deposit at a scoping level of engineering. The Mineral Resources described in Section 14 form the basis of the mine planning, including Indicated and Inferred class resources.

Mine planning is based on conventional drill/blast/load/haul open pit mining methods suited for the project location and local site requirements. The open pit activities are designed for approximately two years of construction followed by thirteen years of mine operations and, finally, four years of post-pit mining stockpile rehandle to the mill. The subset of Mineral Resources contained within the designed open pits are summarized in **Table 16-1**, with a \$28/t NSR (Net Smelter Return) cut-off and form the basis of the mine plan and production schedule.

**Table 16-1 PEA Mine Plan Production Summary**

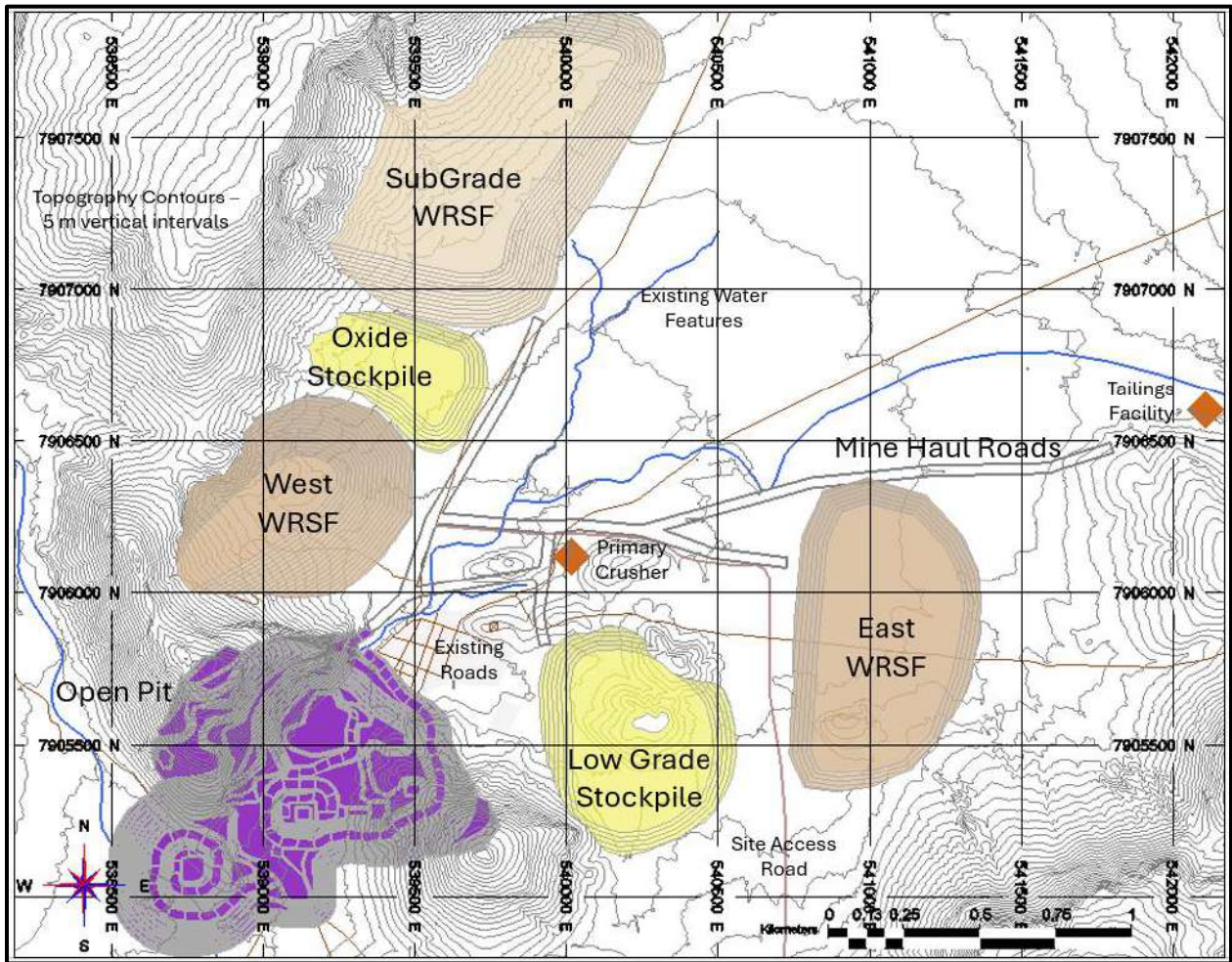
Factor	Value
PEA Mill Feed	64.4 Mt
Mill Feed NSR	\$50.6/t
Mill Feed Ag Grade	63 g/t
Mill Feed Pb Grade	0.44 %
Mill Feed Zn Grade	0.80 %
Waste Rock	111.7 Mt
Waste: Mill Feed Ratio	1.7

*Notes:*

1. *The PEA Mine Plan and Mill Feed estimates are a subset of the August 25, 2023, Mineral Resource estimates and are based on open pit mine engineering and technical information developed at a Scoping level for the Carangas deposit.*
2. *PEA Mine Plan and Mill Feed estimates are mined tonnes and grade. The reference point is the primary crusher. Mill Feed tonnages and grades include open pit mining method modifying factors, such as dilution and recovery.*
3. *Net Smelter Prices (NSP) and metallurgical recoveries are used to define the cutoff grade. NSPs include market price assumptions of \$23.0/oz Ag, \$2,094/t Pb, \$2,756/t Zn. Various smelter and refining terms, offsite costs, and a 6% royalty derive NSPs of \$20.5/oz Ag, \$1,418/t Pb, and \$1,630/t Zn. Metallurgical recoveries of 90% Ag, 83% Pb, and 58% Zn are applied.*
4. *The chosen cut-off grade covers total operating costs of \$28/t, which exceeds estimated PEA mining, processing and G&A cost estimates.*
5. *Estimates have been rounded and may result in summation differences.*

**Figure 16-1** shows the general arrangement for the PEA mine plan.

Figure 16-1 Mine Operations General Arrangements



Source: Moose Mountain, 2024

Economic pit limits are determined using the Pseudoflow implementation of the Lerchs-Grossman algorithm. Ultimate pit limits are split up into three phases or pushbacks to target higher economic margin material earlier in the mine life. Upper benches will be accessed via internal cut ramps on topography or via ramps left behind on phased pit walls. In-pit ramps will access material below the pit rim.

Pit designs are configured on 10 m bench heights, with a minimum of 8 m wide berms placed every two benches or double benching. Since there has been no geotechnical test work or analysis completed on the bedrock, the applied bench face and inter-ramp angles, 67.5 degrees and 50 degrees respectively, are scoping level assumptions based on the rock type and overall depth of the open pit.

Resource from the open pit will report to a ROM pad and primary crusher 0.5 km northeast of the pit rim. The mill will be fed with material from the pits at an average rate of 4.0 Mtpa (11 ktpd). Oxide resources will be stored in a stockpile 1 km north of the pit rim and rehandled to the crusher over the life of mine, blended with non-oxide mill feed. Non-oxide resources, mined in excess of mill feed targets, will be stored in a low grade stockpile directly south of the ROM pad and process plant and east of the open pit. This stockpile is planned to be completely reclaimed to the mill at the end of the mine life.

Waste rock will be placed in one of three storage facilities or used in the construction of haul roads and the dam portion of the tailings facility. The west waste rock storage facility (WRSF) sits directly north of the open pit. The east WRSF sits 2 km east of the open pit. A third WRSF sits 2 km north of the open pit, directly north of the



oxide stockpile, and will store sub-grade waste, which is the portion of the Mineral Resources mined and not milled within this PEA mine plan.

The waste rock from the open pit has not been tested or analyzed for potential acid generation (PAG). It is assumed that PAG quantities will be small enough to be blended with larger quantities of non-acid generating (NAG) waste rock for surface storage within the WRSFs.

Topsoil and overburden encountered at the top of the pits will be placed in a dedicated stockpile directly north of the open pit and kept salvageable for closure at the end of the mine life. These quantities have not been measured and the storage facility has not been designed for the PEA mine plan.

Contractor mining operations are planned, utilizing a diesel-powered mining fleet. Cost estimates for mining are based on a contractor quotation for this project, utilizing down the hole (DTH) drills for drilling, 0.20 kg/t target powder factor ANFO based blasting, 4 m<sup>3</sup> bucket size diesel hydraulic excavators for loading, and 70 t payload rigid-frame haul trucks for hauling, plus ancillary and service equipment to support the mining operations, including haul road and stockpile maintenance.

In-pit dewatering systems will be established for the pit. All surface water and precipitation in the open pit will be gravity drained or directed via submersible pumps to ex-pit settling ponds directly outside the pit limits, where it will report to the wider project water management system.

Contractor cost estimates include the investment into the mining mobile fleet as well as fixed facilities to maintain the fleet.

## 16.2 Key Design Criteria

The following mine planning design inputs were used:

- Topography is based on a LiDAR survey of the region in UTM Zone 20S coordinates. The topography surface utilized for mine planning is not the same as used for Mineral Resources. Differences in calculated pit contents are minimal and not material for this level of engineering.
- Resource block models on 5 m spacing in all three dimensions, which contain whole block diluted metal grades, bulk densities, and resource classifications.
- Indicated and Inferred class Mineral Resources are included in-pit optimizations and mill feed estimates. Of the total planned mill feed, 86% is from Indicated class resources (55.4 Mt), and 14% from Inferred class resources (9.0 Mt).
- Scoping level assumptions have been made for the pit configuration and overall pit slope angles based on rock types and overall pit depth from surface. Open pit design inputs, including 67.5-degree bench face angles, 50.0-degree interamp slope angles, and 20 m bench heights, are considered reasonable for scoping level engineering on the project.
- No geographical restrictions have been applied to the open pit footprints. Stockpiles and rock storage facilities are designed to avoid existing roads and streams.

### 16.2.1 Net Smelter Prices, Net Smelter Return, and Cutoff Grade

Mill feed and waste cutoff grade (COG) is based on the Net Smelter Return (NSR) in \$/t, which is determined using Net Smelter Prices (NSP). The NSR, net of offsite concentrate and smelter charges, including onsite mill recovery, is used as a cut-off item for break-even mill feed/waste selection.

The metal prices and smelter terms for the PEA economic assessment (see Section 22) are slightly different from the values described in this section and used for mine planning. Checks have been made by the QP to ensure that the PEA mine plan would not be materially altered by revising these inputs to the final PEA values.

NSP are used in place of metal market prices for mine planning to consider all offsite costs and determine revenue potential at the mine gate. The NSP calculation uses the inputs shown in **Table 16-2**.

**Table 16-2 Net Smelter Price and Recoveries for Mine Planning**

Item	Value
Silver (Ag) Price	\$23/oz
Zinc (Zn) Price	\$2,756/t
Lead (Pb) Price	\$2,094/t
Ag Payable, Zn Con	93.4%
Ag Payable, Pb Con	67.0%
Ag Payable, Dore	99.5%
Zn Payable	77.0%
Pb Payable	92.0%
Ag Refining, in Con	\$2.00/oz
Ag Refining, Dore	\$0.50/oz
Zn Treatment	\$260/t Con
Pb Treatment	\$180/t Con
Offsite Charges	\$80/t Con
Royalties	6.0%
Ag Process Recovery, Zn Con	2%
Ag Process Recovery, Pb Con	8%
Ag Process Recovery Dore	80%
Zn Process Recovery	58%
Pb Process Recovery	83%
<b>Ag NSP</b>	<b>\$0.66/g (\$20.5/oz)</b>
<b>Zn NSP</b>	<b>\$1,630/t</b>
<b>Pb NSP</b>	<b>\$1,418/t</b>

The NSR calculation is shown in Equation 16.1.

$$NSR = Ag \times RecAg \times NSP_{Ag} + Zn \times RecZn \times NSP_{Zn} + Pb \times RecPb \times NSP_{Pb}$$

Where:

- Ag = silver grade (g/t)
- Zn = zinc grade (%)
- Pb = lead grade (%)
- RecAg = silver recovery (%)
- RecZn = zinc recovery (%)
- RecPb = lead recovery (%)
- NSP<sub>Ag</sub> = net smelter price for silver (\$/g)
- NSP<sub>Zn</sub> = net smelter price for zinc (\$/t%)
- NSP<sub>Pb</sub> = net smelter price for lead (\$/t%).

The breakeven economic COG is chosen as the NSR grade required to pay for processing costs, general and administration costs, and low-grade stockpile reclaim costs. An increased COG is chosen that also pays for mining costs and an additional project margin. The COG calculation uses the inputs shown in **Table 16-3**.

**Table 16-3 Cutoff Grade**

Item	Value
Process and Tailings Costs	\$10.50/t
G&A and Site Costs	\$1.50/t
Stockpile Reclaim Costs	\$1.50/t
<i>Breakeven Cutoff Grade</i>	<i>\$13.50/t</i>
Mining Costs (\$/t milled)	\$7.00/t
Additional Margin	\$7.50/t
<b>Chosen Project Economic Cutoff Grade</b>	<b>\$28.00/t</b>

Resources between the breakeven and chosen COGs, defined as sub-grade waste, should be segregated and stockpiled in this mine plan for potential use as mill feed in future project plans. These resources are treated as waste for this PEA mine plan.

All resources above the chosen COG are either planned as direct mill feed from the pit or stockpiled and rehandled to the mill within the PEA mine plan.

## 16.2.2 Mining Loss and Dilution

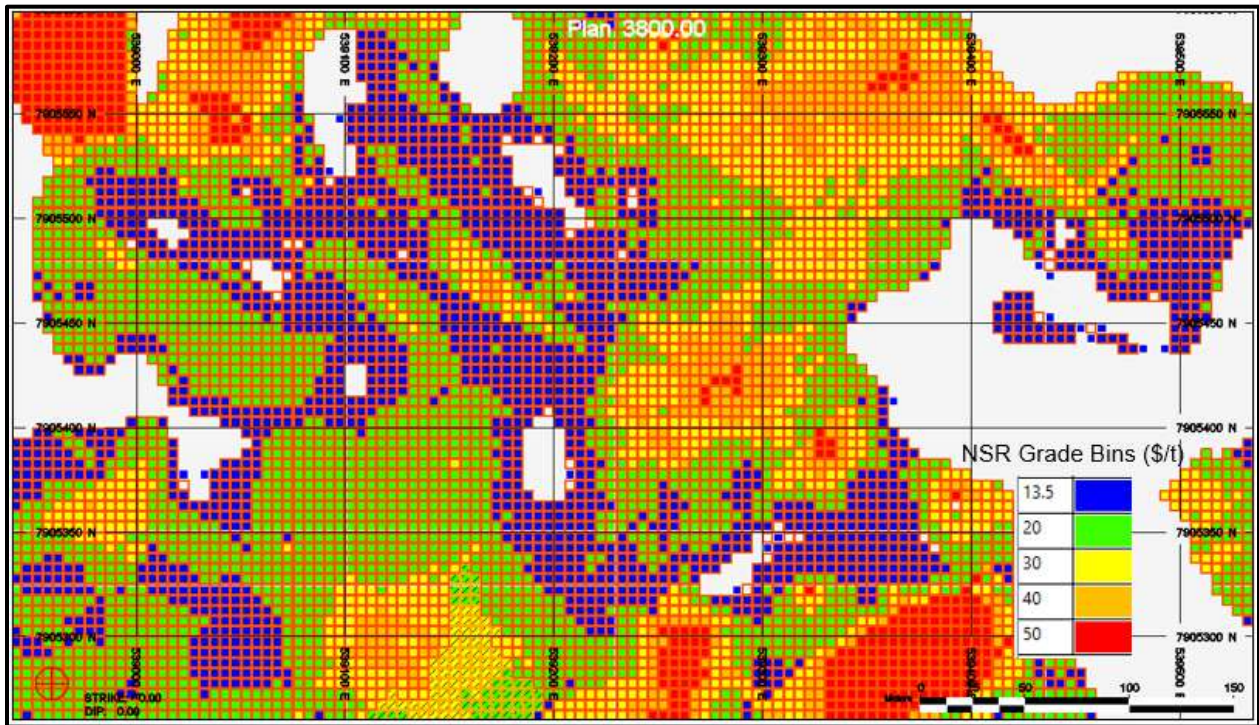
The planning block model includes metal grades estimated on 5 m selective mining unit (SMU) size blocks. Additional loss and dilution calculations are based on the contacts between these 5 m SMU blocks.

There is an NSR value within each block of the planning model, and based on the breakeven economic cutoff grade, each block is identified as economic or uneconomic.

A procedure is run that examines each block, counts the number of contact edges between economic and uneconomic blocks, and stores this value, from 0 to 4, back into the planning model. Economic blocks with four uneconomic block contacts, or three block contacts and a grade below \$20/t NSR, are converted to waste since the increased costs to extract them selectively outweigh their economic benefit. Alternatively, uneconomic blocks with four block contacts, or three block contacts and grade above \$10/t NSR, are flagged and grouped as mill feed dilution for mine planning since the costs to separate them outweigh the impact to blending them in.

**Figure 16-2** illustrates this concept, showing a plan view of the block model on the 3,800 masl elevation. The blocks are filled with colours based on their NSR grade. Orange outlines on the blocks signify if the block is treated as mill feed. All non-outlined blocks are treated as waste. Examples can be seen where isolated blocks are blended with surrounding blocks, either planned as loss or dilution depending on the original modelled grade.

**Figure 16-2 Mining Loss and Dilution Application on 3800 masl bench**



Source: Moose Mountain, 2024

This methodology introduces an additional 3% dilution (at the grade of the surrounding low-grade blocks) and a 97% mine recovery, over and above the dilution introduced in resource modelling to a 5 m SMU block size.

The PEA mine production plan (section 16.8) is run using a 10 m bench elevation. It is recommended that future iterations of the mine planning block model use a 10 m SMU block size. Additional dilution introduced using a 10 m SMU block size is assumed to be negligible to the overall mill feed grades estimated in this PEA mine plan, based on the continuity within the 5 m SMU block model.

### 16.2.3 Production Rate Considerations

The PEA throughput has been set at 4 Mt per year, setting the project life to 16.2 years.

Several factors are considered when establishing an appropriate mining and processing rate. Key factors include:

- Resource Size: Typically, a planned mine life is set at 12.5 to 20 years; beyond this, time-value discounting shows an insignificant contribution to the NPV of the project at discount rates of 8 % or higher.
- Capital Payback: Capital investment typically is targeted at projects with a payback period of 2 to 5 years or shorter.
- Operational Constraints: Power, water, or supplies and services for support of operations can limit production.
- Site Delivery Constraints: Physical size and weight of equipment and shipping limits can determine the maximum size of units that can be delivered to site.
- Project Financial Performance:



- Generally, economies of scale can be realized at higher production rates, which leads to reduced unit operating costs. These are tempered to the above-mentioned physical and operational constraints and flexibility issues.
- Generally, higher tonnage throughputs require more capital and the size of the project is reflected in the initial investment. Economies of scale can still apply where some access and construction issues have a high fixed component regardless of the project size.
- Higher production rates generally pay back fixed capital earlier and provide a higher rate of return on capital, which improves project NPV.

## 16.3 Pit Optimization

The economic pit limits are determined using the Pseudoflow implementation of the Lerchs-Grossman algorithm. This algorithm uses the NSR grades and bulk density for each block of the 3D block model and evaluates the costs and revenues of the blocks within potential pit shells. The routine uses input economic and engineering parameters and expands downwards and outwards until the last increment is at break-even economics.

Additional cases are included in the analysis to evaluate the sensitivities of open pit mined resources to waste mining ratio and high-grade/low-grade areas of the deposits. In this study, the various cases or pit shells are generated by varying the input metal prices and comparing the resultant waste and mill feed tonnages and metal grades for each pit shell.

By varying the economic parameters while keeping inputs for metallurgical recoveries and pit slopes constant, various generated pit cases are evaluated to determine where incremental pit shells produce marginal or negative economic returns. This drop-off is due to increasing waste mining ratios, decreasing metal grades, increased mining costs associated with the larger or deeper pit shells, and the value of discounting costs before revenues. The economic margins from the expanded cases are evaluated on a relative basis to provide payback on capital and produce a return for the project. At some point, further expansion does not provide significant added value. A pit limit can then be chosen that has a suitable economic return for the deposit.

An undiscounted cashflow (UCF) is generated for each pit shell based on the shell contents and the economic parameters listed in **Table 16-4**. The UCF for each case is compared to reinforce the selected point at which increased pit expansions do not increase the project value. Note that the economics are only applied for comparative purposes to assist in the selection of an optimum pit shell for further mine planning; they do not reflect the actual financial results of the mine plan.

The chosen pit shell is then used as the basis for more detailed design and economic modelling.

The metal prices are varied from 10% to 150% of the market prices listed in **Table 16-2**.

**Table 16-4 Operating Cost Inputs for Pseudoflow Pit Shells**

Item	Value
Pit Rim Mining Cost (mill feed and waste)	\$2.00/t mined
Incremental Haulage Cost	\$0.01/t mined per 5 m drop below 3910 masl
Process and Tailings Cost	\$10.50/t milled
General and Administrative Cost	\$1.50/t milled

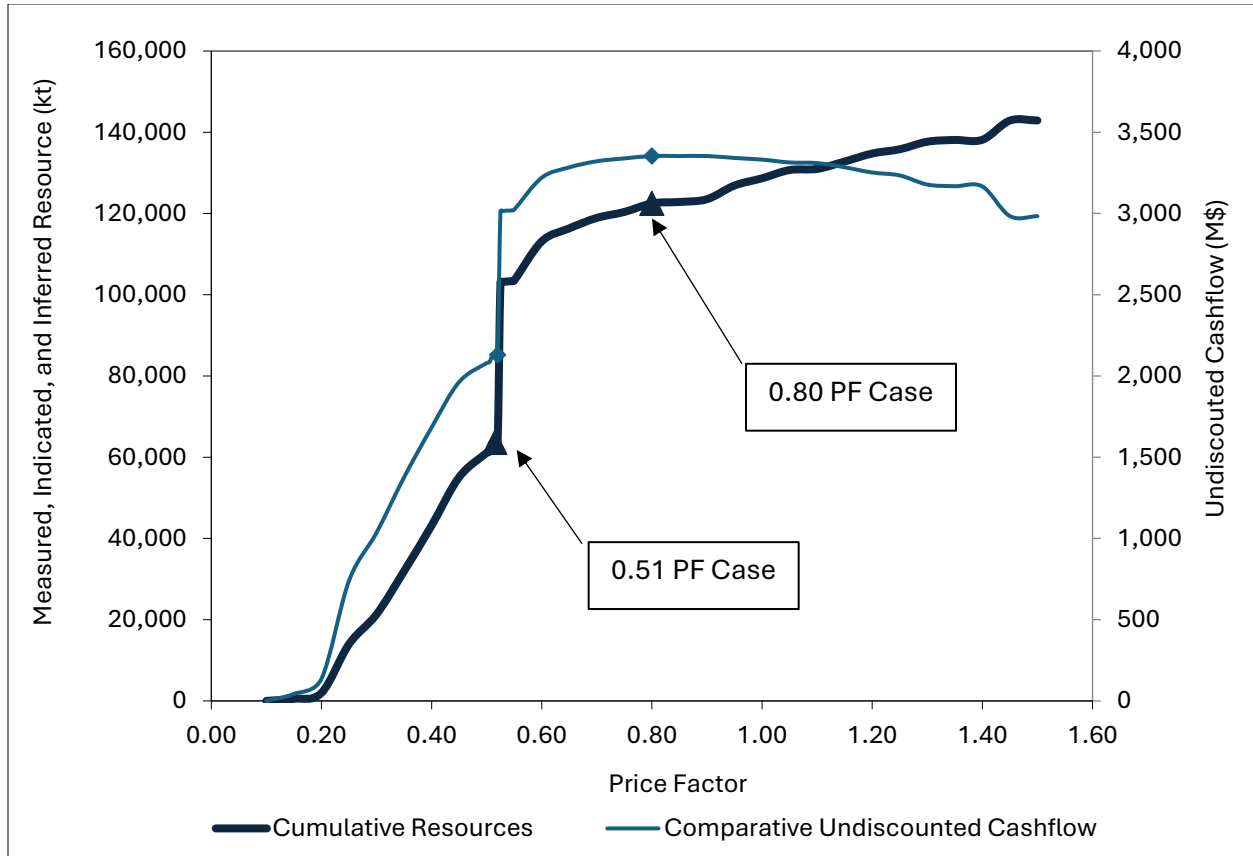
### 16.3.1 Ultimate Pit Limits

**Figure 16-3** shows the contents of the generated Pseudoflow pit shells for the Carangas deposit. An inflection point can be seen in the curve of cumulative resources and UCF by pit case. This point indicates Price Factor (PF) Case 0.80 as a point at which larger pit shells will not produce material increases to project value.

A smaller pit limit, indicated by the inflection point generated at the 0.51 PF case, is selected as the ultimate pit limit for the Carangas PEA. A limit has been chosen for the project production rate, influenced by limits to project capital spending. This production rate restricts the value of resources beyond the 0.51 PF pit shell to be realized 20 years after project startup. Time discounting on value reduces the impact these resources could have within this PEA. The resources between the 0.51 and 0.80 PF shells should be reevaluated in the future as they will have a positive impact on project financials.

The pit shell generated from 0.51 PF case is selected as the ultimate pit limits for Carangas and is used for further mine planning as a target for detailed open pit designs with berms and ramps.

**Figure 16-3 Pseudoflow Pit Shell Resource Contents by Case**



Source: Moose Mountain, 2024

## 16.4 Pit Designs

### 16.4.1 Open Pit Phases

Ultimate pit limits are generally split up into phases or pushbacks to target higher economic margin material earlier in the mine life. Minimum pushback distances of 50 m are honoured. The pit is split into three phases, with the higher-grade, lower strip ratio early pit phases mined ahead of lower grade, higher strip ratio pushbacks to the ultimate pit limit. Targets for the initial pit phases use Case PF 0.30 and Case PF 0.40 of the optimization runs described in **Section 16.3.1**.

### 16.4.2 In Pit Haul Roads

In-pit haul roads are designed 28 m wide to facilitate two-way travel for 140 t payload rigid frame haul trucks. Haul road grades are limited to a maximum of 10%. Access ramps are not designed for the last bench (10 m)



of the pit bottom, on the assumption that the bottom ramp segment will be removed using some form of retreat mining. The next bottom bench (10 m) of the pit use one-way haul roads of 21 m width and 12% grade since bench volumes and traffic flow are reduced.

Benches above the pit rim exit can be accessed by external roads built on the original hill side slopes reducing the need for in-pit haul ramps in the final pit wall above the pit exit.

### 16.4.3 Open Pit Contents

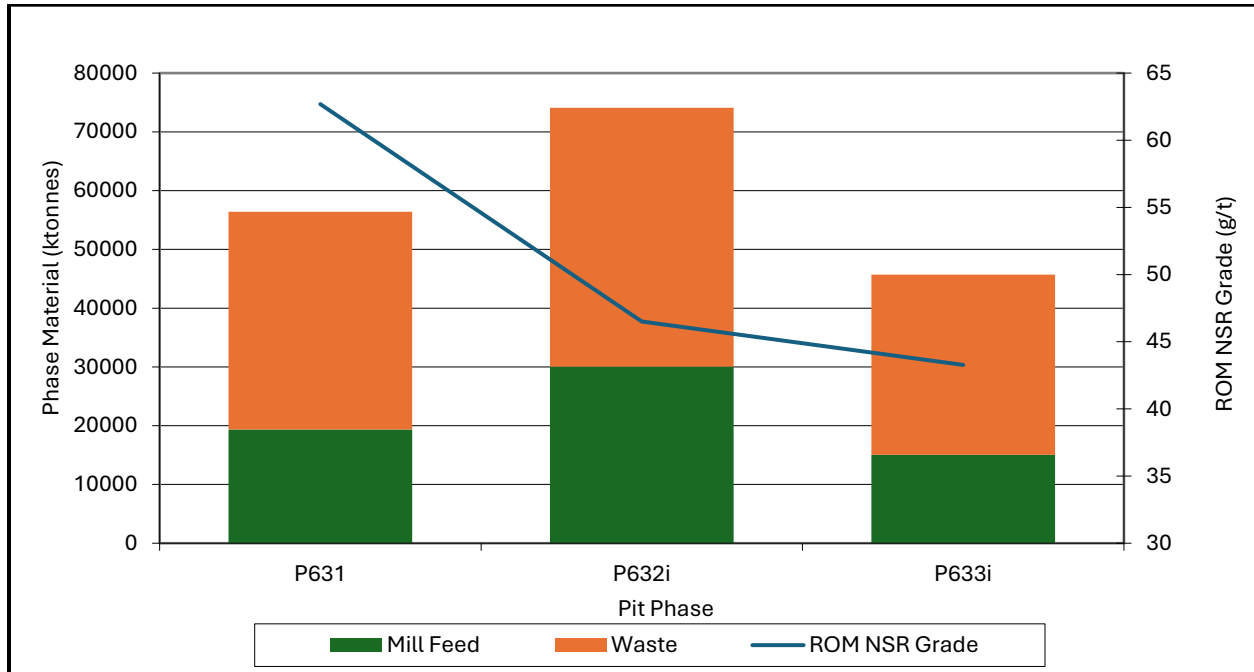
Contents of the designed open pits are presented in **Table 16-5**. The contents for each designed pit phase are presented graphically in **Figure 16-4**.

**Table 16-5 Designed Open Pit Contents**

Pit Phase	Pit Name	Mill Feed (Mt)	NSR Grade (\$/t)	Ag Grade (g/t)	Pb Grade (%)	Zn Grade (%)	Waste (Mt)	W:R Ratio (t/t)
Starter Pit	P631	19.3	62.7	83	0.49	0.82	37.0	1.9
First Pushback	P632i	30.0	46.5	55	0.46	0.88	44.0	1.5
Final Pushback	P633i	15.0	43.3	56	0.34	0.65	30.7	2.0
<b>Total</b>	<b>P633</b>	<b>64.4</b>	<b>50.6</b>	<b>63</b>	<b>0.44</b>	<b>0.80</b>	<b>111.7</b>	<b>1.7</b>

1. *The PEA Mine Plan and Mill Feed estimates are a subset of the August 25, 2023, Mineral Resource estimates and are based on open pit mine engineering and technical information developed at a Scoping level for the Carangas deposit.*
2. *PEA Mine Plan and Mill Feed estimates are mined tonnes and grade, the reference point is the primary crusher. Mill Feed tonnages and grades include open pit mining method modifying factors, such as dilution and recovery.*
3. *Net Smelter Prices (NSP) and metallurgical recoveries are used to define the cutoff grade. NSPs include market price assumptions of \$23.0/oz Ag; \$2,094/t Pb, \$2,756/t Zn. Various smelter and refining terms, offsite costs, and a 6% royalty derive NSPs of \$20.5/oz Ag, \$1,418/t Pb, and \$1,630/t Zn. Metallurgical recoveries of 90% Ag, 83% Pb, and 58% Zn are applied.*
4. *The chosen cut-off grade covers total operating costs of \$28/t, which exceeds estimated PEA mining, processing and G&A cost estimates.*
5. *Estimates have been rounded and may result in summation differences.*

Figure 16-4 Designed Open Pit Contents



Source: Moose Mountain, 2024

### 16.4.4 Open Pit Designs

The pit designs are shown in **Figure 16-5** (final pit phase) and **Figure 16-6**. Original topography contour polylines are shown on 5 m vertical intervals. Sections through the deposit showing the resource model grades are illustrated in **Figure 16-7** and **Figure 16-8**.

#### Starter Phase:

This phase targets the higher grade, lower strip ratio portion of the deposit outlined by the Case PF 0.30 pit shell described in **Section 16.3.1**. The upper benches of this phase will be accessed via in-pit cut ramps up to 4,065 masl, developed during the project’s construction period. Pit ramps are left behind in the high wall for access to future west high wall pushbacks. These ramps run from the 4,020 masl elevation in the north down to the pit exit at the 3,915 masl elevation in the east. In-pit ramping is also incorporated from the pit exit, running counterclockwise down a pit bottom in the center of the pit at 3,800 masl and a separate pit bottom in the west at 3,750 masl. A saddle between these two pit bottoms is left behind at 3,870 masl.

#### First Pushback Phase:

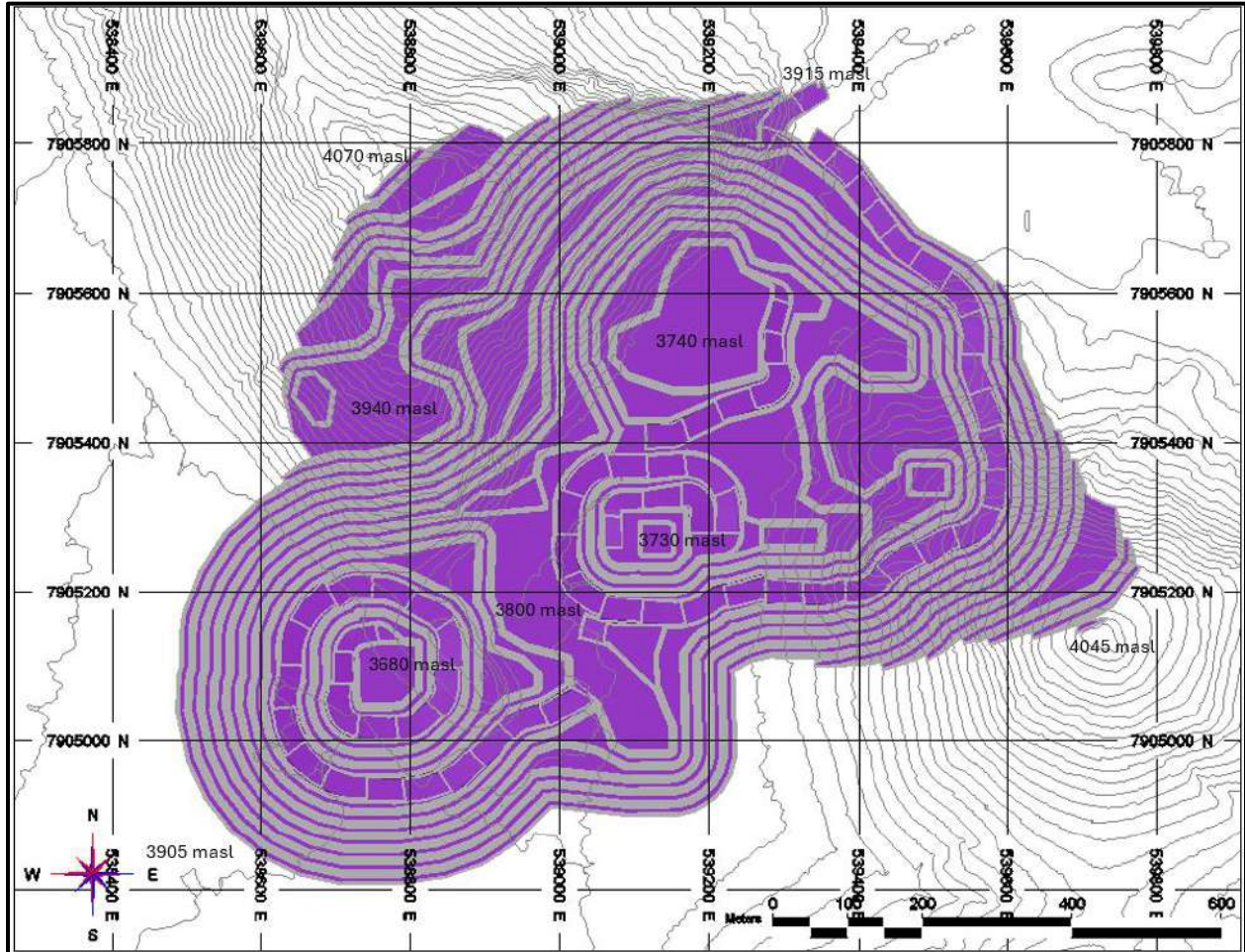
This phase targets deeper, higher waste mining ratio mineralization below the starter pit, outlined by the Case PF 0.40 pit shell described in **Section 16.3.1**. The pit highwall is pushed to the south and east and to the final pit limits in the north. The upper benches of this phase will be accessed via in-pit cut ramps developed up to 4,070 masl in the north and 3,990 masl in the south. Benches between 4,020 masl and the pit exit at 3,915 masl will utilize in-pit ramps left behind in the starter pit walls. In-pit ramping is also incorporated from the pit exit, running clockwise down to the pit bottom on the 3,680 masl elevation.

#### Final Pushback Phase:

This final pit phase targets several pit bottoms below the initial pit phases, extending the highwall to the south to access these lower benches. The upper benches of the south highwall will be accessed via in-pit cut ramps developed up to 4,045 masl and down to the pit exit at 3,915 masl. In-pit ramping is also incorporated from the

pit exit, running clockwise down to a central pit bottom at 3,730 masl. This ramp branches off at 3,800 masl and continues clockwise to a western pit bottom at 3,680 masl. The ramp also branches off at 3,780 masl, running counterclockwise to a northern pit bottom at 3,740 masl.

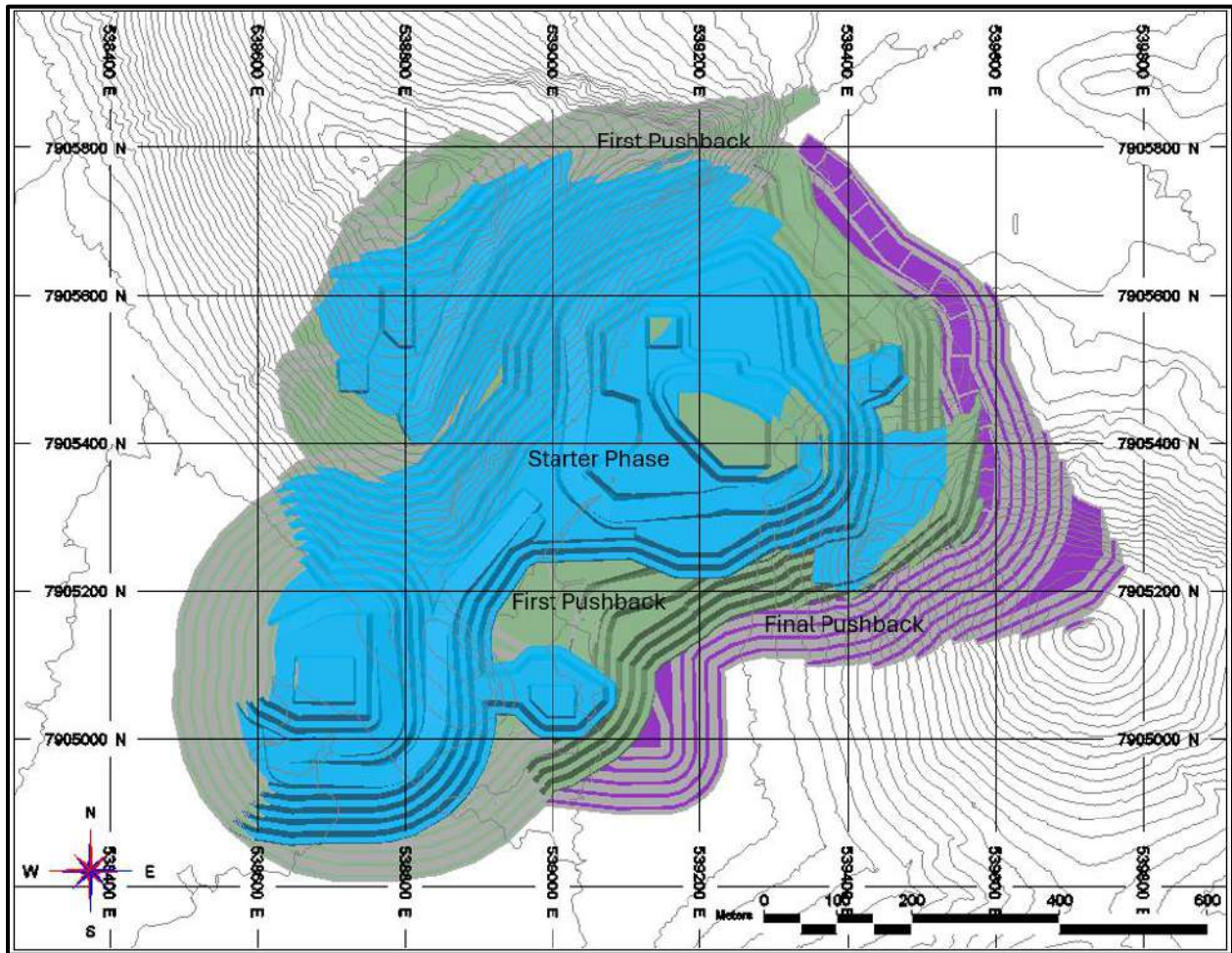
**Figure 16-5 Ultimate Pit Design, P633**



Source: Moose Mountain, 2024

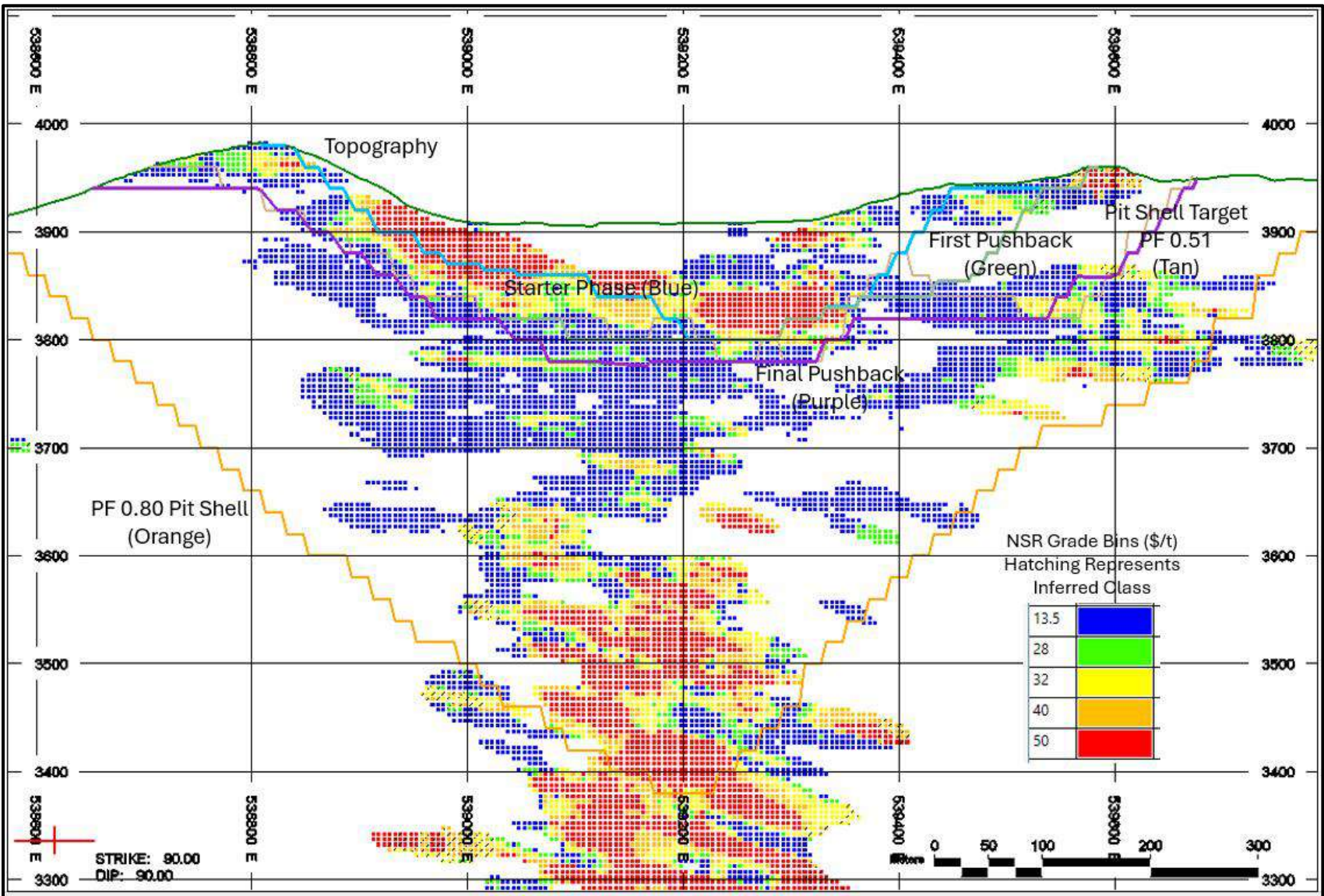


Figure 16-6 Phased Pit Designs



Source: Moose Mountain, 2024

Figure 16-7 Pit Designs, EW Section View, 7905400N

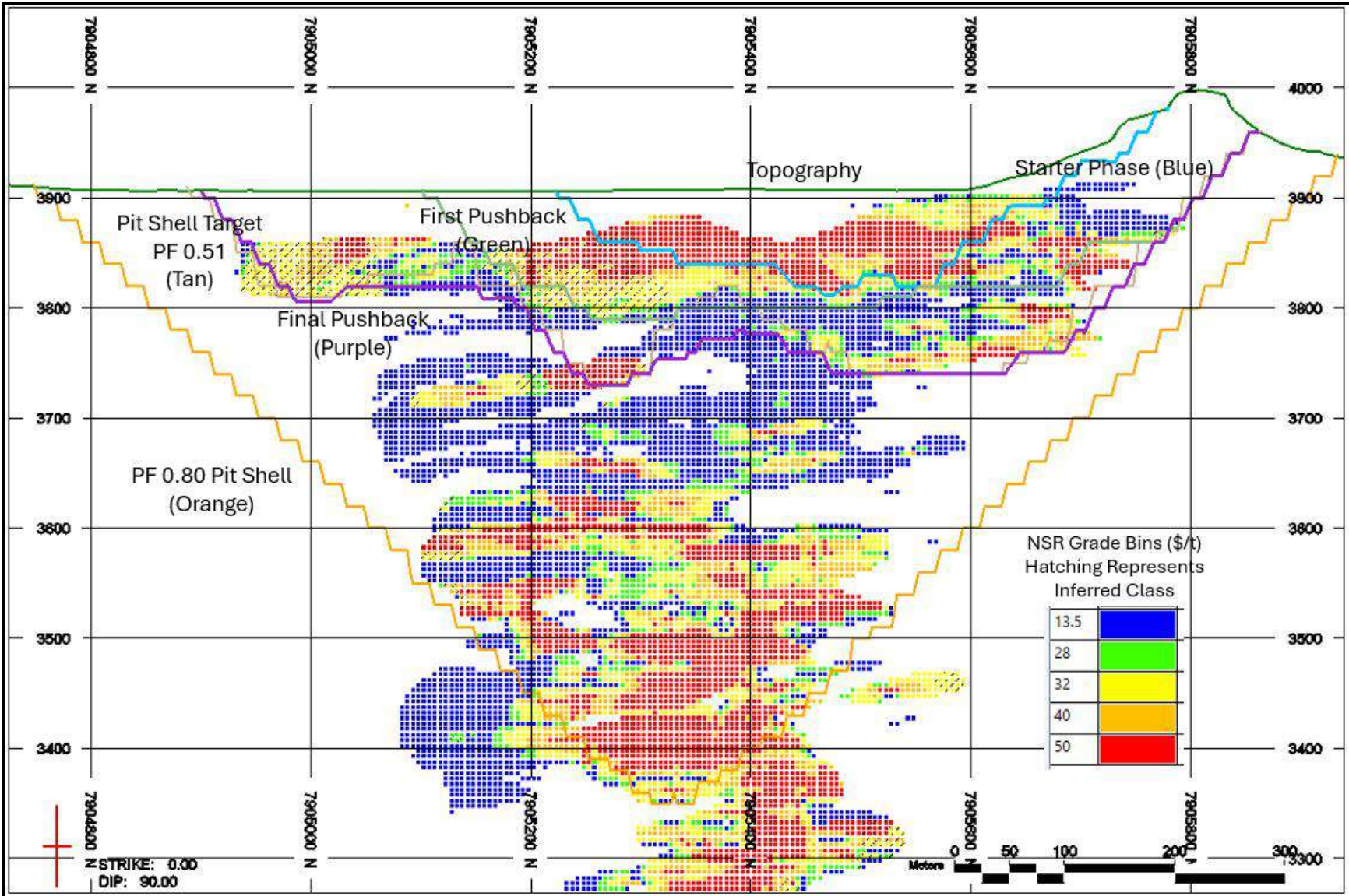


Source: Moose Mountain, 2024

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Figure 16-8 Pit Designs, NS Section View, 593150E



Source: Moose Mountain, 2024

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## 16.5 Low Grade and Oxide Stockpile Design

When resources are mined from the pit, they will either be delivered to the primary crusher, the ROM stockpile located next to the crusher, or the low grade stockpiles.

The primary crusher and ROM stockpiles are located 0.5 km northeast of the pit limits.

Cutoff grade optimization on the mine production schedule sends resources between \$28/t NSR and \$36/t NSR to a low grade stockpile located directly south of the ROM pad and east of the open pit. These stockpiled resources are planned to be re-handled back to the crusher once the open pit is exhausted.

Oxide resources mined from the open pit will be blended with non-oxide resources as part of the overall mill feed plan. When this blending cannot be done at the ROM pad / primary crusher, the oxide resources will be stored in a stockpile 1 km north of the pit rim and rehandled to the crusher over the life of mine. Targets for blending are 25% oxide mill feed in the first seven years of the project, followed by 9% oxide mill feed for the remaining years of the project.

Preliminary designs for these facilities are completed assuming:

- Bottom-up construction/top down reclamation;
- 18 degree overall slopes (3:1);
- Storage density of 2.0 t/m<sup>3</sup>; and
- The average height of 30 m from topography to crest.

The low grade and oxide stockpiles are shown in the mine area general arrangement drawing in **Figure 16-1**.

## 16.6 Waste Rock Storage Facility Design

Waste rock mined from the open pit will be placed in one of three waste rock storage facilities (WRSF), each designed with an 18 degree overall slope (3:1) and a storage density of 2.0 t/m<sup>3</sup>.

All resources above the breakeven cutoff grade of \$13.50/t NSR (see **Table 16-3**) and below the chosen project cutoff grade of \$28/t NSR will be sent to the subgrade WRSF sitting 2 km north of the open pit. This stored material, part of the overall Mineral Resource estimate, is considered waste rock for the purposes of this PEA mine plan. The stored rock will grade \$22/t NSR, which has the potential to provide a positive economic benefit via processing. It is recommended to examine the feasibility of processing these resources in future project plans. The facility is planned to be dumped out via bottom-up lift construction, with oxide materials segregated in the south and non-oxide materials in the north; there is a split of roughly 25% oxide and 75% non-oxide materials planned for storage.

The west WRSF sits directly adjacent to the open pit, with its most northern point lying within 1 km of the pit rim. The facility sits on a hillside and will be constructed from a combination of hillside dumping and bottom-up lift construction. Waste rock from the upper benches of the open pit will be sent along topography to the upper lifts of this facility, minimizing haulage requirements for this waste rock.

The east WRSF sits 2 km east of the open pit and will be built via bottom-up lift construction.

The waste rock from the open pit has not been tested or analyzed for potential acid generation (PAG). It is assumed that the majority of the waste rock is net acid neutralizing, and there has been no consideration for the segregation of different rock types in the planned storage facilities. Further test work and analysis is recommended to better classify waste materials according to acid-generating potential and to confirm that a blending strategy is the preferred method for handling and storing any potentially acid-generating waste rock.

Backfilling of the open pit was examined as an opportunity, but space is too limited as the pit continually expands deeper in all directions until the final pit phase. There is also the economic opportunity to expand the open pit into the Lower Gold Zone below the currently chosen pit limit.

Topsoil and overburden encountered at the top of the pits will be placed in dedicated stockpiles directly north or south of the open pit and kept salvageable for closure at the end of the mine life. Quantities of this material will be minimal, but an estimate has not been made for this PEA mine plan, and potential storage facilities have not been designed.

The waste storage facilities are shown in the mine area general arrangement in **Figure 16-1**.

## 16.7 Ex-Pit Haul Roads

Mine haul roads external to the open pits are planned to connect the open pit to scheduled destinations for hauling resource and waste materials.

Haul road designs are limited to 34 m wide outlines along preferred routes. 3D cut and fill designs have not been completed for this PEA mine plan. Routes have been chosen to maximize fill design potential, with fill rock planned to be sourced from the open pit during the construction period of the project. Estimated mining costs during the construction period will cover the construction costs of these ex-pit haul roads.

The ex-pit haul layouts in the mine area general arrangement in **Figure 16-1**.

## 16.8 Mine Production Schedule

Mill feed requirements by scheduled period, mine operating considerations, product prices, recoveries, destination capacities, equipment performance, haul cycle times and operating costs are used to determine the optimal production schedule from the phased pit contents.

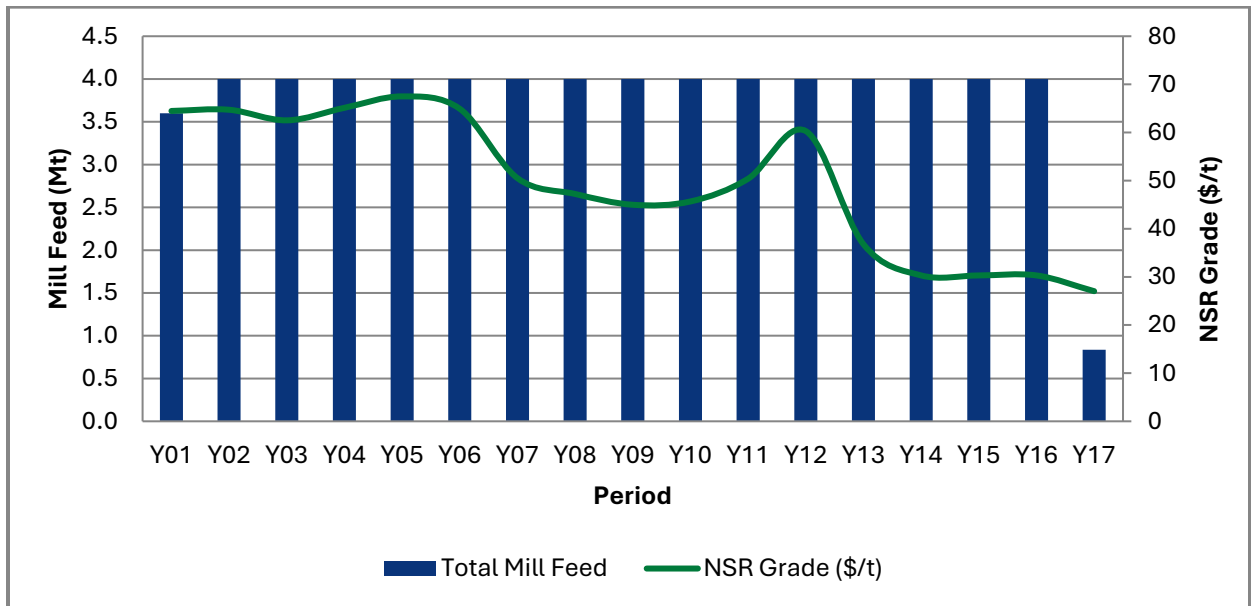
The overall production schedule is included in **Table 16-6**, with mill feed tonnes and grade illustrated in **Figure 16-9**, and overall mine production tonnage and waste mining ratio illustrated in **Figure 16-10** and phases mined illustrated in **Figure 16-11**.

The production schedule is based on the following parameters:

- The Mineral Resource and associated waste material quantities are split by pit phase and bench quantities.
- The operations are scheduled on annual periods.
- An annual mill feed rate of 4,000 ktpa (11 ktpd) is targeted.
  - A first-year mill throughput ramp-up target of 3,600 kt is assumed. A significant quantity of oxide resources, as well as some non-oxide resources, are planned to be stockpiled well in advance of the mill ramp-up period.
  - Oxide mill feed of 25% (1,000 ktpa) during the first seven years of mill operations, followed by 9% (350 ktpa) per year for the remaining life of mine.
- Within a given pit phase, each bench is fully mined before progressing to the next bench.
- Pit phases are mined in sequence, where the second pit phases do not mine below the first pit phases.
- Pit phase vertical progression in the mineralized area is limited to no more than 90 m each year, or nine benches; the average annual phase progression is 30 m.
- Pre-stripping done in the construction period, Years -2 and -1, is done to open the pits sufficiently to supply non-oxide mill feed at the target throughput rate in Year 1 of the Project.
  - This also provides sufficient construction waste rock for the mine haul roads and initial lifts of the tailings facility dam.

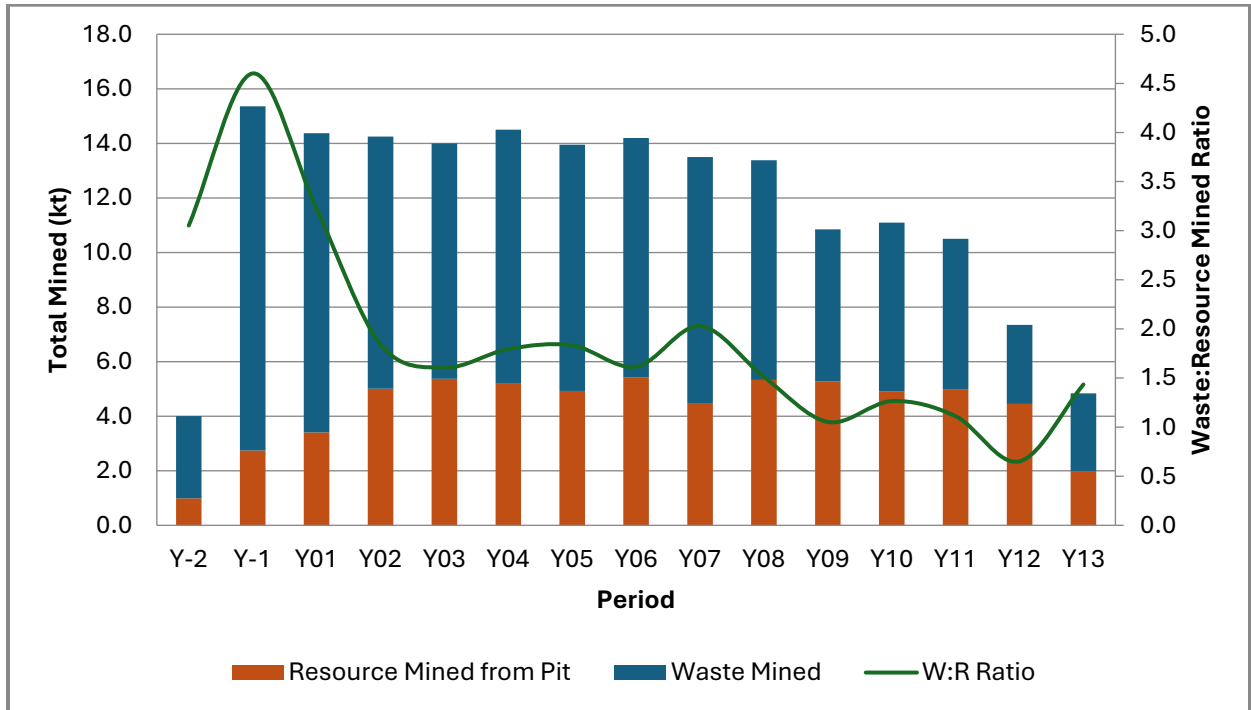
- Resource tonnes released in excess of the mill capacity are stockpiled, including those mined in the construction phase.
- Low-grade and oxide resources above \$28/t NSR are stockpiled and re-handled to the primary crushers later in the project life.
- Shovel and haul truck operating hour estimates are run as part of the mine schedule. Haul cycle times are simulated from all pit benches to all destinations. Total pit production is balanced on calculated hauler operating hour requirements. This strategy is used to avoid large spikes and dips in the number of haulers in the LOM schedule but leads to some variations in total tonnes mined in each period. Cycle time simulations should be refined in future engineering studies.

**Figure 16-9 Annual Mill Feed Tonnes and Grade**



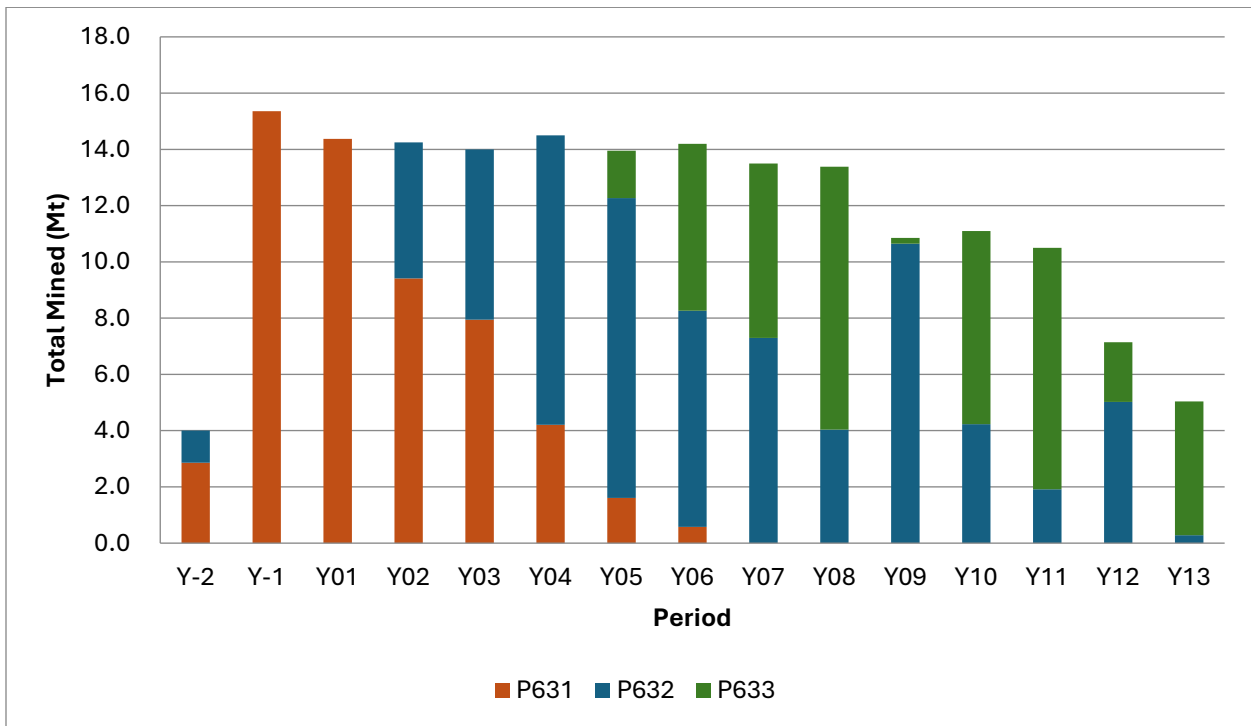
Source: Moose Mountain, 2024

**Figure 16-10 Annual Material Mined and Waste Mining Ratio**



Source: Moose Mountain, 2024

**Figure 16-11 Pit Phases Mined**



Source: Moose Mountain, 2024



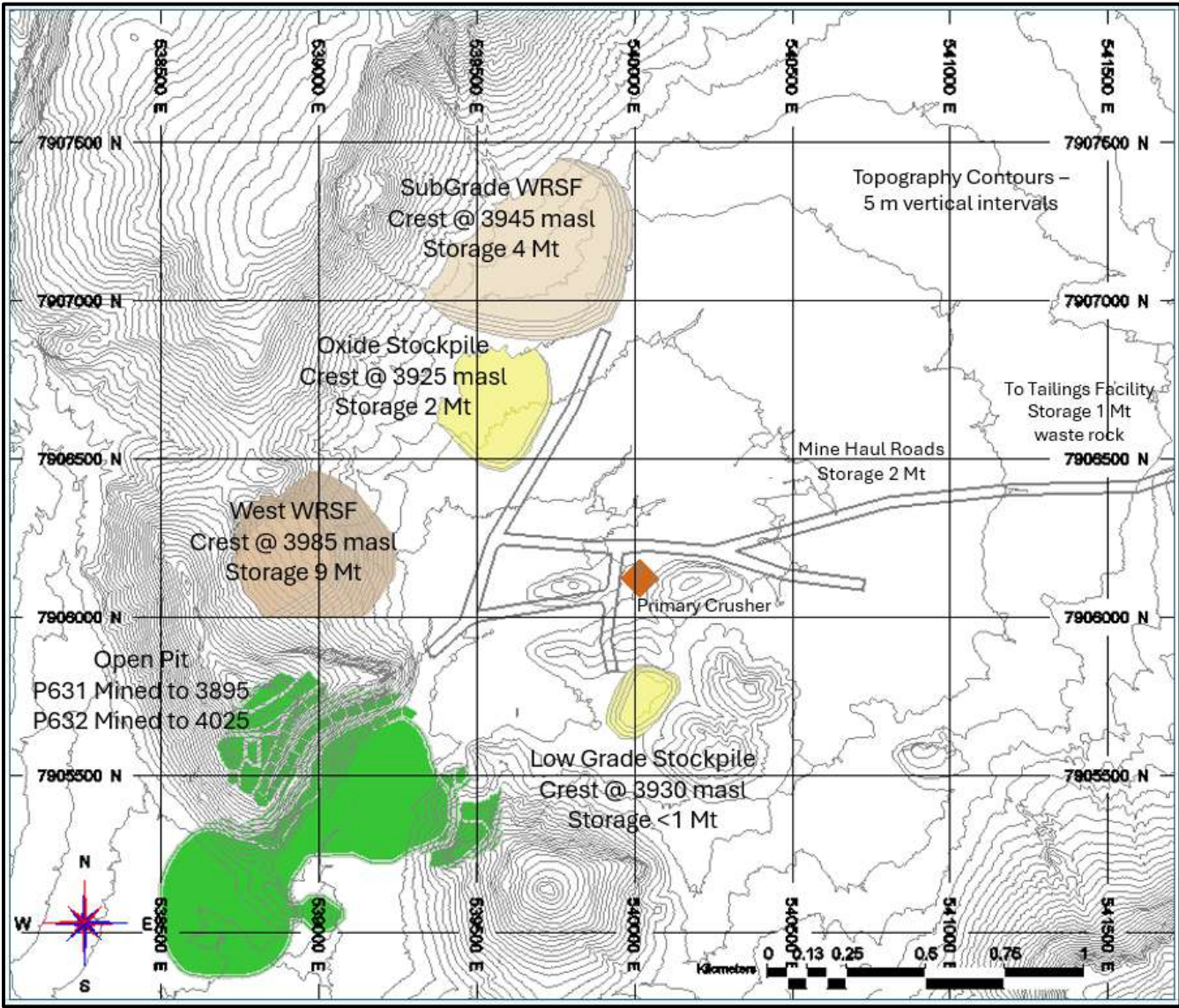
Table 16-6 Mine Production Schedule

Mine Production:	Year	LOM	Y-2	Y-1	Y01	Y02	Y03	Y04	Y05	Y06	Y07	Y08	Y09	Y10	Y11	Y12	Y13	Y14	Y15	Y16	Y17	
<b>Mill Feed</b>	<b>Mt</b>	<b>64.4</b>	<b>0.0</b>	<b>0.0</b>	<b>3.6</b>	<b>4.0</b>	<b>4.0</b>	<b>4.0</b>	<b>4.0</b>	<b>4.0</b>	<b>4.0</b>	<b>4.0</b>	<b>4.0</b>	<b>4.0</b>	<b>4.0</b>	<b>4.0</b>	<b>4.0</b>	<b>4.0</b>	<b>4.0</b>	<b>4.0</b>	<b>0.8</b>	
<b>NSR</b>	<b>\$/t</b>	<b>50.6</b>	<b>0.0</b>	<b>0.0</b>	<b>64.5</b>	<b>64.7</b>	<b>62.5</b>	<b>65.1</b>	<b>67.5</b>	<b>64.9</b>	<b>50.5</b>	<b>47.2</b>	<b>45.0</b>	<b>45.7</b>	<b>50.4</b>	<b>60.3</b>	<b>36.8</b>	<b>30.3</b>	<b>30.3</b>	<b>30.3</b>	<b>27.0</b>	
<b>Ag</b>	<b>g/t</b>	<b>63.0</b>	<b>0.0</b>	<b>0.0</b>	<b>76.2</b>	<b>77.8</b>	<b>81.4</b>	<b>88.8</b>	<b>90.9</b>	<b>83.0</b>	<b>57.1</b>	<b>57.9</b>	<b>47.3</b>	<b>56.6</b>	<b>68.7</b>	<b>83.8</b>	<b>46.7</b>	<b>33.4</b>	<b>33.4</b>	<b>33.4</b>	<b>31.8</b>	
<b>Pb</b>	<b>%</b>	<b>0.4</b>	<b>0.0</b>	<b>0.0</b>	<b>0.6</b>	<b>0.6</b>	<b>0.5</b>	<b>0.4</b>	<b>0.5</b>	<b>0.5</b>	<b>0.5</b>	<b>0.5</b>	<b>0.5</b>	<b>0.4</b>	<b>0.3</b>	<b>0.4</b>	<b>0.3</b>	<b>0.3</b>	<b>0.3</b>	<b>0.3</b>	<b>0.4</b>	
<b>Zn</b>	<b>%</b>	<b>0.8</b>	<b>0.0</b>	<b>0.0</b>	<b>1.0</b>	<b>1.0</b>	<b>0.8</b>	<b>0.7</b>	<b>0.7</b>	<b>0.8</b>	<b>0.9</b>	<b>0.8</b>	<b>1.1</b>	<b>0.8</b>	<b>0.6</b>	<b>0.7</b>	<b>0.6</b>	<b>0.7</b>	<b>0.7</b>	<b>0.7</b>	<b>0.6</b>	
Oxide Mill Feed	Mt	10.5	0.0	0.0	0.9	1.0	1.0	1.0	1.0	1.0	1.0	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	
Transition Mill Feed	Mt	2.6	0.0	0.0	1.0	0.4	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	
Fresh Mill Feed	Mt	51.3	0.0	0.0	1.7	2.6	2.8	2.8	2.9	2.9	2.9	3.5	3.7	3.7	3.7	3.7	3.6	3.5	3.5	3.5	0.5	
<b>Resource Mined from Pit</b>	<b>Mt</b>	<b>64.4</b>	<b>1.0</b>	<b>2.7</b>	<b>3.4</b>	<b>5.0</b>	<b>5.4</b>	<b>5.2</b>	<b>4.9</b>	<b>5.4</b>	<b>4.5</b>	<b>5.3</b>	<b>5.3</b>	<b>4.9</b>	<b>5.0</b>	<b>4.4</b>	<b>2.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	
<b>NSR</b>	<b>\$/t</b>	<b>50.6</b>	<b>57.4</b>	<b>50.3</b>	<b>64.5</b>	<b>55.0</b>	<b>52.9</b>	<b>52.0</b>	<b>57.8</b>	<b>54.2</b>	<b>44.9</b>	<b>43.1</b>	<b>41.6</b>	<b>42.7</b>	<b>46.8</b>	<b>58.1</b>	<b>44.3</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	
Mined Directly to Mill	Mt	40.4	0.0	0.0	2.2	3.0	3.0	3.0	3.0	3.0	3.0	3.7	3.7	3.7	3.7	3.7	2.0	0.0	0.0	0.0	0.0	
NSR	\$/t	57.8	0.0	0.0	67.6	66.4	64.1	66.8	69.2	66.6	51.8	48.7	46.4	47.1	52.5	64.1	44.3	0.0	0.0	0.0	0.0	
Mined to LGSP	Mt	13.6	0.0	0.5	0.2	0.7	1.1	1.2	0.8	1.1	1.3	1.7	1.6	1.3	1.3	0.8	0.0	0.0	0.0	0.0	0.0	
NSR	\$/t	32.2	56.7	57.1	30.0	31.8	31.7	31.7	30.9	31.9	31.8	31.0	30.9	30.0	31.0	31.0	0.0	0.0	0.0	0.0	0.0	
LGSP Retrieval to Mill	Mt	13.6	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	3.7	3.7	3.7	0.5	
NSR	\$/t	32.2	0.0	56.7	57.1	32.8	32.0	31.8	31.8	31.6	31.7	31.7	31.5	31.4	31.3	31.2	31.2	31.2	31.2	31.2	31.2	31.2
LGSP Balance	Mt		0.0	0.5	0.2	1.0	2.1	3.2	4.0	5.1	6.4	8.1	9.7	11.0	12.3	13.1	11.5	7.8	4.2	0.5	0.0	
NSR	\$/t		56.7	57.1	32.8	32.0	31.8	31.8	31.6	31.7	31.7	31.5	31.4	31.3	31.2	31.2	31.2	31.2	31.2	31.2	31.2	0.0
Mined to OxSP	Mt	10.4	1.0	2.2	1.0	1.3	1.3	1.0	1.1	1.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
NSR	\$/t	46.9	57.4	48.8	64.3	41.6	44.7	31.9	46.5	44.8	21.0	33.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
OxSP Retrieval to Mill	Mt	10.4	0.0	0.0	0.9	1.0	1.0	1.0	1.0	1.0	1.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	
NSR	\$/t	46.9	0.0	39.3	60.9	59.7	57.7	60.1	62.3	59.9	46.6	31.7	30.2	30.6	28.9	20.7	20.7	20.7	20.7	20.7	20.7	
OxSP Balance	Mt		1.0	3.2	3.3	3.6	3.9	3.9	4.0	4.3	3.5	3.1	2.8	2.4	2.1	1.7	1.4	1.0	0.7	0.3	0.0	
NSR	\$/t		57.4	51.4	52.8	46.9	43.3	36.0	32.3	29.8	24.5	23.8	23.0	21.9	20.7	20.7	20.7	20.7	20.7	20.7	20.7	
<b>Waste Mined</b>	<b>Mt</b>	<b>111.7</b>	<b>3.0</b>	<b>12.6</b>	<b>11.0</b>	<b>9.2</b>	<b>8.6</b>	<b>9.3</b>	<b>9.0</b>	<b>8.8</b>	<b>9.0</b>	<b>8.1</b>	<b>5.6</b>	<b>6.2</b>	<b>5.5</b>	<b>2.9</b>	<b>2.8</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	
Fresh Waste	Mt	51.4	0.1	6.2	7.6	4.7	4.0	5.1	4.6	3.2	4.9	3.9	2.1	1.8	1.1	0.8	1.3	0.0	0.0	0.0	0.0	
Transition Waste	Mt	0.6	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Oxide Waste	Mt	17.9	2.0	4.2	1.1	1.5	1.7	1.8	1.3	2.5	1.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
SG Waste (\$13.50-\$28/t NSR)	Mt	41.8	1.0	2.3	2.2	3.0	2.8	2.3	3.0	3.0	2.4	3.8	3.5	4.4	4.4	2.1	1.5	0.0	0.0	0.0	0.0	
NSR	\$/t	21.8	20.7	20.7	20.3	20.8	21.3	21.7	21.1	21.0	21.4	21.6	22.0	21.7	21.1	26.4	27.9	0.0	0.0	0.0	0.0	
Waste/Mill Feed Mined		1.7	3.1	4.6	3.2	1.8	1.6	1.8	1.8	1.6	2.0	1.5	1.1	1.3	1.1	0.7	1.4	0.0	0.0	0.0	0.0	
Cumulative Ratio			3.1	4.2	3.7	3.0	2.5	2.4	2.3	2.2	2.1	2.1	2.0	1.9	1.8	1.7	1.7	1.7	1.7	1.7	1.7	
<b>Total Material Mined</b>	<b>Mt</b>	<b>176.1</b>	<b>4.0</b>	<b>15.4</b>	<b>14.4</b>	<b>14.3</b>	<b>14.0</b>	<b>14.5</b>	<b>13.9</b>	<b>14.2</b>	<b>13.5</b>	<b>13.4</b>	<b>10.8</b>	<b>11.1</b>	<b>10.5</b>	<b>7.3</b>	<b>4.8</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	
Total Material Moved	Mt	200.1	4.0	15.4	15.8	15.3	15.0	15.5	14.9	15.2	14.5	13.7	11.2	11.4	10.9	7.7	6.8	4.0	4.0	4.0	0.8	

## 16.8.1 End of Period Figures

**Figure 16-2 to Figure 16-17** shows the progression of the open pit and stockpiles in Years -1, 1, 3, 5, 13 and the end of mine life.

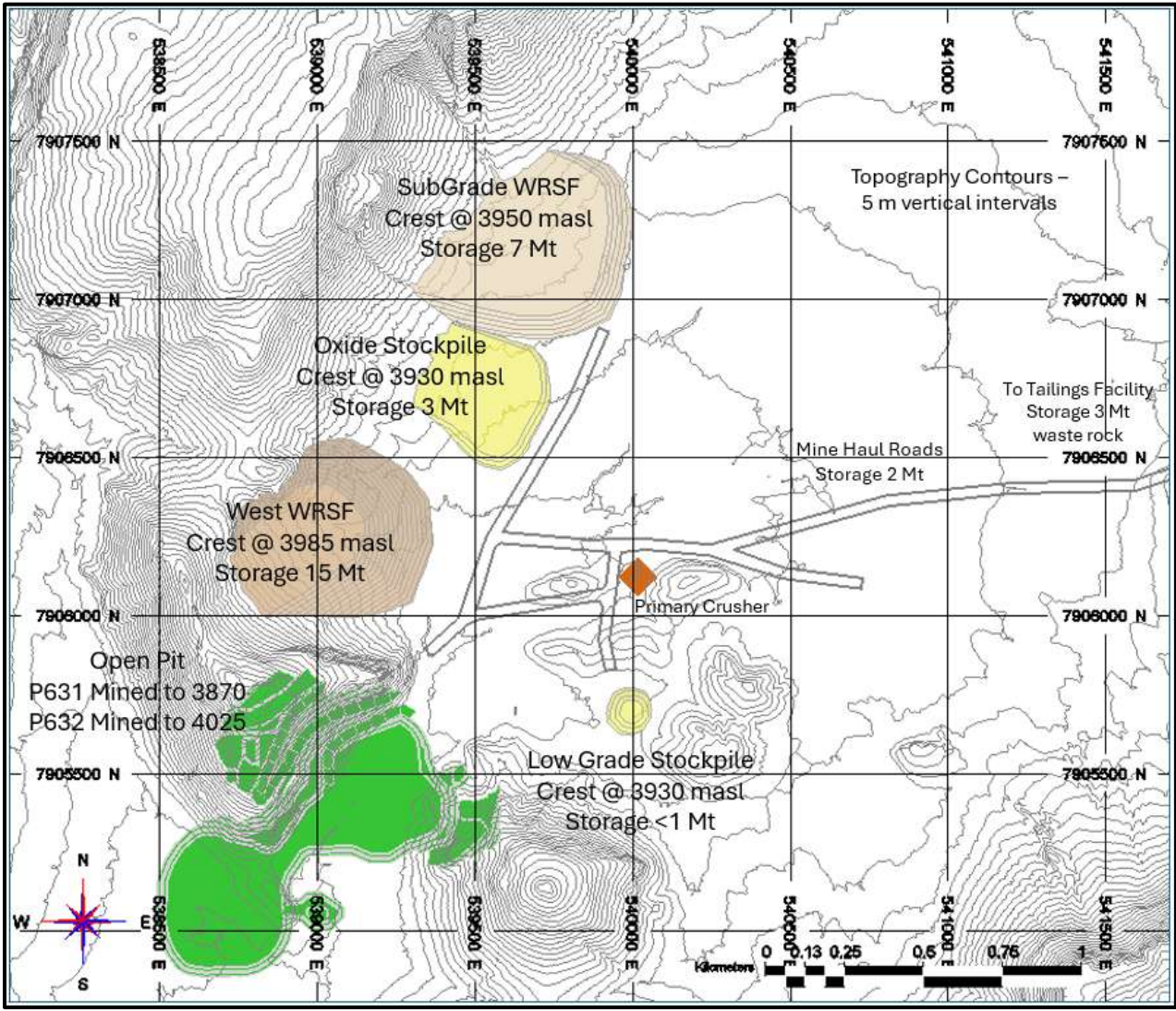
Figure 16-12 End of Period Mine Production Schedule, Year -1



Source: Moose Mountain, 2024



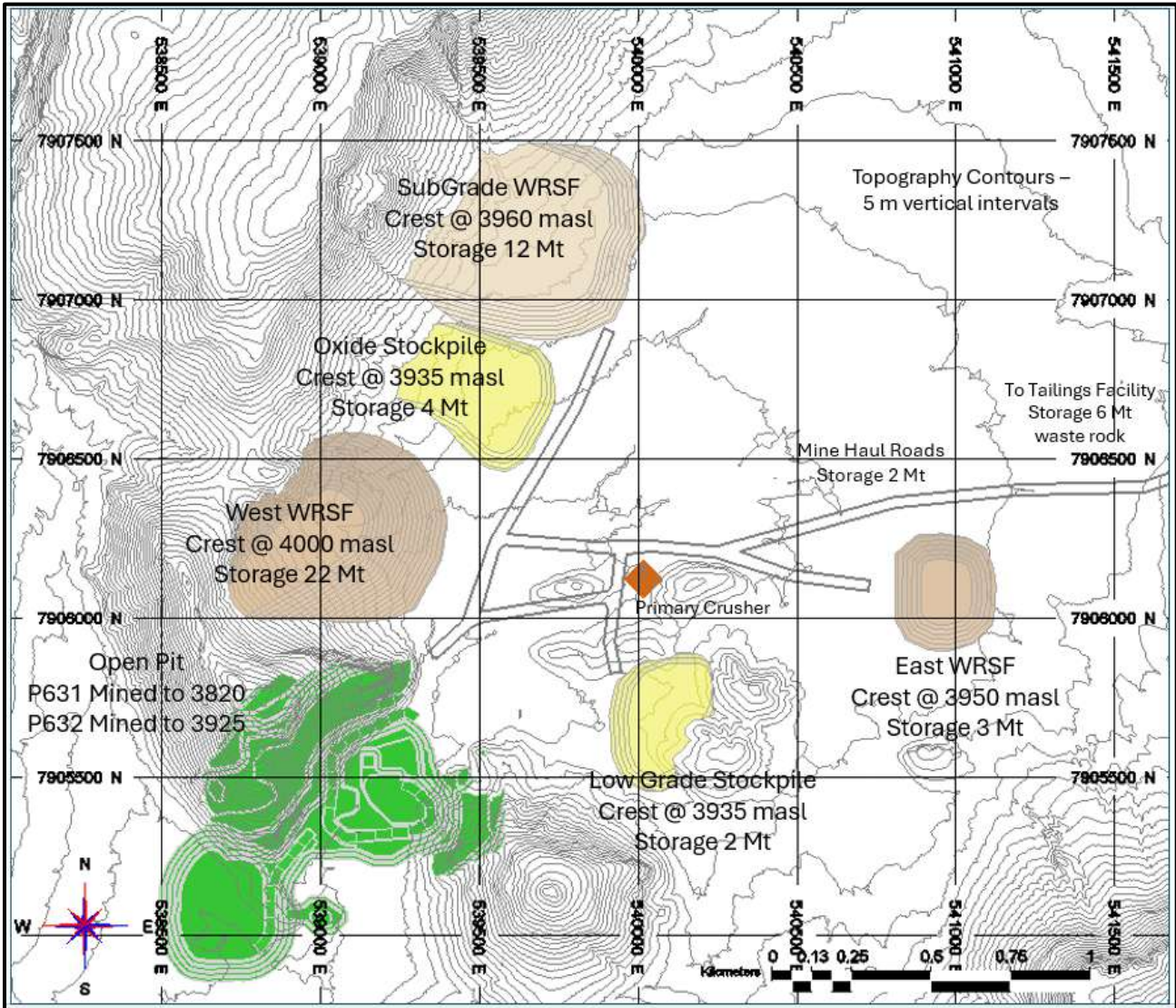
Figure 16-13 End of Period Mine Production Schedule, Year 1



Source: Moose Mountain, 2024

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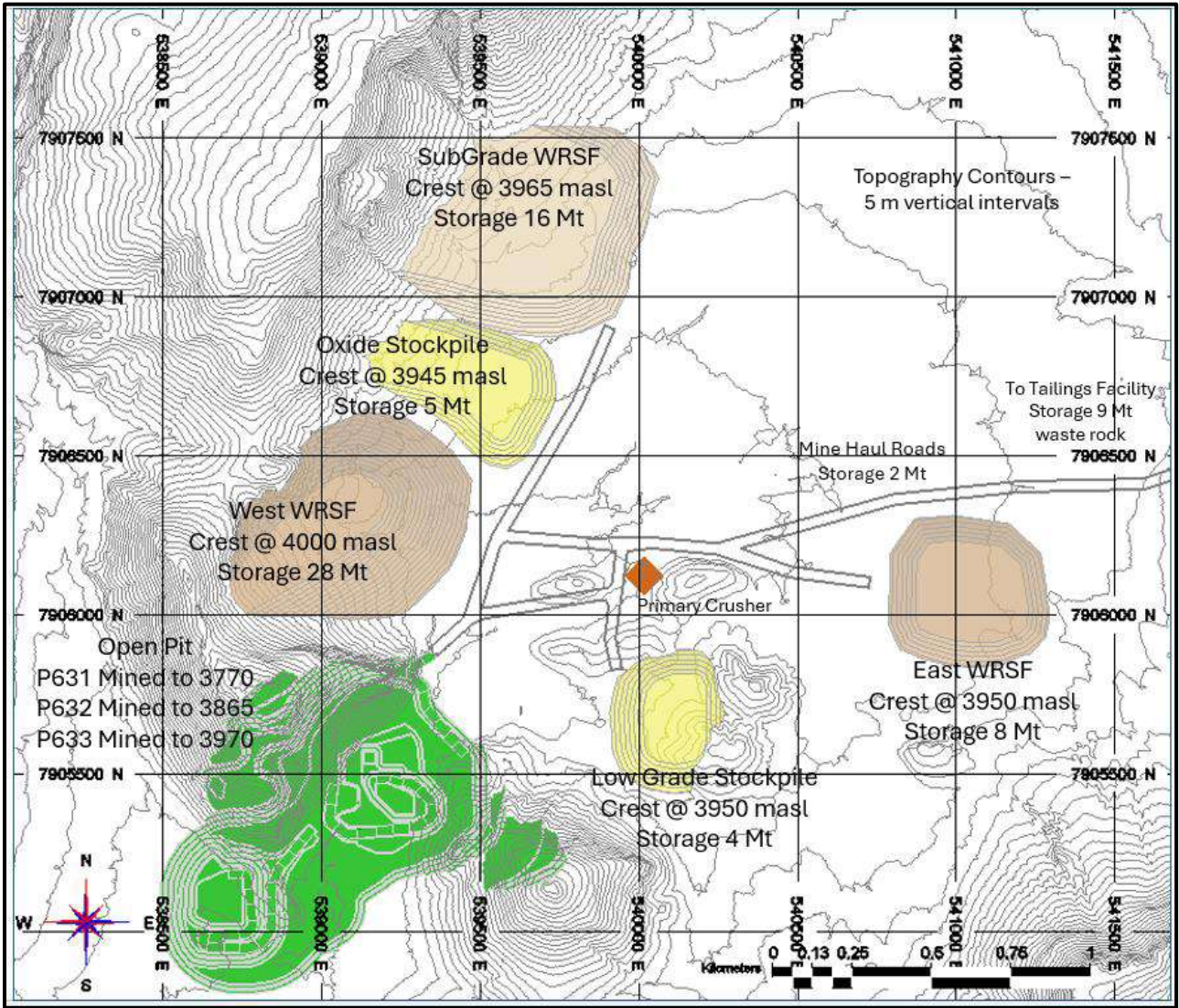
Figure 16-14 End of Period Production Schedule, Year 3



Source: Moose Mountain, 2024



Figure 16-15 End of Period Production Schedule, Year 5

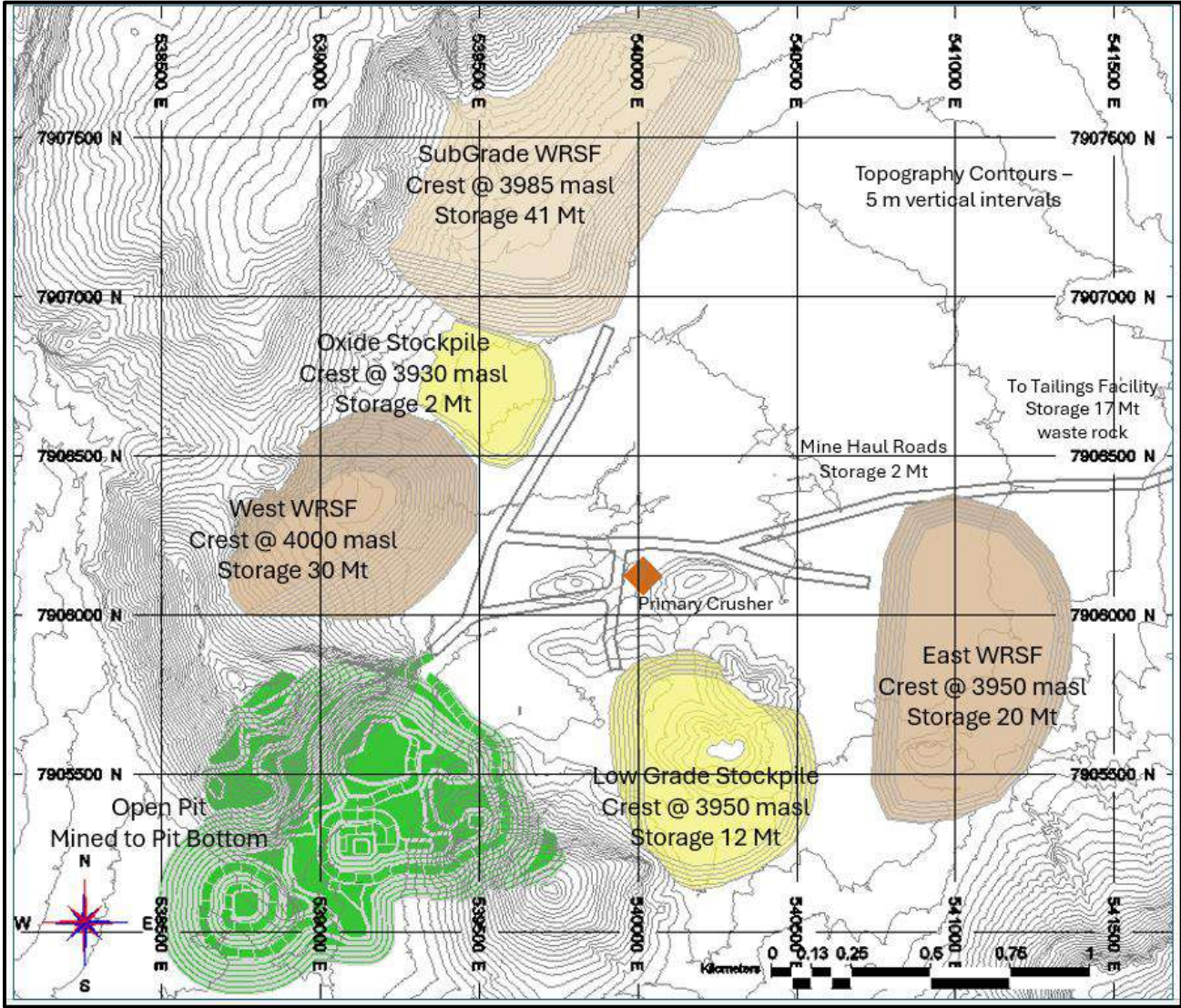


Source: Moose Mountain, 2024

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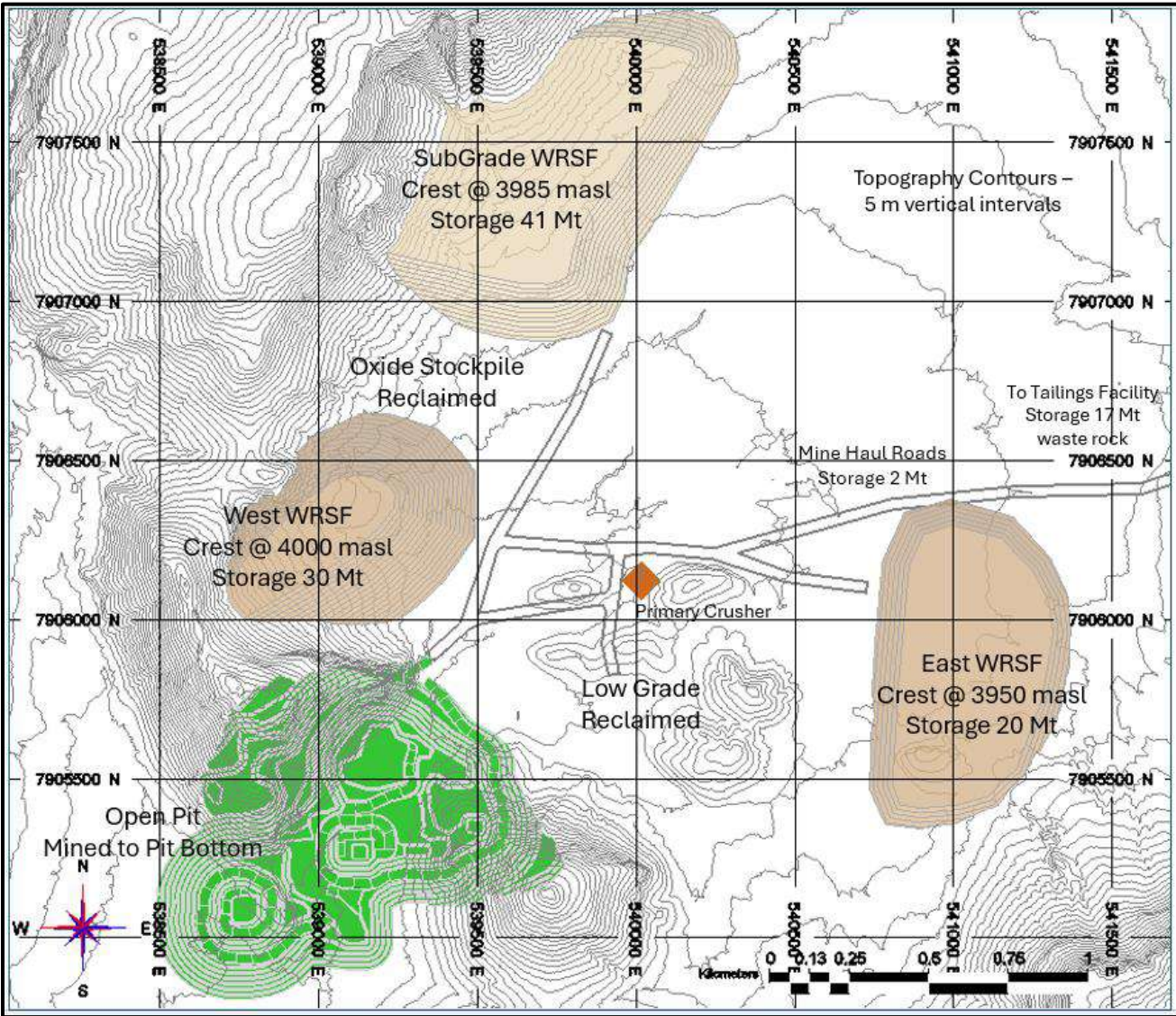
Figure 16-16 End of Period Production Schedule, Year 13



Source: Moose Mountain, 2024



Figure 16-17 End of Period Production Schedule, Year 17



Source: Moose Mountain, 2024

## 16.9 Mine Operations

Contractor-operated and managed open pit mine operations are planned to be typical of similar terrain operations in South America.

An owner's management and technical team is planned to provide the mining contractor with geology, engineering, and surveying support and management guidance.

In situ rock will be drilled and blasted to create suitable fragmentation for efficient loading and hauling of both resource and waste rock. Blasthole sampling and assaying will provide bench scale grade control direction. Loading will be completed with a hydraulic excavator, with dig lines between resources and waste directed by the grade control program. Resource and waste rock will be hauled out of the pit and to scheduled destinations with off-highway rigid-frame haul trucks.

In-pit dewatering systems will be established for the pit. All surface water and precipitation in the open pit will be gravity drained or directed via submersible pumps to ex-pit settling ponds directly outside the pit limits, where it will report to the wider project water management system.

Other mine pit services will include:

- haul road maintenance
- pit floor and ramp maintenance
- mobile fuel and lube services
- secondary blasting and rock-breaking
- lighting
- transporting personnel and operating supplies
- mobile maintenance services

Mining operations are based on 365 operating days per year.

The contractor bids for this work envision utilizing a diesel-powered mining fleet. The contractor would bring their own fleet, which includes DTH drills for production drilling, 0.20 kg/t target powder factor ANFO-based blasting, 4 m<sup>3</sup> bucket size diesel hydraulic excavators for loading, and 70 t payload rigid-frame haul trucks for hauling, plus ancillary and service equipment to support the mining operations. The contractor will also maintain their mining fleet in the field and within contractor-supplied fixed maintenance facilities.

## 16.10 Risks

The project is at a scoping engineering level. Limited geotechnical, hydrogeological, and geochemical information and data have been collected across the project. Further fieldwork, lab work, and modelling are required to advance the engineering to the next stage of Pre-Feasibility or Feasibility. It can be anticipated that further field drilling and advancement of the project engineering will materially alter the existing mine plan, reducing the plan's risk and identifying and exploiting the potential opportunities that arise.

Risks to the PEA defined mill feed quantities, metal grades, associated waste rock quantities and the estimated costs to exploit include changes to the following factors and assumptions:

- Metal Prices
  - Significant (>50%) decreases in metal prices may increase the economic cutoff grade or reduce the size of the selected open pit limits, with either outcome reducing the size of the resource base to include into the mine plan.

- Interpretations of mineralization geometry and continuity in mineralization zones
  - Decreases in the resource base could significantly alter the mine plan.
- Geotechnical and hydrogeological assumptions
  - Geotechnical sampling, test work, and analysis may show a required shallowing of pit slope angles, which would likely increase the overall LOM stripping ratio to access the resource.
  - Hydrogeological sampling, test work, and analysis may identify the need for a more onerous (costly) pit water management and pit slope depressurization solution.
- Geochemical assumptions for mined resources and waste materials
  - Geochemical sampling, test work, and analysis, specifically in the open pit waste rock, may identify a more onerous (costly) PAG management solution.
- Ability of the mining and milling operation to meet the annual production rate and anticipated grade control standards and recoveries
  - Reduced selectivity with the mining fleet, reduced mining or milling recoveries, or increased mining dilution would result in an increased cost of achieving the planned PEA metal production.
- The ability of the milling operation to meet the annual production rate and recoveries
- Operating cost assumptions and cost creep
  - Mining cost assumptions are based on a quote from a contractor with extensive in-country operating experience. However, further detailing of contractor costs may also lead to different operational cost estimates. Mining contractor cost estimates are based on \$0.53/L diesel fuel prices, which are current market rates subsidized by the Bolivian government. If the government alters this subsidy and adopts a more global market-driven fuel price, it would significantly impact the estimated mining costs for the project.
- Ability to meet and maintain future land tenure, permitting, and environmental license conditions, and the ability to maintain the social license to develop and operate



## 17 RECOVERY METHODS

The Carangas process plant is designed to treat 4.0 million tonnes of mill feed annually, containing 63 g/t silver, 0.44% lead and 0.80% zinc on average. Sequential selective flotation is chosen to produce an average of 51 ktpa of silver/lead concentrate that contains 3,975 g/t silver and 24.0% lead, with corresponding recoveries of 80.8% for silver and 70.6% for lead and 46 ktpa of zinc/silver concentrate that contains 356 g/t silver and 45.8% zinc with corresponding recoveries of 6.5% for silver and 65.9% for zinc over the life of the mine. When silver/lead concentrate and zinc/silver concentrate are combined, total silver recovery is 87.3%. The open-pit operation is designed to deliver the ROM mineralized material to the process plant at a rate of 4.0 Mtpa. The mineralized material will be crushed with a jaw crusher, followed by a SAG mill-ball mill-pebble crusher milling circuit (SABC) and sequential selective flotation to separate silver/lead and zinc while rejecting pyrite and non-sulfidic gangue minerals.

The processing route was selected following a comprehensive trade-off study of various alternatives applicable to the Carangas deposit. The PEA evaluated several alternatives, including:

- Cyanide leaching of the gold mineralized material from the lower level in the deposit to produce gold doré,
- Cyanide leaching of the silver/lead concentrate to produce silver doré and the silver-depleted lead concentrate for sale,
- Production of silver/lead concentrate, which contains over 50% lead content.

The chosen option of producing a low-grade lead concentrate (with over 15% lead) with high silver content (with over 2,000 g/t silver) demonstrated superior economics while also simplifying both mining and processing operations.

The key unit operations for the Carangas process plant are:

- ROM material stockpile and blending,
- Primary jaw crusher,
- SAG mill, pebble crusher and ball mill,
- Silver/lead selective flotation while rejecting zinc, pyrite and non-sulfidic gangue minerals,
- Silver/lead concentrate thickening, filtering, bagging and dispatch,
- Intermediate tailing thickening
- Zinc/silver selective flotation while rejecting pyrite and non-sulfidic gangue minerals,
- Zinc/silver concentrate thickening, filtering, bagging and dispatch,
- Tailings thickening and pumping to the TSF.

The process plant's operational philosophy consists of grinding the mill feed to a particle size ( $P_{80}$ ) of 75  $\mu\text{m}$  for subsequent silver/lead flotation, which consists of a rougher circuit, a regrinding mill and a three-stage cleaner circuit. The first-stage flotation is designed to produce a silver/lead concentrate with over 2,000 g/t silver content. While the lead content in this concentrate will be lower than a typical lead concentrate, it will still be above 15% and contribute to the concentrate's final value. The rougher and cleaner tailings from the first stage will be combined and thickened, and then, they will undergo a second-stage flotation to produce a zinc/silver concentrate that contains more than 40% zinc content. The second-stage flotation comprises a rougher circuit, a regrinding mill and a three-stage cleaner circuit. Efforts will be made to maximize silver recovery into the lead concentrate to enhance silver payable rate. Final tailings from the zinc/silver flotation will be thickened and pumped to the TSF.

## 17.1 Design Criteria

The design criteria for this PEA were developed based on a range of inputs from various sources, including:

- Carangas metallurgical testwork (discussed in Section 13).
- Estimates and assumptions,
- Mass and metallurgical balances,
- Calculations,
- Vendor data, and
- Standard practice.

A high-level Process Design Criteria (PDC) summary for the 4.0 Mtpa process plant, including major unit operations, is provided in **Table 17-1**.

**Table 17-1 Project Design Criteria**

RPM GLOBAL		New Pacific Metals			
<b>Project Name:</b> Carangas PEA <b>Document Name:</b> Carangas PDC		<b>Source of Data:</b> A - Assumption C - Calculation E - Estimate M - Mass Balance N - New Pacific Metals Corp R - RPM Global S - Standard Practice T - Testwork Data V - Vendor Data			
Area	Criteria	Unit	Design Data	Source	
<b>Process Plant Throughput</b>					
Annual		t/a	4,000,000	N	
Daily		t/d	12,000	N	
Hourly		t/h	500	N	
<b>Site Condition</b>					
Elevation	Top of West Dome	masl	4,074	N	
	Carangas River	masl	3,904	N	
Weather	Temperature	°C	-4 ~ 20	N	
	Relatively Humidity	%	15 ~ 65	N	
	Rainfall	mm/a	539	N	
<b>Operating Schedule</b>					
Crushing Circuit	Hours per Shift	h	12	N	
	Shifts per Day		2	N	
	Days per Week	d	7	N	
	Days per Annum	d	365	N	
	Operating Time	%	75	S	
	Operating Hours per Annum	h	6,570	C	
	Throughput of Fresh Feed	t/h	667	C	
Grinding and Flotation Circuits	Hours per Shift	h	12	N	
	Shifts per Day	h	2	N	
	Days per Week	d	7	N	
	Days per Annum	d	365	N	
	Operating Time	%	91.3	S	
	Operating Hours per Annum	h	8,000	C	
	Throughput of Fresh Feed	t/h	500	C	
<b>ROM Ore Characteristics</b>					
Moisture Content		%	5	A	
Material Handling	Angle of Repose	deg.	37	A	
	Drawdown Angle	deg.	60	A	
LOM Average	Specific Gravity	t/m <sup>3</sup>	2.72	C	
	Bulk Density	t/m <sup>3</sup>	1.77	E	
	Abrasion Index	g	0.046	C	
	Rod Mill Work Index	kW.h/t	10.4	C	
	Ball Mill Work Index	kW.h/t	11.1	C	
Used for Design	Specific Gravity	t/m <sup>3</sup>	2.72	R	
	Bulk Density	t/m <sup>3</sup>	1.77	R	
	Abrasion Index	g	0.046	R	
	Rod Mill Work Index	kW.h/t	11.4	R	
	Ball Mill Work Index	kW.h/t	12.8	R	
	Head Grade	Silver	g/t	63.0	R
		Gold	g/t	0.02	R
		Lead	%	0.44	R
		Zinc	%	0.80	R
<b>Recovery</b>					
Lead/Zinc Concentrates	Silver/Lead Concentrate	Silver Recovery	%	80.8	C
		Lead Recovery	%	70.6	C
	Zinc Concentrate	Zinc Recovery	%	65.9	A
		Silver Recovery	%	6.50	C

RPMGLOBAL		New Pacific Metals			
<b>Project Name: Carangas PEA</b> Document Name: Carangas PDC		<b>Source of Data:</b> A - Assumption      S - Standard Practice C - Calculation                      T - Testwork Data E - Estimate                              V - Vendor Data M - Mass Balance N - New Pacific Metals Corp R - RPM Global			
Area	Criteria	Unit	Design Data	Source	
<b>Product Grade</b>					
Silver/Lead Concentrate	Silver Content	g/t	3,975	C	
	Lead Content	%	24.0	A	
Zinc Concentrate	Zinc Content	%	45.8	C	
	Silver Content	g/t	356	C	
<b>Crushing Plant</b>					
Truck	Truck Capacity	t	150	A	
	Truck Max Frequency	# per h	6	A	
	Truck Turn Around @ Max Freq.	min	10	C	
	Feed Hopper Live Capacity	t	250	A	
Crushing Capacity	Type of Crusher		Jaw Crusher	R	
	Ore Delivery Rate	t/h	667	C	
	Atomized Water Spray for Dust Suppression	m <sup>3</sup> /h	6.7	A	
Crusher	Type		Jaw Crusher	A	
	Model		C150	R	
	Oversize Throughput Fed to Crusher	t/h	333	C	
	Selected Motor Size	kW	200	V	
	CSS	mm	125	V	
	Feed Size	P100	mm	700	E
		P80	mm	450	A
Product Size	P100	mm	167	E	
	P80	mm	106	E	
<b>Grinding Circuit</b>					
Grinding Circuit General	Configuration		SABC	R	
	Throughput		500	C	
	Feed Size	P100	mm	167	C
		P80	mm	106	C
	Product Particle Size (P80)		µm	75	A
SAG Mill	Fresh Feed	t/h	500	C	
	Circuit Type		open	A	
	Mill Diameter (inside shell)	m	8.53	E	
		ft	28.00	C	
	Mill EGL	m	3.05	E	
		ft	10.00	C	
	Transfer Size (P80)	µm	750	A	
	Unit Power Consumption	kW.h/t	8.35	C	
	Mill Power Draw	kW	4,175	C	
	Selected Motor Size	kW	4,600	C	
Mill Speed	% of C.S.	75	S		
Ball Mill	Throughput	t/h	500	C	
	Circuit Type		closed	A	
	Mill Diameter	m	6.00	E	
		ft	19.68	C	
	Mill EGL	m	9.00	E	
		ft	29.53	C	
	Unit Power Consumption	kW.h/t	10.1	E	
	Mill Power Draw	kW	5,053	C	
	Selected Motor Size	kW	6,300	C	
	Mill Speed	% of C.S.	75	S	
	Grinding Ball Charge	% v/v	35	S	
Mill Discharge Pulp Density	% solid	72	A		

**Project Name: Carangas PEA**  
Document Name: Carangas PDC

**Source of Data:** A - Assumption S - Standard Practice  
C - Calculation T - Testwork Data  
E - Estimate V - Vendor Data  
M - Mass Balance  
N - New Pacific Metals Corp  
R - RPM Global

Area	Criteria	Unit	Design Data	Source	
<b>Silver/Lead Flotation</b>					
<b>Rougher Conditioning</b>	Retention Time	min	20	A	
	Tank Working Volume	m <sup>3</sup>	452	C	
	Tank Diameter	m	8.40	C	
	Tank Height	m	9.00	C	
<b>Rougher Flotation</b>	Feed	Solid Throughput	t/h	500	C
		Water	t/h	1,172	C
		Pulp Density	% solid	30	C
		Volumetric Flowrate	m <sup>3</sup> /h	1,355	C
	Retention Time	min	42	A	
	Number of Cells		8	A	
	Gas Holdup Volume	%	15	S	
	Working Volume Each Cell	m <sup>3</sup>	140	C	
	pH		9.0	T	
	Concentrate Mass Pull	%	10.0	T	
<b>3<sup>rd</sup> Cleaner Flotation</b>	Feed Solid	2nd Cleaner Conc	t/h	10.0	C
			% solid	10	A
	Pulp Density		% solid	10	A
	Slurry Volumetric Flowrate		m <sup>3</sup> /h	92	C
	Retention Time		min	9	A
	Number of Cells			3	A
	Gas Holdup Volume		%	15	S
	Working Volume Each Cell		m <sup>3</sup>	5.4	C
	pH			9.0	T
	Concentrate Mass Pull	Net	% of mill feed	1.26	C
		Stage	% of stage feed	63	C
	3rd Cleaner Concentrate Solid Quantity		t/h	6.3	C
	3rd Cleaner Concentrate Solid Specific Gravity		t/m <sup>3</sup>	5.8	E
	3rd Cleaner Concentrate Pulp Density As Being Produced		% solid	39	A
	Launder Water		m <sup>3</sup> /t solid	0.50	A
	3rd Cleaner Concentrate Slurry	Pulp Density	% solid	32.6	C
Volumetric Flow		m <sup>3</sup> /h	14.1	C	
<b>Silver/Lead Concentration Thickening</b>	Solid Throughput	t/h	6.3	C	
	Thickener Underflow Pulp Density	% solid	55	A	
	Unit Settling Rate	(t/h)/m <sup>2</sup>	0.40	A	
	Thickener Diameter	m	4.50	C	
<b>Silver/Lead Concentration Filtration</b>	Feed Slurry	Solid Throughput	t/h	6.3	C
		Pulp Density	% solid	55	C
		Volumetric Flow	m <sup>3</sup> /h	6.2	C
	Feed Tank	Retention Time	h	24	A
		Working Volume	m <sup>3</sup>	176	C
		Diameter	m	6.10	C
		Height	m	6.70	C
	Unit Filtration Rate		(t/h)/m <sup>2</sup>	0.075	A
	Total Filtration Area		m <sup>2</sup>	85.0	C
	Filter Cake Moisture Content		%	10.0	A
<b>Zinc Flotation</b>					
<b>Pre-Thickening</b>	Feed Solid	t/h	494	C	
	Unit Settling Rate	(t/h)/m <sup>2</sup>	0.50	A	
	Thickener Diameter	m	35.5	C	
	Thickener Underflow Pulp Density	% solid	50.0	A	



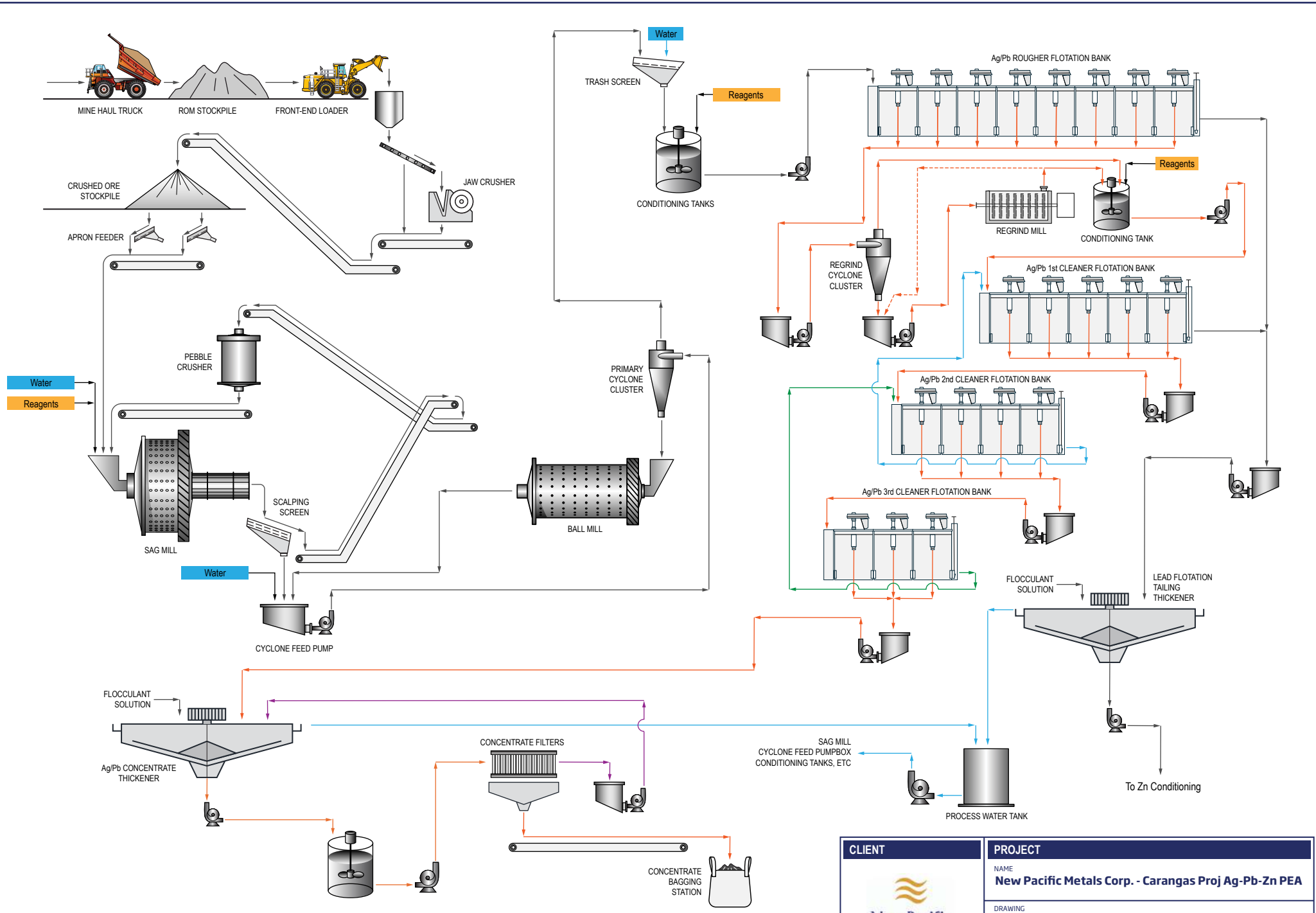
**Project Name:** Carangas PEA  
**Document Name:** Carangas PDC


**Source of Data:** A - Assumption  
 C - Calculation  
 E - Estimate  
 M - Mass Balance  
 N - New Pacific Metals Corp  
 R - RPM Global  
 S - Standard Practice  
 T - Testwork Data  
 V - Vendor Data

Area	Criteria	Unit	Design Data	Source	
<b>Rougher Conditioning</b>	Pulp Density	% solid	30	A	
	Dilution Water Flowrate	m <sup>3</sup> /h	658	C	
	Slurry Volumetric Flowrate	m <sup>3</sup> /h	1,333	C	
	Number of Conditioning Tank		3	A	
	Retention Time Each Tank	min	5	A	
	Working Volume Each Tank	m <sup>3</sup>	111	C	
	Tank Diameter	m	5.30	C	
	Tank Height	m	5.90	C	
<b>Rougher Flotation</b>	Retention Time	min	48	A	
	Number of Cells		8	A	
	Gas Holdup Volume	%	15	A	
	Working Volume Each Cell	m <sup>3</sup>	157	C	
	pH		11.0	T	
	Concentrate Mass Pull	% of stage feed	10.0	A	
<b>3<sup>rd</sup> Cleaner Flotation</b>	Feed Solid	2nd Cleaner Conc t/h	6.5	C	
	Pulp Density	% solid	10	A	
	Slurry Volumetric Flowrate	m <sup>3</sup> /h	60	C	
	Retention Time	min	9.0	A	
	Number of Cells		3	A	
	Gas Holdup Volume	%	15	S	
	Working Volume Each Cell	m <sup>3</sup>	3.6	C	
	pH		11.0	T	
	Concentrate Mass Pull	Net % of mill feed	1.17	C	
		Stage % of stage feed	90	C	
<b>Zinc Concentration Thickening</b>	Solid Throughput	t/h	5.8	C	
	Thickener Underflow Pulp Density	% solid	55	A	
	Unit Settling Rate	(t/h)/m <sup>2</sup>	0.40	A	
	Thickener Diameter	m	4.40	C	
<b>Zinc Concentration Filtration</b>	Feed Slurry	Solid Throughput	t/h	5.8	C
		Pulp Density	% solid	55	C
		Volumetric Flow	m <sup>3</sup> /h	6.4	C
	Feed Tank	Retention Time	h	24	A
		Working Volume	m <sup>3</sup>	180	C
		Diameter	m	6.20	C
		Height	m	6.80	C
	Unit Filtration Rate	(t/h)/m <sup>2</sup>	0.075	A	
	Total Filtration Area	m <sup>2</sup>	78.0	C	
Filter Cake Moisture Content	%	10.0	A		
<b>Bagging Station</b>	Solid Throughput	t/h	5.8	C	
<b>Flotation Tailing</b>					
<b>Thickening</b>	Solid Throughput	t/h	488	C	
	Unit Settling Rate	(t/h)/m <sup>2</sup>	0.50	A	
	Thickener Diameter	m	35.3	C	
	Thickener Underflow Pulp Density	% solid	50.0	A	
	Thickener Underflow Volumetric Flowrate	m <sup>3</sup> /h	667	C	

## 17.2 Process Flow Sheet

The Carangas Process flowsheets are shown in **Figure 17-1** and **Figure 17-2**. The flowsheet incorporates conventional processing circuits and proven technologies successfully implemented in similar process plants. The design adheres to the established industry practices to ensure operational reliability and efficiency.



 <p><b>New Pacific Metals Corp.</b></p>	<b>CLIENT</b>		
	<b>PROJECT</b>		
	NAME <b>New Pacific Metals Corp. - Carangas Proj Ag-Pb-Zn PEA</b>		
	DRAWING <b>FLWSHEET - Ag/Pb FLOTATION</b>		
FIGURE No. XX	PROJECT No. ADV-TO-00090	Date July 2024	

From LEAD FLOTATION TAILING THICKENER

TRASH SCREEN

Water

Reagents

Reagents

Zn CONDITIONING TANKS

Zn ROUGHER FLOTATION BANK

Reagents

REGRIND MILL

CONDITIONING TANKS

Zn 1st CLEANER FLOTATION BANK

Zn 2nd CLEANER FLOTATION BANK

Zn 3rd CLEANER FLOTATION BANK

FLOCCULANT SOLUTION

Zn CONCENTRATE THICKENER

CONCENTRATE FILTERS

CONCENTRATE BAGGING STATION


FLOCCULANT SOLUTION

Zn FLOTATION TAILING THICKENER

Zn CONDITIONER TANK

PROCESS WATER TANK

TAILING DAM

<b>CLIENT</b>	<b>PROJECT</b>		
	NAME <b>New Pacific Metals Corp. - Carangas Proj Ag-Pb-Zn PEA</b>		
	DRAWING FLWSHEET - Zn FLOTATION		
	FIGURE No. XX	PROJECT No. ADV-TO-00090	Date July 2024

### 17.3 Process Description

A high-level description of the Carangas process plant's key unit operations is provided in the following sections.

#### 17.3.1 ROM Ore Stockpile and Blending

Several ROM ore stockpiles will be organized according to the extent of oxidation and the metal and pyrite content. One blended ROM ore stockpile, which is used directly as the mill feed, will be created by reclaiming materials from these individual ROM stockpiles at pre-determined ratios to achieve the targeted oxidation level, metal contents and pyrite content. Then, a blending procedure will be implemented to homogenize the materials in this blended ROM stockpile. After blending, the material from this blended ROM stockpile will be fed directly to the process plant. This blended ROM stockpile will last for 5 ~ 7 days of operation. While this blended ROM stockpile is being reclaimed to feed directly to the process plant, another blended ROM stockpile will be prepared.

#### 17.3.2 Mill Feed and Primary Crushing

A front-end loader will reclaim the material from the blended ROM stockpile to feed the crushing circuit. The designed delivery rate to the crusher is 667 tonnes per hour (t/h), based on 75% utilization of the crushing circuit.

The crushing circuit includes a stationary grizzly with a 0.70-meter aperture to prevent the oversized material from entering the crusher feed bin. Material larger than 100 mm from the vibrating grizzly feeder will be directed to the primary jaw crusher (model C150). This PEA assumed a 50% split of the oversized material. The crusher is designed to process the feed with a maximum feed size ( $P_{100}$ ) of 700 mm, producing a product size ( $P_{100}$ ) of 167 mm. The vibrating grizzly undersize (<100 mm) and the crusher product are combined and conveyed to the crushed ore stockpile, which has a live capacity of 9,000 tonnes, equivalent to 18 hours of continuous operation. The material from the crushed ore stockpile is reclaimed by three apron feeders, with two operating and one on standby. Dust suppression is considered using atomized water sprays.

#### 17.3.3 Primary Grinding Circuit

The reclaimed crushed material, with a  $P_{80}$  of 106 mm, is fed into the Semi-Autogenous Grinding (SAG) mill (8.53 m x 3.05 m, 4.6 MW, c/w VFD) at a rate of 500 t/h. Process water, lime and zinc sulfate are added to the SAG mill. Ground material from the SAG mill is directed to a scalping screen with an aperture of 12.7 mm. The screen oversize is conveyed to a pebble crusher (Cone Crusher, model HP200) for further size reduction. The crushed product is returned to the SAG mill. The scalping screen undersize is then fed into the cyclone feed pump box, where it is pumped to the primary cyclone cluster. This cluster consists of 16 hydrocyclones (19 inches diameter each). The cyclone underflow is directed to the ball mill (6.00 m x 9.00 m, 6.3 MW) for further grinding. The ball mill discharge flows to the same pumpbox as the SAG mill. The cyclone overflow, with a  $P_{80}$  of 75  $\mu\text{m}$ , is sent to the trash screen with the screen undersize flowing to the conditioning tank in the silver/lead (Ag/Pb) flotation circuit. The grinding circuit design, including motor sizing, is based on Carangas comminution test work data (detailed in Section 13). The SAG and ball mills were quoted by CITIC Heavy Industries in China. A circulating load of 300% was assumed in the ball mill sizing calculations.

#### 17.3.4 Silver/Lead Flotation and Dewatering

The hydrocyclone overflow from the grinding circuit is directed to the trash screen, and then the screen undersize flows to the silver/lead flotation conditioning tank, which has a working volume of 452 m<sup>3</sup> and provides a retention time of 20 minutes. Collectors AP3418A and Aero404 are added to the conditioning tank. Process water is added to achieve a pulp density of 30% solids when necessary before the slurry is fed into the rougher flotation circuit. The rougher flotation bank consists of eight flotation cells, each with a capacity of 140 m<sup>3</sup>. Based on test work data, a mass pull of 10% was assumed for the rougher flotation. The rougher tailings are routed to a thickener; only the thickener underflow enters the zinc/silver flotation circuit. The thickener overflow is pumped to the process water tank, which is the primary grinding and silver/lead flotation circuit process water. The silver/lead rougher concentrate is directed to the secondary hydrocyclone cluster.



The overflow from the secondary hydrocyclones is sent to the cleaner conditioning tank, while the underflow, containing coarser particles, is fed into the regrinding mill (Vertimill). The regrind mill product, with a  $P_{80}$  of 30  $\mu\text{m}$ , is then pumped to the cleaner conditioning tank. Hydrated lime and AP3418A/Aero404 collectors are added to the conditioning tank. When necessary, process water is also added to the conditioning tank to dilute the slurry to the targeted pulp density. The Carangas process plant design includes three cleaner flotation stages to upgrade the rougher concentrate. To prevent the buildup of pyrite, the first cleaner is operated in an open circuit. The first cleaner tail is combined with the rougher tail and then thickened together. The concentrate from the third cleaner stage is the final concentrate and is pumped into the silver/lead flotation concentrate thickener. The thickener underflow is subsequently fed into a concentrate pressure filter, producing a final concentrate with 10% moisture content, approximately 3,975 g/t silver and 24% lead. The final concentrate filter cake is then conveyed to the concentrate bagging station for storage and shipping.

### 17.3.5 Zinc/Silver Flotation and Dewatering

The thickened tailings from the silver/lead rougher and first cleaner tails are fed into the zinc/silver flotation conditioning tanks, of which there are three in series. Hydrated lime will be added to the first conditioning tank, copper sulfate will be added to the second conditioning tank, and collector SIPX will be added to the third conditioning tank. The rougher flotation bank for this circuit consists of eight cells, each with a capacity of 157  $\text{m}^3$ . Similar to the silver/lead circuit, a regrind circuit utilizing a Vertimill is included for the zinc rougher concentrate. The zinc/silver flotation circuit also features a three-stage cleaner circuit to upgrade the zinc rougher concentrate. The first cleaner is operated in a closed circuit to improve zinc and silver recoveries. Because high pH is applied to the zinc/silver circuit, the buildup of pyrite is expected to be modest. The final cleaner concentrate is thickened and filtered using a pressure filter before being conveyed to the concentrate bagging station for storage and shipping. Over the life of the mine, the zinc/silver concentrate is expected to contain 46% zinc and 323 g/t silver on average.

### 17.3.6 Dewatering of Final Flotation Tailing

The rougher zinc/silver circuit tailings are thickened through a high-rate thickener. The thickener overflow is pumped to a second process water tank which serves the zinc/silver flotation circuit. The thickened final tailings, with 50% solids, are pumped to the tailings storage facility (as discussed in **Section 18.17**). Water is reclaimed from the tailings dams and returned to the processing plant's zinc/silver process water tank at an average rate of 256  $\text{m}^3/\text{h}$ .

## 17.4 Power

The processing plant power requirement of the major equipment is shown in **Table 17-2**

**Table 17-2 Major Equipment List**

Equipment	Quantity	Specification	Total Installed Power (kW)	Power Draw (kW)	Utilization (%)
Jaw Crusher	1	C150 or equivalent	200	160	75
Apron Feeder	3	500 t/h	135	108	75
SAG Mill	1	8.53 x 3.05 m	4,600	3,450	91.3
Ball Mill	1	6.0 x 9.0 m	6,300	5,466	91.3
Flotation Blowers	3	Model 600	1,350	1,080	91.3
Ag/Pb Rougher Flotation Cells	8	TankCell e130	1,056	845	91.3
Flotation slurry pumps	2	MR 350 FNR-S TRB-OH	400	320	91.3
Ag/Pb Regrind Mill	1	Vertical Stirred Mill – CSM-500	500	450	91.3
Ag/Pb Cleaner Flotation Cells	12	TankCell e20, e10, and e5	306	245	91.3
Tailing Pump	1	Warman 10/8	300	285	91.3
Zn/Ag Rougher Flotation Cells	8	TankCell e130	1,056	845	91.3
Flotation slurry pumps	2	MR 350 FNR-S TRB-OH	400	320	91.3
Zn/Ag Regrind Mill	1	Vertical Stirred Mill – CSM-500	500	450	91.3
Zn/Ag Cleaner Flotation Cells	12	TankCell e20, e10, and e5	346	277	91.3
Final Tailing Pump	2	Warman 12/10 AH	600	570	91.3

The total installed power of the Carangas process plant is estimated at 19.74 MW. Based on the PEA design criteria, the annual energy consumption for the plant is projected to be approximately 133,505 MWh per year.

## 17.5 Water

The project's water management plan and balance are detailed in **Section 18.3**. The projected water requirements for the process plant are approximately 1,200 m<sup>3</sup>/h. With an anticipated recycling rate of 77%, the makeup water requirement is estimated at 267 m<sup>3</sup>/h. The makeup water is expected to be sourced from a combination of water wells and local water streams and rivers.

Special attention will be given to minimize cross-contamination of process water between the two flotation circuits.

## 17.6 Reagents and Consumables

Typical sulfide flotation reagents are considered for the Carangas process plant. The reagents will be received and stored in appropriate areas. The PEA study estimate for the reagent consumption is shown in **Table 17-3**

**Table 17-3 Reagents Consumption**

Reagent	Consumption (kg/t ore)	Annual Consumption (t/y)
Zinc Sulphate ZnSO <sub>4</sub> ·7H <sub>2</sub> O	1.300	5,200
Copper Sulfate CuSO <sub>4</sub> ·5H <sub>2</sub> O	0.150	600
Hydrated Lime	1.140	4,541
Antiscalant	0.010	40
Flocculant	0.035	140
Collector AP3418A	0.026	104
Collector Aero 404	0.004	16
Collector SIPX	0.065	260
Frother MIBC	0.030	120
Frother W31	0.010	5,200

The grinding media consumables estimate is summarized in **Table 17-4**.

**Table 17-4 Grinding Consumables**

Consumable	Consumption (kg/t ore)	Annual Consumption (t/y)
Grinding Ball 125 mm	0.43	1,720
Grinding Ball 50 mm	0.51	2,040

Both reagent and grinding media consumption estimates are based on test work results. Additional consumables, including crusher plates, mill liners, and filter cloths, have also been factored into the operating cost estimates, as discussed in **Section 21.2.2**.

## 17.7 Other Facilities and Services

To ensure stable and efficient operation, the Carangas process plant will be supported by auxiliary facilities and services, including the following:

- Maintenance workshop (including welding, electrical, and mechanical facilities),
- Compressed air distribution system,
- Sampling equipment,
- Laboratories,
- Ponds and containments system,
- Warehouse,
- Administrative building,
- Automation systems,
- Control room,
- Concentrate dispatch systems.

## 17.8 Concentrate production

The production of silver/lead concentrate and zinc/silver concentrate was estimated based on the mine production schedule and the derived individual recoveries for the oxidized, transitional, and sulfide materials. The derived individual recoveries were calibrated against the actual flotation data obtained from the locked cycle flotation test results for the LOM composite sample, which consisted of 12.5% oxidized material, 2.5% transitional and 85.0% sulfide materials.

The calculated annual concentrate productions are presented in **Table 17-5**. From the LOM total mill feed of 64.438 million tonnes, which contains 63.0 g/t silver, 0.44% lead, and 0.80% zinc, 0.826 million tonnes of silver/lead concentrate will be produced, with the average concentrate grades expected to be around 3,975 g/t silver and 24.0% lead with the corresponding recoveries of 80.8% for silver and 70.6% for lead. In addition, 0.744 million tonnes of zinc/silver concentrate will be produced, with the average concentrate grades expected to be around 356 g/t silver and 45.8% zinc, with the corresponding recoveries of 6.5% for silver and 65.9% for zinc.

Table 17-5 Annual concentrate production

Year			Total	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		
Mill Feed	Oxide	Quantity	kt	<b>10,528</b>	900	1,000	1,000	1,000	1,000	1,000	1,025	471	350	350	350	350	350	350	350	333		
		Percentage	%	<b>16.3</b>	25.0	25.0	25.0	25.0	25.0	25.0	25.6	11.8	8.7	8.7	8.7	8.7	8.7	8.8	8.8	8.8	39.8	
		Head Grade	Ag	g/t	<b>59.6</b>	72.2	71.9	75.2	81.9	83.9	76.6	52.1	45.9	31.7	37.9	39.3	28.6	28.6	28.6	28.6	28.6	28.6
			Pb	%	<b>0.45</b>	0.48	0.48	0.50	0.48	0.46	0.43	0.43	0.38	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
	Zn		%	<b>0.29</b>	0.26	0.34	0.32	0.29	0.30	0.29	0.29	0.31	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	
	Transitional	Quantity	kt	<b>2,578</b>	1,018	380	172	190	117	117	66	19	0	0	0	0	63	138	138	138	19	
		Percentage	%	<b>4.0</b>	28.3	9.5	4.3	4.8	2.9	2.9	1.6	0.5	0.0	0.0	0.0	0.0	1.6	3.5	3.5	3.5	2.3	
		Head Grade	Ag	g/t	<b>63.4</b>	76.9	82.5	50.0	59.6	46.5	75.8	31.4	59.6	0.0	0.0	0.0	0.0	32.5	32.5	32.5	32.5	32.5
			Pb	%	<b>0.66</b>	0.72	0.77	0.76	0.71	0.56	0.47	0.69	0.15	0.00	0.00	0.00	0.00	0.48	0.48	0.48	0.48	0.48
	Zn		%	<b>1.00</b>	1.15	0.86	0.60	1.25	1.09	0.84	1.72	0.14	0.00	0.00	0.00	0.00	0.78	0.78	0.78	0.78	0.78	
	Sulfide	Quantity	kt	<b>51,332</b>	1,682	2,620	2,829	2,810	2,883	2,883	2,910	3,510	3,650	3,650	3,650	3,650	3,587	3,512	3,512	3,512	484	
		Percentage	%	<b>79.7</b>	46.7	65.5	70.7	70.2	72.1	72.1	72.7	87.8	91.3	91.3	91.3	91.3	89.7	87.8	87.8	87.8	57.9	
		Head Grade	Ag	g/t	<b>63.7</b>	78.0	79.5	85.5	93.2	95.2	85.5	59.4	59.5	48.8	58.3	71.5	89.1	48.7	33.9	33.9	33.9	33.9
			Pb	%	<b>0.42</b>	0.67	0.61	0.43	0.38	0.47	0.57	0.56	0.48	0.52	0.38	0.32	0.38	0.29	0.32	0.32	0.32	0.32
	Zn		%	<b>0.90</b>	1.29	1.30	1.02	0.85	0.89	1.02	1.10	0.84	1.20	0.86	0.68	0.72	0.65	0.78	0.78	0.78	0.78	
	Total	Quantity	kt	<b>64,438</b>	<b>3,600</b>	<b>4,000</b>	<b>4,000</b>	<b>4,000</b>	<b>4,000</b>	<b>4,000</b>	<b>4,000</b>	<b>4,000</b>	<b>4,000</b>	<b>4,000</b>	<b>4,000</b>	<b>4,000</b>	<b>4,000</b>	<b>4,000</b>	<b>4,000</b>	<b>4,000</b>	<b>836</b>	
Percentage		%	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>		
Head Grade		Ag	g/t	<b>63.0</b>	<b>76.2</b>	<b>77.8</b>	<b>81.4</b>	<b>88.8</b>	<b>90.9</b>	<b>83.0</b>	<b>57.1</b>	<b>57.9</b>	<b>47.3</b>	<b>56.6</b>	<b>68.7</b>	<b>83.8</b>	<b>46.7</b>	<b>33.4</b>	<b>33.4</b>	<b>33.4</b>	<b>31.8</b>	
		Pb	%	<b>0.44</b>	<b>0.63</b>	<b>0.59</b>	<b>0.46</b>	<b>0.42</b>	<b>0.47</b>	<b>0.53</b>	<b>0.53</b>	<b>0.47</b>	<b>0.51</b>	<b>0.38</b>	<b>0.33</b>	<b>0.39</b>	<b>0.31</b>	<b>0.33</b>	<b>0.33</b>	<b>0.33</b>	<b>0.36</b>	
	Zn	%	<b>0.80</b>	<b>0.99</b>	<b>1.02</b>	<b>0.83</b>	<b>0.73</b>	<b>0.75</b>	<b>0.83</b>	<b>0.90</b>	<b>0.78</b>	<b>1.12</b>	<b>0.81</b>	<b>0.64</b>	<b>0.68</b>	<b>0.62</b>	<b>0.74</b>	<b>0.74</b>	<b>0.74</b>	<b>0.58</b>		
SilverLead Concentrate	Mass Pull	%	<b>1.28</b>	1.66	1.65	1.25	1.10	1.30	1.54	1.52	1.48	1.66	1.21	1.02	1.22	0.95	1.03	1.03	1.03	0.82		
	Quantity	kt	<b>826</b>	59.9	66.0	49.8	44.1	52.0	61.5	60.9	59.1	66.2	48.4	41.0	48.9	38.0	41.0	41.0	41.0	6.9		
	Composition	Ag	g/t	<b>3,975</b>	3,361	3,696	5,246	6,449	5,630	4,332	3,025	3,232	2,374	3,882	5,574	5,717	4,072	2,667	2,667	2,667	3,041	
		Pb	%	<b>24.0</b>	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	
		Zn	%	<b>13.2</b>	11.3	12.6	13.7	13.3	11.8	11.2	12.3	11.4	14.9	14.7	13.6	12.2	14.1	15.5	15.5	15.5	13.4	
	Recovery	Ag	%	<b>80.8</b>	73.4	78.3	80.2	80.1	80.5	80.2	80.6	82.5	83.0	83.1	83.3	82.8	81.9	81.9	81.9	81.9	78.8	
		Pb	%	<b>70.6</b>	63.2	67.0	64.4	63.2	66.8	69.3	69.2	76.0	77.5	76.1	75.2	76.2	74.2	74.1	74.1	74.1	54.8	
		Zn	%	<b>21.1</b>	18.9	20.4	20.6	20.2	20.4	20.7	20.8	21.7	22.1	21.9	21.8	21.8	21.6	21.6	21.6	21.6	19.1	
Zinc Concentrate	Mass Pull	%	<b>1.15</b>	1.20	1.44	1.20	1.03	1.08	1.21	1.31	1.15	1.66	1.20	0.95	1.01	0.91	1.07	1.07	1.07	0.84		
	Quantity	kt	<b>744</b>	43.4	57.4	48.1	41.0	43.3	48.4	52.4	46.0	66.3	47.9	37.9	40.5	36.3	42.7	42.7	42.7	7.0		
	Composition	Ag	g/t	<b>356</b>	811	438	419	547	495	425	250	283	157	260	399	456	295	195	195	195	236	
		Pb	%	<b>0.95</b>	2.2	1.2	1.0	1.1	1.0	1.0	0.9	0.9	0.7	0.7	0.7	0.8	0.8	0.7	0.7	0.7	1.0	
		Zn	%	<b>45.8</b>	45.8	45.8	45.8	45.8	45.8	45.8	45.8	45.8	45.8	45.8	45.8	45.8	45.8	45.8	45.8	45.8	45.8	
	Recovery	Ag	%	<b>6.5</b>	12.8	8.1	6.2	6.3	5.9	6.2	5.7	5.6	5.5	5.5	5.5	5.5	5.7	6.2	6.2	6.2	6.2	
		Pb	%	<b>2.5</b>	4.2	2.9	2.6	2.7	2.4	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.3	2.4	2.4	2.4	2.4	
		Zn	%	<b>65.9</b>	55.4	64.7	66.6	64.6	66.1	66.6	66.6	67.7	67.8	67.8	67.8	67.8	67.1	66.4	66.4	66.4	66.4	

17.9 QP Comments

The Carangas processing plant is designed as a standard grinding-flotation facility. Metallurgical test work completed to date indicates that the ore is amenable to flotation concentration, with no deleterious elements identified that would necessitate changes to the processing route or result in penalties to the concentrate price. However, it is important to note that the project is currently at a scoping level of engineering, and additional test work and studies are required to confirm the processing route and refine the design criteria.

Key risks associated with the recovery method include:

- Preliminary Metallurgical Test Work: The following factors present potential risks:



- Ore liberation,
- Recovery and concentrate grade projections,
- Mass pull and reagent consumption.
- Water Supply: Both the quality and availability of water in the project area pose significant risks.
- Water Cross-Contamination: Ensuring minimal cross-contamination between the flotation circuits is critical to maintaining processing efficiency and preventing operational issues.

## 18 PROJECT INFRASTRUCTURE

### 18.1 Access roads

The Project area is accessible by vehicle from Oruro city, with approximately 197 km of paved, 8 m wide national Highway 12 leading to the town of Sabaya, then flat gravel, 5 to 6 m wide road of 35 km from Sabaya to Carangas. The access road to the project is shown in **Figure 18-1**.

**Figure 18-1 Paved Road and Secondary Road to Carangas Project**



The main paved road and the dirt compacted road can support light and commercial traffic. The secondary roads will require periodic grading to remain serviceable.

#### 18.1.1.1 Hauling and service roads

Internal hauling roads will be suited for mine heavy truck usage. They will be 16 m wide, compacted dirt with a 2 m berm at both sides, and compaction will be done to withstand heavy loads. Berms, culverts, and ditches will be installed to help with water stream crossings and runoff water management. Service roads will be 8 m wide compacted dirt with berms and runoff water management ditches.

## 18.2 Power Supply

The Company has engaged with Bolivia's power transmission company ENDE (Empresa Nacional de Electricidad), to obtain quotations for transmission line construction and power supply. The powerline for the project will connect to substation Pagador via twinned overhead transmission lines of 115 kV.

### 18.2.1 Geographical Locations

- Pagador Substation: Approximately 19 km north of Oruro (Cercado Province, Caracollo municipality).
- Carangas Substation: Approximately 190 km Southwest of Oruro (Mejillones Province).

**Table 18-1** shows the geographical location of substations.

**Table 18-1 Geographical Location of Substations**

Substation	Coordinate	Zone	West (m)	South (m)	Elevation (masl)
Pagador	UTM (WGS 84)	19K	700756	8028515	3730
Carangas	UTM (WGS 84)	19K	539843	7905862	3891

### 18.2.2 Scope of the Carangas Mine Substation

The proposed Carangas substation is a designated electrical substation specifically planned for the project. It includes the following facilities:

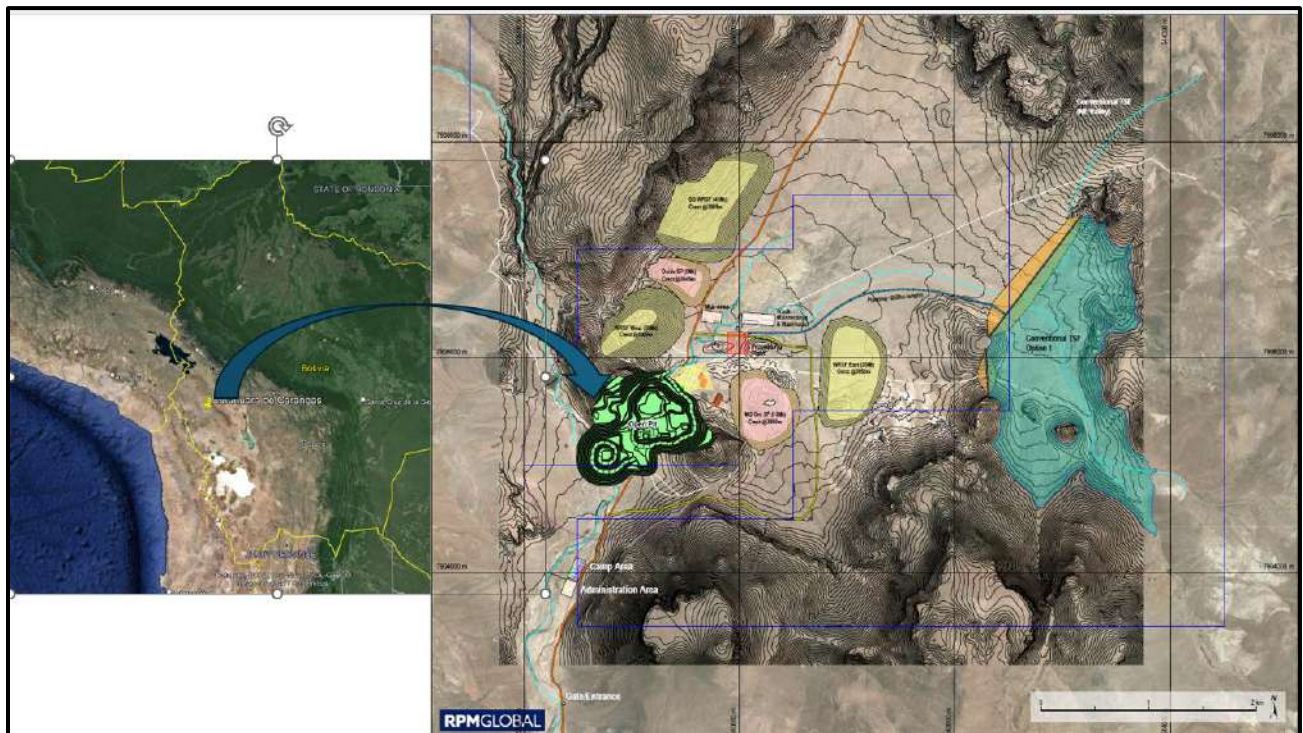
- Line bay in 115 kV in configuration double bar plus transfer disconnecter.
- Line reactor bay in 115 kV.
- Civil works required with the project are the construction of trench and pipeline systems, supply, and extension of gravel, lighting, and other common facilities.

The general facilities of the Carangas substation, such as the platform construction, perimeter fence, control room, auxiliary services, access roads and internal circulation, drainage, general courtyard lighting system, and other general common facilities, are included in the cost estimate.

### 18.2.3 Carangas Site Geographical Location

Figure 18-2 shows the geographical location of the substation and the project. In the figure, the left side shows the Bolivian map, including the city of Oruro in the southwest of Bolivia and the location of the transmission line in blue. On the right side, blue shows the route that will follow the transmission line to the site.

Figure 18-2 Site geographical location



Source: RPM, 2024

### 18.2.4 Pagador Line – Carangas Mine – 115kV

The construction of an electric transmission line at a voltage level proposed to be 115 kV between Pagador and the Carangas site has a triangular Double Terna (ST) configuration with one conductor per phase. The line begins at the Pagador Substation and ends at the Carangas Substation.

Table 18-2 shows a short technical summary of the Carangas power line.

**Table 18-2 Pagador – Carangas Line Summary Table**

Item	Technical Comment
Length	210 km
Configuration structures	Double ternary

### 18.3 Water Supply, Potable Water Supply, and Wastewater Treatment Plant.

Water will be sourced through drilling in the project vicinity upstream of the pit. This will serve to ensure the pit has minimal inflows and provide water for the processing facility. Two small local streams run through the property with a flow rate of approximately 20 l/s for each of them in the dry season. This water supply was adequate for the project's water consumption during the exploration and drilling stage. The Project expects to source additional water sources through drilling to identify new and utilizing existing wells. The adequacy of the water supply as planned is to be supported by hydrology studies that are planned to be completed.

The backup source for water supply has been identified; however, further studies are required to confirm its availability and accessibility.

At the site, fresh water will be stored in two carbon steel tanks, each 5 m diameter x 5 m height, close to the process plant, where water will be filtered and treated for process water or potable water use. Additionally, a potable water tank of the same size will be required.

Depending on its service, water will be distributed from the process plant to all required areas. Firewater will be stored in the freshwater tank, which will have a dedicated volume and two hours of storage capacity.

Wastewater treatment plants will be modularized in containers with a 500-person wastewater treatment capacity. In case of an expansion, additional modules can be added to the area.

**Figure 18-3 Containerized wastewater treatment plant and containerized potable water treatment**



### 18.4 Fuel Supply

Fuel supply at the site will be done by fuel trucks from Oruro. Fuel will be stored in 4 x 450 m<sup>3</sup> carbon steel fuel tanks. A pump station beside the tanks will service haul, commercial, and light trucks.



### 18.5 Administrative Complex Building

An administrative complex building with offices, meeting rooms, and a first aid room. A total of 1,800 m<sup>2</sup> of buildings will be installed as part of the Project. The first aid room will have a dedicated 450 m<sup>2</sup> footprint. The complex will also have 675 m<sup>2</sup> of light truck parking outside the building.

### 18.6 Camp Accommodation and Lunchroom

The site will have a camp accommodation complex for 500 persons, and it will be a pre-engineered building of 4,800 m<sup>2</sup> area with modular buildings. This complex will include a laundry area, fitness center, and amenities areas.

The Project will have an 1,800 m<sup>2</sup> lunchroom building with a kitchen, cold room, hot room, food preparation area, and storage area.

### 18.7 Emergency Responses

The emergency response building will be a 225 m<sup>2</sup> building containing a fire truck and an ambulance for medical evacuation.

### 18.8 Communications

A voice and data communications system will be established at the mine site via a microwave radio link consisting of a microwave antenna and radio equipment mounted on towers. A backup satellite system capable of supporting the communications bandwidth will also be installed.

A communications network will be established among occupied mine site buildings utilizing fibre-optic technology and wireless communication for voice, internet, and intranet traffic. The communications and IT infrastructure will include an internet gateway, telephone private branch exchange (PBX) system, Ethernet local area network (LAN), IT servers, desktop computers, a backup power system, copper and fibre cabling, and site VHF radio system.

Voice communications will be based on Voice Over Internet Protocol (VoIP) technology, using wide area network (WAN) links. A VHF radio system will be installed with provision for handheld units, mobile units, and base stations. A mobile phone cellular service will be included in the system. Local and off-site communications will be through a local wireless/Wi-Fi network whereby employees will utilize their GRI-issued cellphones from any location. Video conferencing systems by WAN links will be provided, complete with messenger service flat screens and a projector for use in meeting rooms. Base and client stations will be provided for wireless connection to the network system. The system will include a smart card access system to enable secure login to the network for desktop and laptop users.

The LAN system will utilize wireless switches to connect to users' computers, and the WAN system will use routers with multi-protocol label switching capabilities to support voice and high bandwidth capabilities.

### 18.9 Warehouse

The warehouse is close to the process plant and the mine. It will be in an industrial area that will include a warehouse, truck wash, truck shop, maintenance building, and dry.

The warehouse is a 6,750 m<sup>2</sup> area, containing an enclosed Warehouse building of 1,350 m<sup>2</sup>, 5,400 m<sup>2</sup> of fenced open area, and 3,600 m<sup>2</sup> of parking for commercial trucks and light trucks.



### 18.10 Truck Shop and Truck Wash

The mine contractor will implement the truck shop and truck wash as a part of their services.

### 18.11 Maintenance Shop Building

The maintenance shop building will be a 650 m<sup>2</sup> enclosed building with a mechanical station, electric station, and welding station, and it will have all the required mechanical and electrical equipment to repair hauling trucks and light trucks as well as mine equipment.

### 18.12 Change Room

There will be a 450 m<sup>2</sup> building with lockers, showers, and services for the mine operators.

### 18.13 Assay Laboratory

The site assay laboratory will be a 900 m<sup>2</sup> enclosed building, with a storage area for samples, samples reception, samples preparation, reagent storage and laboratory equipment for inorganic and organic analysis, offices, and a meeting room.

### 18.14 Main Gate

The main gate will be located at the south entrance of the property. It will have a fenced main gate, CCTV cameras for security, a 50 m<sup>2</sup> building with a bathroom, drinking water will be supplied by bottles, a sewage system will be a septic tank, and potable water will be supplied by a water truck.

### 18.15 Truck Scale

The truck scale will be located close to the main gate entrance, beside the entrance road for trucks.

### 18.16 Explosives

Explosives will be transported from Oruro and stored at the site in a 225 m<sup>2</sup> building, isolated from other buildings at site. It will also be an Emulsion preparation building. This building will also be designed with a footprint of 225 m<sup>2</sup>.

### 18.17 Tailings

#### 18.17.1 Introduction

As discussed in **Section 7** and shown in **Figure 7-3**, the main section of the Project site has two rugged rock domes, designated West and East Dome, with the Carangas Stream running between them. There are also two smaller valleys tributary to the Carangas Stream, coming from the northeast and southeast. It is noted that the hydrologic regime of the Carangas Stream and its tributaries has not been evaluated as part of this PEA and will be evaluated during the next project phase.

This PEA has considered three types of tailings storage facilities (TSFs): conventional TSF (high-rate thickened tailings), high-density thickened tailings TSF and a dry stack of filtered tailings.

#### 18.17.2 General Design Criteria

The PEA-level evaluation of TSF options has been based on the following general data and assumptions:

- Total ore to mill: 64,438 kt.
- Throughput: 4 Mtpa = 10,959 tpd.

- Mine life: 16.2 years.
- Total tailings 99% of total ore to mill = 63,794 kt.
- Engineering, construction management, QA/QC, overhead, and owner's costs are not included in the cost estimates.
- Contingency is not included.
- Closure costs are not included.

Additional design criteria for each type of TSF are presented in the respective sections.

### 18.17.3 Conventional TSF Location Options

#### General

The following locations were considered for conventional TSF options:

- Northeast tributary of the Carangas Stream. The design for that option showed that it was not possible to achieve the required capacity due to the valley's steep gradient. Nonetheless, the design for that option is presented in this section as a reference and is designated as Conventional TSF NE.
- The southeast tributary of the Carangas Stream also has a steep gradient. A preliminary evaluation also showed insufficient capacity. Therefore, this location was not further considered.
- The floodplain of the Carangas Stream is immediately downstream of the confluence of the southeast tributary. This location allowed the Project to achieve adequate capacity, exceeding the required capacity under the design criteria. It is designated as Conventional TSF Option 1, the TSF option selected for this PEA, as discussed below in this report section.

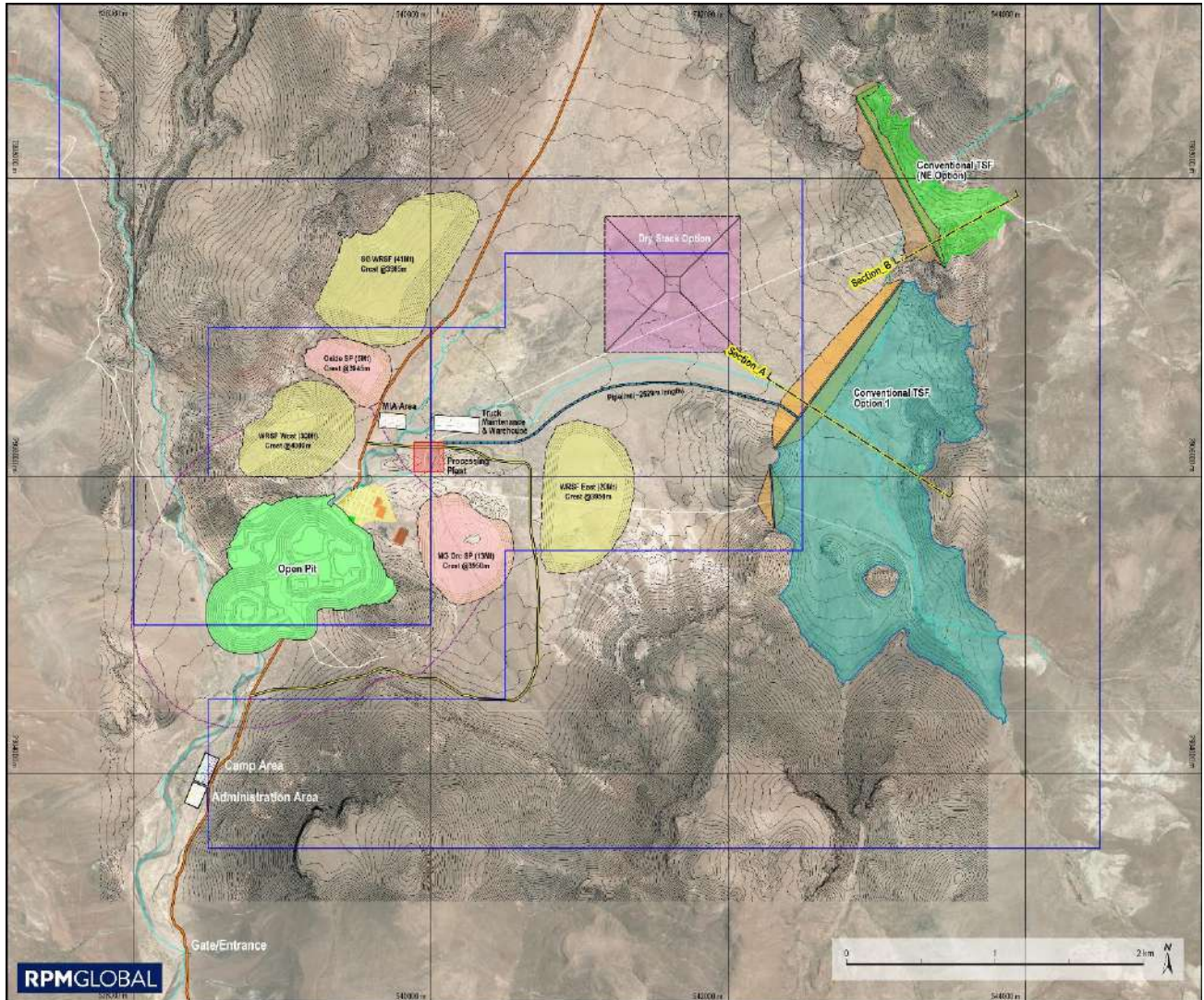
### 18.17.4 Conventional TSFs Design Criteria

The design criteria utilized for the design of the two conventional TSFs (NE and Option 1) comprise:

- Dry unit weight of tailings: 1.4 t/m<sup>3</sup>.
- Required tailings capacity: 63,794 kt / 1.4 t/m<sup>3</sup> = 45.6 Mm<sup>3</sup>.
- Additional capacity to store the decant pond and the Probable Maximum Flood (PMF).
- Containment embankment: Crest 10-m wide, downstream slope 2.5H:1V and upstream slope 2H:1V.
- Freeboard: 1.5 m.
- Impoundment site preparation: clearing, grubbing and proof rolling.
- Embankment foundation preparation in the valley consists of clearing, removing 0.5 m of soil and compaction.
- The embankment foundation preparation for the abutments consists of removing rock irregularities and filling any voids and fractures with dental concrete. It will need blasting.
- Embankment constructed with waste rock. The next project phase needs a geochemical evaluation to check it is not acid-forming.
- Waste rock in the embankment is compacted by five passes of a 10-t vibratory roller.

**Figure 18-4** shows the site layout with the location of the two evaluated conventional TSFs. It also shows the location of the dry stack discussed in the Dry Stack Option section.

Figure 18-4 Proposed Locations of Conventional TSFs and Dry Stack Options

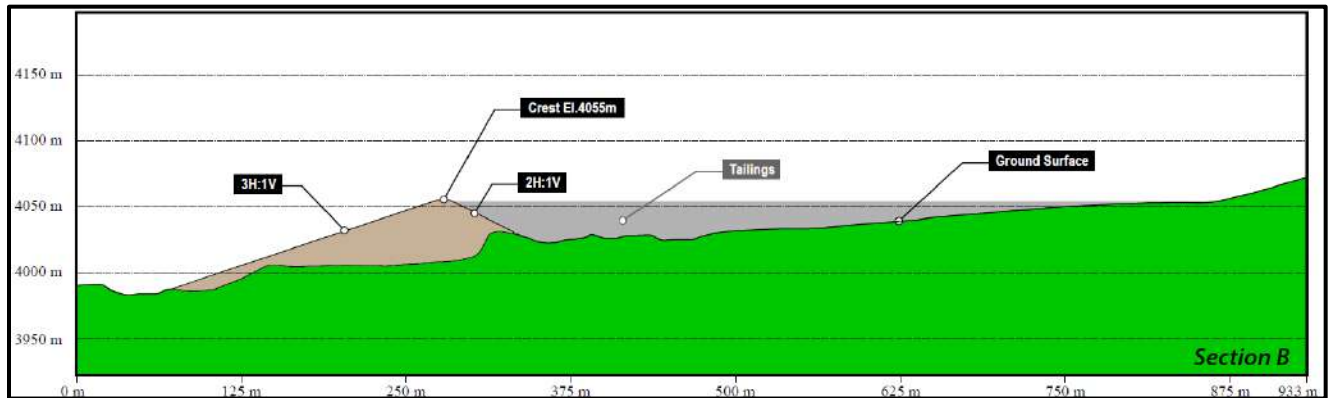


Source: RPM, 2024

### 18.17.5 Conventional TSF NE

The containment embankment for the Conventional TSF NE is located at the downstream end of the NE valley, where it discharges into the Carangas Stream floodplain. The embankment abutments were selected as high as possible on the rock outcrops adjacent to the Carangas Stream floodplain to maximize the storage capacity for that location. A plan view of the Conventional TSF NE is shown in **Figure 18-5**, which shows the embankment cross-section at maximum height.

**Figure 18-5 Conventional TSF NE – Cross-Section**



The main dimensions of the Conventional TSF NE are:

- Embankment crest El. 4,055.0 msnm.
- Impoundment El. 4,053.5 msnm.
- Maximum height: 52 m.
- Crest length: 1,280 m.
- Embankment volume: 3.62 Mm<sup>3</sup>.
- Impoundment volume: 5.35 Mm<sup>3</sup>.

The design shown above has a tailings storage capacity of 5.35 Mm<sup>3</sup>, which is only a small fraction of the required 45.6 Mm<sup>3</sup>. Therefore, this option was no longer considered.

## 18.17.6 Conventional TSF Option 1

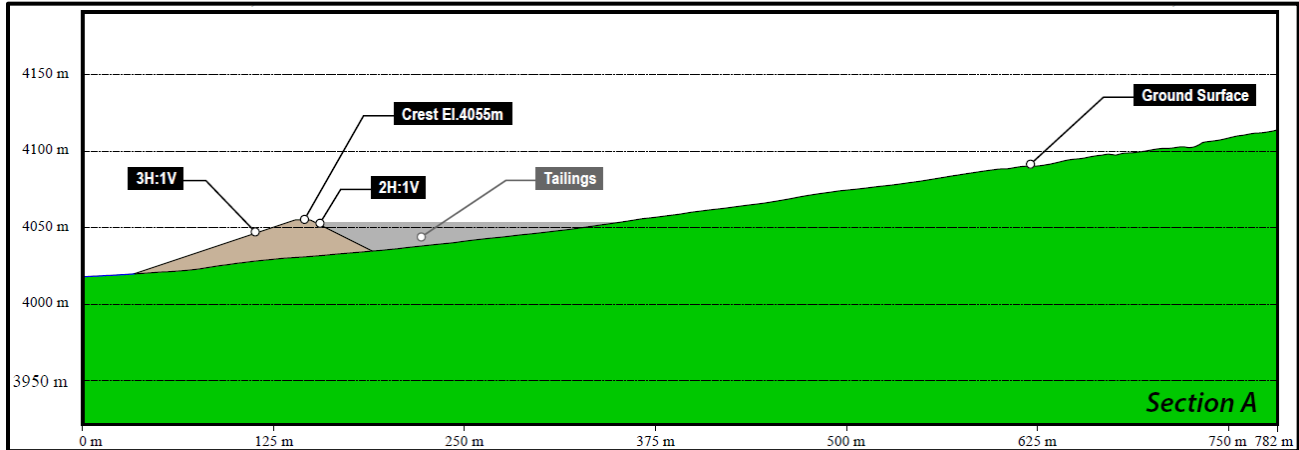
### Conventional TSF Option 1 Design

As mentioned above, the Conventional TSF Option 1 is located in the flood plain of the Carangas Stream, immediately downstream of the confluence of the southeast tributary.

The embankment consists of two straight segments and has three abutments on rock outcrops. The central outcrop is the lowest, and the highest elevation of that outcrop was selected as the embankment crest elevation. A plan view of the Conventional TSF Option 1 is shown in **Figure 18-6**, showing the embankment cross-section at maximum height.



**Figure 18-6 Conventional TSF Option 1 – Maximum Cross-Section**



The main dimensions of the Conventional TSF Option 1 are:

- Embankment crest El. 4,001.0 msnm.
- Impoundment El. 3,999.5 msnm.
- Maximum height: 64 m.
- Crest length: 1,860 m.
- Embankment volume: 8.3 Mm<sup>3</sup>.
- Impoundment volume: 69.0 Mm<sup>3</sup>.

It is noted that the storage capacity for this design is 69.0 Mm<sup>3</sup>, which largely exceeds the required capacity of 45.6 Mm<sup>3</sup>. For construction planning and to defer capital costs, the staging plan shown in **Table 18-3** has been developed to construct the TSF in five stages.

**Table 18-3 Conventional TSF Option 1 – Staging Plan**

Stage	Embankment Crest El. (masl)	Life Through (Year)	Operation (Years)	Capital Cost During Years	Cumulative Impoundment Capacity		Cumulative Waste Rock Required for Embankment (Mt)
					(Mm <sup>3</sup> )	(Mt)	
1	3,960.25	2.00	1-2	-2 & -1	5.59	7.93	1.12
2	3,971.50	6.05	3-6	1 & 2	16.36	23.96	3.47
3	3,980.00	10.19	7-10	5 & 6	27.27	40.34	6.27
4	3,986.75	14.07	11-14	9 & 10	38.95	55.72	9.07
5	3,991.50	17.09	15-17	13 & 14	48.08	67.69	11.37
Final Design	4,001.00	24.39	None	None	69.19	96.60	17.43

This staging plan has been developed considering that the embankment raises will be constructed using the downstream method.



For the financial model, costs have been considered through Stage 5 only for consistency with the LOM mining schedule. The TSF design has the capacity for an additional seven years, which has not been included in the PEA costs.

## Conventional TSF Option 1 Costs Assumptions

The following criteria and assumptions were considered to estimate the capital costs and the OPEX for the Conventional TSF Option 1:

- High-rate thickener CAPEX is not considered because it is included in the plant costs.
- High-rate thickening OPEX is not considered because it is included in the plant costs.
- The Cost of pumping the tailings slurry from the plant to the TSF is not considered because it is included in the plant OPEX.
- A detailed hydrological evaluation is required during the next project phase, as the TSF is located in the Carangas Stream. An estimated cost for this evaluation is included in the TSF capital costs.
- The upstream slope will be lined with a 1.5-mm thick HDPE geomembrane installed on a transition layer to serve as a cushion to the geomembrane.
- The impoundment bottom will be lined with a 1.5-mm thick HDPE geomembrane installed on a soil cushion layer to protect the geomembrane from puncturing.
- The tailings delivery pipeline from the plant to the TSF will be an 8-in diameter HDPE.
- The tailings slurry discharge system at the TSF consists of a 6-in diameter HDPE pipeline along the embankment crest and spigots spaced at 100 m.
- The reclaim water system consists of a floating barge and submerged pumps.
- The water return pipeline from the TSF impoundment to the plant will be an 8-in diameter HDPE.
- A specific design, to be developed during the next project phase, is required for the TSF surface water diversion system. It is assumed that this design will be part of the surface water diversion system for the entire mine and will be included in the mine capital costs.
- Water collected in the seepage pond located downstream of the TSF will be pumped to the TSF impoundment utilizing a 4-in diameter pipeline and from there to the plant in the water return pipeline.
- The surface water management on the embankment downstream slope consists of ditches, down chutes, energy dissipators and sediment ponds. These water management features must be extended during the project life as the embankment is raised, and they are considered in the TSF OPEX.
- Erosion protection for the downstream slope is assumed to be achieved with soil stockpiled from the embankment foundation preparation, and that the slope will be revegetated progressively as the embankment is raised. At the project's altitude, it is assumed that not much topsoil is available for stockpiling; therefore, the soil cover will need to be fertilized.

## Conventional TSF Option 1 Capital Costs

Based on the design, the above criteria, and assumptions, the total capital cost for the 17-year Conventional TSF Option 1 LOM has been estimated at \$48.24 million. The capital cost and OPEX for each of the five construction stages are presented in **Table 18-4** and **Table 18-5**, respectively.

**Table 18-4 Conventional TSF Option 1 Staging Estimated Capital Cost**

Stage	Capital Cost (K\$)
Stage 1:	\$14,481
Stage 2:	\$8,987
Stage 3:	\$9,054
Stage 4:	\$8,491
Stage 5:	\$7,230
<b>Total:</b>	<b>\$48,244</b>

Conventional TSF Option 1 Operating Costs

**Table 18-5 Conventional TSF Option 1 Staging Estimated Operating Cost**

Stage	Operating Cost (K\$)
Stage 1:	\$2,704
Stage 2:	\$5,356
Stage 3:	\$5,352
Stage 4:	\$5,348
Stage 5:	\$4,107
<b>Total:</b>	<b>\$22,867</b>

### 18.17.7 High-density Thickened Tailings TSF

The Conventional TSF Option 1 occupies an area of approximately 280 ha. Considering the site’s topography, it was estimated that a High-density Thickened Tailings TSF would require a similar or larger area, and would require numerous discharge towers for the tailings to have adequate flow and fill the impoundment. Therefore, this option was deemed unpractical and was not further evaluated.

### 18.17.8 Dry Stack Option

Dry Stack Design Criteria and Assumptions

The following criteria and assumptions were considered to design and estimate the capital costs and the OPEX for the Dry Stack:

- Dry unit weight of compacted filtered tailings: 1.8 t/m<sup>3</sup>.
- Required capacity: 63,794 kt / 1.8 t/m<sup>3</sup> = 35.44 Mm<sup>3</sup>.
- The stack will have the shape of a truncated pyramid, with 3.5H:1V side slopes.
- The final stack crest will have an area of 10,000 m<sup>2</sup> to allow the operation of equipment at life-end.
- The stack will store compacted, unsaturated tailings, which are expected to be fine and have low permeability. The need for a bottom liner will need to be evaluated in subsequent project phases based on environmental and regulatory considerations. Therefore, the dry stack capital cost is presented with and without a bottom liner for comparison purposes.

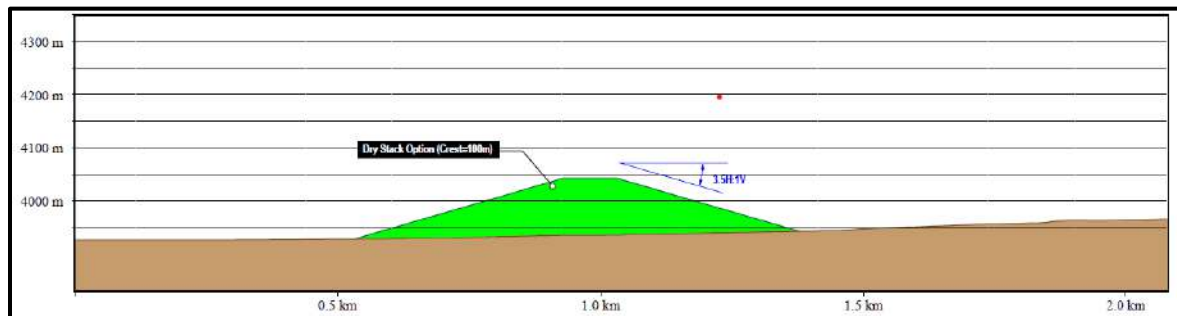
Dry Stack Sizing

The stack was sized considering side slopes of 3.5H:1V and a fixed final crest area of 10,000 m<sup>2</sup>. The stack was sized by iterations to determine the base area and height that provide the required volume of 35.44 Mm<sup>3</sup>.

The results indicated a base area of 831,744 m<sup>2</sup> and a height of 116 m. For those dimensions, the stack volume is 36.03 Mm<sup>3</sup>, which, at a dry unit weight of 1.8 t/m<sup>3</sup>, provides storage for 64.9 Mt of tailings.

It is noted that the shape of the stack in the plan view can be varied to adjust it to operational considerations and perimeter ditches as long as the base area (831,744 m<sup>2</sup>), the final crest area (10,000 m<sup>2</sup>) and the side slopes (3.5H:1V) remain the same **Figure 18-7** shows a plan view assuming a square base, and Figure 18-7 shows a typical stack section.

**Figure 18-7 Dry Stack - Typical Section**



### Dry Stack Cost Assumptions

- Site preparation will consist of clearing, grubbing and proof rolling.
- High-rate thickener CAPEX is not considered because it is included in the plant costs.
- High-rate thickening OPEX is not considered because it is included in the plant costs.
- The Cost of pumping the tailings slurry from the plant to the tailings filtration plant is not considered because it is included in the plant OPEX.
- The filtration plant is assumed to be located adjacent to the dry stack.
- Two 6,000 tpd filter presses will be needed for 10,959 tpd. Formal quotations should be obtained during the next project phase, as the filters have the most significant capital cost.
- Trucks will transport the filter cake from the filtration plant to the stack.
- Water recovered from the filtration will be returned to the plant.
- The tailings will be compacted to a dry unit weight not less than 95% of the Standard Proctor maximum dry unit weight, with moisture content +/- 3% of the Standard Proctor optimum moisture content.
- A specific design would need to be developed during the next project phase for the Dry Stack surface water diversion system. It is assumed that this design will be part of the surface water diversion system for the entire mine and will be included in the mine capital costs.
- The surface water management on the stack consists of ditches, down chutes, energy dissipators and sediment ponds. These water management features will need to be extended during the project life as the stack is raised and considered in the stack OPEX.
- Water collected from the stack seepage pond will be merged with the pipeline from the filtration plant to the process plant.
- Erosion protection of the stack side slopes will consist of waste rock. Only the placement of the waste rock is considered in the OPEX. The cost of waste rock excavation and hauling to the stack is included in the mining costs.

### Dry Stack Capital Costs

As mentioned above, the dry stack cost has been estimated without and with a bottom liner.

The capital cost without and with a bottom liner has been estimated as shown in **Table 18-6**.

**Table 18-6 Dry Stack Option Estimated Capital Cost**

Description	Cost
Geotechnical investigation	\$200,000
Site preparation: 831,744 m <sup>2</sup> x \$0.2/m <sup>2</sup>	\$166,349
Filter plant building	\$2,000,000
Filter presses: 2 filters x \$5 m each installed	\$10,000,000
Pump and pipeline from filters to plant	\$1,000,000
Stack underdrain (finger drains)	\$500,000
Lined seepage pond (downstream of stack)	\$300,000
Pump and pipeline from seepage pond to filtration pipeline	\$400,000
Geotechnical monitoring instrumentation:	\$300,000
<b>Total</b>	<b>\$14,866,349</b>
Additional Options	
Additional Liner - 831,744 m <sup>2</sup> x \$8.0/m <sup>2</sup>	\$6,653,952
<b>Total Capital Cost with Bottom Liner</b>	<b>\$21,520,301</b>

### Dry Stack OPEX

The total OPEX for the 17-year LOM of the Dry Stack Option is estimated in **Table 18-7**.

**Table 18-7 Dry Stack Option Estimated Operating Cost**

Description	Cost
High-rate thickening (included in plant costs)	
Filtration \$2.0/t x 63,794 kt	\$127,588,000
Hauling, spreading and compaction \$3.0/t x 63,794 kt	\$191,382,000
Erosion protection of side slopes: 821,744 m <sup>2</sup> x \$0.5/m <sup>2</sup>	\$410,872
On-stack water management: 17 yr x \$100,000/yr	\$1,700,000
Pumping return water to plant: \$0.1/t of tails x 63,794 kt	\$6,379,400
<b>TOTAL OPEX</b>	<b>\$327,460,272</b>
<b>ANNUAL OPEX</b>	<b>\$19,262,369</b>

### 18.17.9 Costs Summary

The capital costs and the OPEX for the Conventional TSF Option 1 and the Dry Stack option for the 17-year LOM are summarized in **Table 18-8**.

**Table 18-8 Tailings Options Cost Summary**

Option	Capital Cost (\$M)	OPEX (\$M)
Conventional TSF Option 1	\$48.2	\$22.9
Unlined Dry Stack	\$14.9	\$327.5
Lined Dry Stack	\$21.5	\$327.5

The dry stack annual operating cost is \$19.3 m. Therefore, the Dry Stack capital cost plus the Year 1 OPEX is \$34.2 m for the Unlined Dry Stack. The Lined Dry Stack's capital cost plus the Year 1 OPEX is \$40.8 m. In both cases, the capital cost plus the Year 1 OPEX for the Dry Stack is of a similar order of magnitude (+/- 10%) as the capital cost for the Conventional TSF Option 1.

## **18.17.10 Selected TSF Option**

Considering the much more significant OPEX for the dry stack and that the conventional TSF Option 1 utilizes a well-known technology for the project region, it has been selected for this PEA of the Carangas Project.

TSF with conventional slurry tailings located in the southeast part of the Project is included in the Project capital and operating cost estimates in Section 21 and the economics analysis in Section 22.



## 19 MARKET STUDIES AND CONTRACTS

A limited concentrate marketing study was conducted on the potential sale of the silver-lead and zinc/silver concentrates for the Carangas Project. The treatment and refining terms used in the analysis are based on company discussions with refiners and industry standards. These terms are considered reasonable when compared to other published studies.

### 19.1 Markets

The project will generate revenue from the sale of a silver/lead concentrate and a zinc/silver concentrate.

Annual production at Carangas is projected to be approximately 50,900 tpa of silver-lead concentrate (Project LOM total: 826kt) with an average grade of 3,975 g/t silver and 24% lead and 45,900 tpa of zinc/silver concentrate (Project LOM total: 744 kt) with an average grade of 45.8% zinc and 356 g/t silver.

The principal commodities at Carangas are freely traded at widely known prices, ensuring virtually assured prospects for the sale of any production. RPM used the prices shown in Table 19-1 for the chosen mining case.

**Table 19-1 Assigned Commodity Pricing**

	Units	Price
<b>Zinc/Silver Concentrate</b>		
Zn Price	\$/t	2,756
Ag Price	\$/oz	24
<b>Silver/Lead Concentrate</b>		
Pb Price	\$/t	2,094
Ag Price	\$/oz	24

As of this report, the initial contact with commodity buyers indicates that the silver-lead and zinc/silver concentrate market is strong and tight, resulting in low treatment and refining charges. The silver and lead market appears more stable and is expected to remain tight longer than the zinc market.

The market indicates that a silver/lead concentrate grading 3,975 g/t silver and 24% lead (dry) and a zinc/silver concentrate grading 356g/t silver and 45.8% zinc (dry) would be acceptable to most smelting facilities.

The economic analysis completed for this PEA assumed that silver, lead, and zinc production in the form of concentrates could be readily sold without deleterious element penalties. Assumed silver/lead concentrate, zinc/silver concentrate payabilities, treatment, refining and transportation charges are provided in **Table 19-2**. It is assumed that the silver/lead concentrate will be sold on the international market, while the zinc/silver concentrate will be sold to domestic smelters in Bolivia.

**Table 19-2 Concentrate Payables, Treatment, Refining and Transportation Assumptions**

Parameter	Silver/Lead Concentrate		Zinc/Silver Concentrate	
	Silver	Lead	Silver	Zinc
Payable	Pay 96.5% subject to a minimum deduction of 50 g/t.	Pay 95% subject to a minimum deduction of 3%	Deduct 3 ozs and pay 70%	Pay 85% subject to a minimum deduction of 8%
Treatment Charges	N/A	\$100/t	N/A	\$175/t
Refining Charges	\$0.5/oz	N/A	\$0.50/oz	N/A
Transportation Charges	\$120/t Conc		\$35/t Conc	

## 19.2 Royalties

In Bolivia, mining royalties are applied to gross revenue from mineral sales, with silver production incurring a 6% royalty rate on gross revenue, while lead and zinc production incur a 5% royalty. According to Bolivia Law No.535, a 40% discount on the royalty rate applies if mineral products are sold domestically within Bolivia, though this was not applied to the cashflow presented in Section 22.

RPM relied on New Pacific Metals' knowledge of the Bolivian legal framework for the calculation of royalties.

## 19.3 Contracts

No contractual arrangements for mining, concentrate trucking, rail freight, port usage, shipping or smelting and refining are currently in place. Furthermore, no contractual sales arrangements have been made for the silver/lead concentrate or zinc/silver concentrate at this time.

Initial testwork of the two concentrates indicates no penalty elements are expected on the silver/lead and zinc/silver concentrates.

## 20 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

### 20.1 Introduction

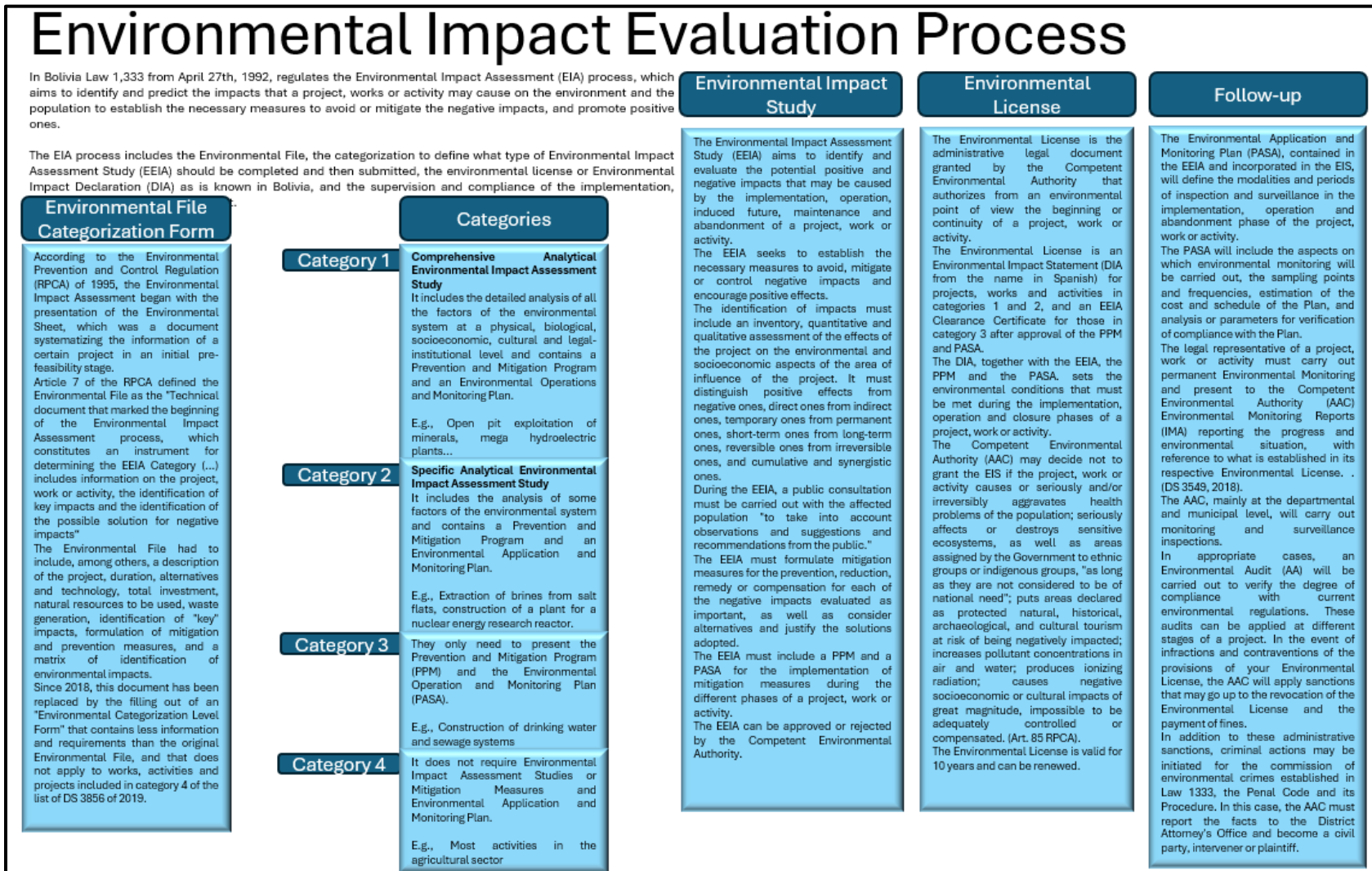
The Carangas project is at an early exploration stage. It has initiated baseline work executed by Tierralta Ingenieria and Ciencias Ambientales (Tierralta). Tierralta conducted field studies on air, gases, noise, sediments/solids, groundwater, water for consumption, waste material, and biological evaluations in Nov 2023 and Feb 2024, which covered the dry and wet seasons, respectively. As the project progresses, it will need to develop an Environmental Impact Study in accordance with current Bolivian legislation. As it stands, the project has the required environmental permits for exploration.

### 20.2 Environmental Legislation and Applicable Project Permitting

Bolivian Law 1,333 from April 27, 1992, regulates the EIA process, which aims to identify and predict the impacts that a project, works, or activity may cause on the environment and the population to establish the necessary measures to avoid or mitigate the negative impacts, and promote positive ones.

The EIA process includes the Environmental File, the categorization to define what type of EIA should be completed and then submitted, the environmental license or Environmental Impact Declaration (DIA) as is known in Bolivia, and the supervision and compliance of the implementation, operation, and closure of the project. **Figure 20-1** summarizes the process.

Figure 20-1 Environmental Impact Evaluation Process



The Carangas Project would be classified as a Category 1. Thus, a Comprehensive Analytical Environmental Impact Assessment Study is expected to be required. This means that the project should initiate baseline work for the different physical, biological, and social components within the area of influence. The project has initiated the physical and biological baselines in Nov 2023 and Feb 2024 to cover the dry and wet seasons. The social baseline has been coordinated with the local community and will be initiated in January 2025.

The identification of impacts must include an inventory and quantitative and qualitative assessment of the project's effects on the environmental and socioeconomic aspects of the area of influence of the project. It must distinguish positive effects from negative ones, direct ones from indirect ones, temporary ones from permanent ones, short-term ones from long-term ones, reversible ones from irreversible ones, and cumulative and synergistic ones.

During the EIA, a public consultation is expected to be carried out with the affected population to take into account the public's observations, suggestions, and recommendations. This will be particularly important for this project given how close the pit is to the town and considering that the pit's area would impact a colonial church and probably a cemetery within the church's footprint based on early archaeological assessments. Given this issue, further assessment of the church/cemetery and other archaeological studies are of significant importance.

The EIA is planned to formulate mitigation measures for the prevention, reduction, remedy, or compensation for each of the negative impacts evaluated as necessary, as well as consider alternatives and justify the solutions adopted.

## 20.3 Environmental Baseline Work to Date

The project has initiated environmental baseline work, and received preliminary data.

The following sections summarize the work completed to date.

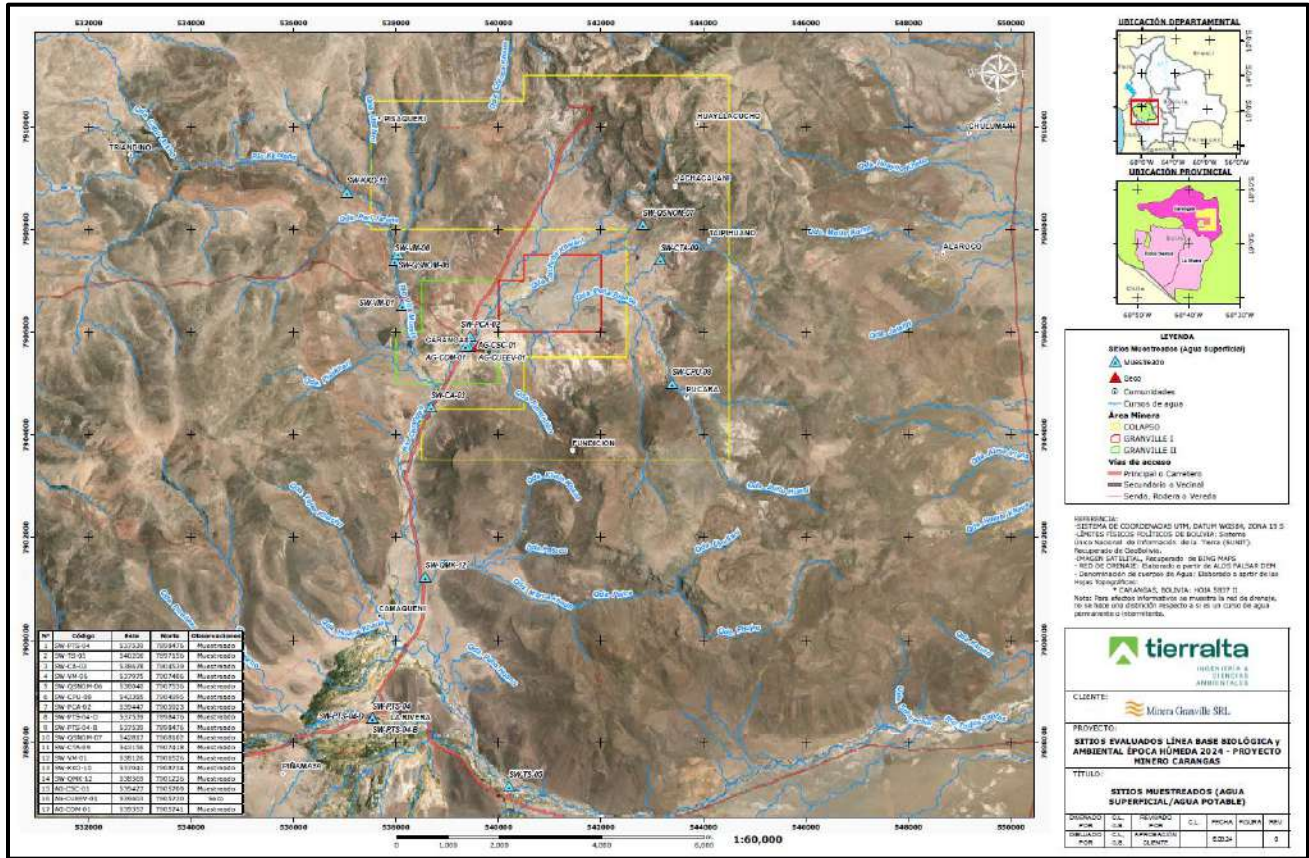
### 20.3.1 Water

#### 20.3.1.1 Surface water

The objective of the baseline work was to categorize the water quality in the project area. To complete this objective, the results were compared with the Bolivian Regulation on water pollution, which has four categories (A, B, C, D), with A being water for human consumption with no previous treatment. This regulation is used to classify bodies of water according to their potential water use. The study area used was the Carangas micro basin and the Todos los Santos basin near La Rivera. See the map shown in **Figure 20-2**. Ten sampling points were chosen for the Carangas micro basin and two for the Todos los Santos basin. **Figure 20-3** shows one of the sampling points.



Figure 20-2 Surface Water Sampling Points



Source: Tierraalta Environmental and Biological Report February 2024

**Figure 20-3** Photograph of a sampling point Carangas micro basin



*Source: Tierralta Environmental and Biological Report February 2024*

The project has conducted two campaigns to cover the dry and wet seasons; water quality varies throughout the year and seasonally. **Table 20-1** illustrates the results of the analysis. Tierralta is in the process of conducting an environmental baseline study, which includes water quality.

Some baseline water quality data exceed the permissible limits set by Bolivian water quality regulations. These values represent natural, pre-existing conditions and do not create a liability for the project. However, documenting and registering these natural conditions thoroughly is essential.





Table 20-1 Physico-chemical parameters

Table with 28 columns: Parameters, Units, and 24 sampling locations (Nov-23 to Feb-24), plus RMCH (A, D, UNIDAD). Rows include pH, Temperature, Conductivity, Solids (Dissolved, Suspended, Total), Chloride, Nitrate, Nitrite, Sulfate, Sulfide, Fluoride, Phosphate, Cyanide, Ammonia, Chloride, Bicarbonate, Total Phosphorus, Total Organic Carbon, Total Hardness, Total Solids, Volatile Solids, Fixed Solids, Total Dissolved Solids, Chlorophyll a, Chlorophyll b, Chlorophyll c, Chlorophyll a+b+c, Total Chlorophyll, and Total Solids.

Source: Tierralta Environmental and Biological Report September 2024

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### 20.3.2 Ambient Air Quality

Seven sampling locations were used (See map in **Figure 20-4**) to measure TSP, PM<sub>10</sub>, CO, SO<sub>2</sub>, NO<sub>x</sub>, and CO<sub>2</sub>, a comparison of the results obtained with the values defined in the Bolivian Regulation on Atmospheric Pollution to determine the air quality in the study area. As presented in **Table 20-2** and **Table 20-3**, the concentrations were all below the permissible limits set by the Bolivian regulations. This sampling was done during the rainy season, and therefore, particularly for dust, one would expect a lower concentration. The company is expected to conduct sampling during the dry season as part of the sampling program

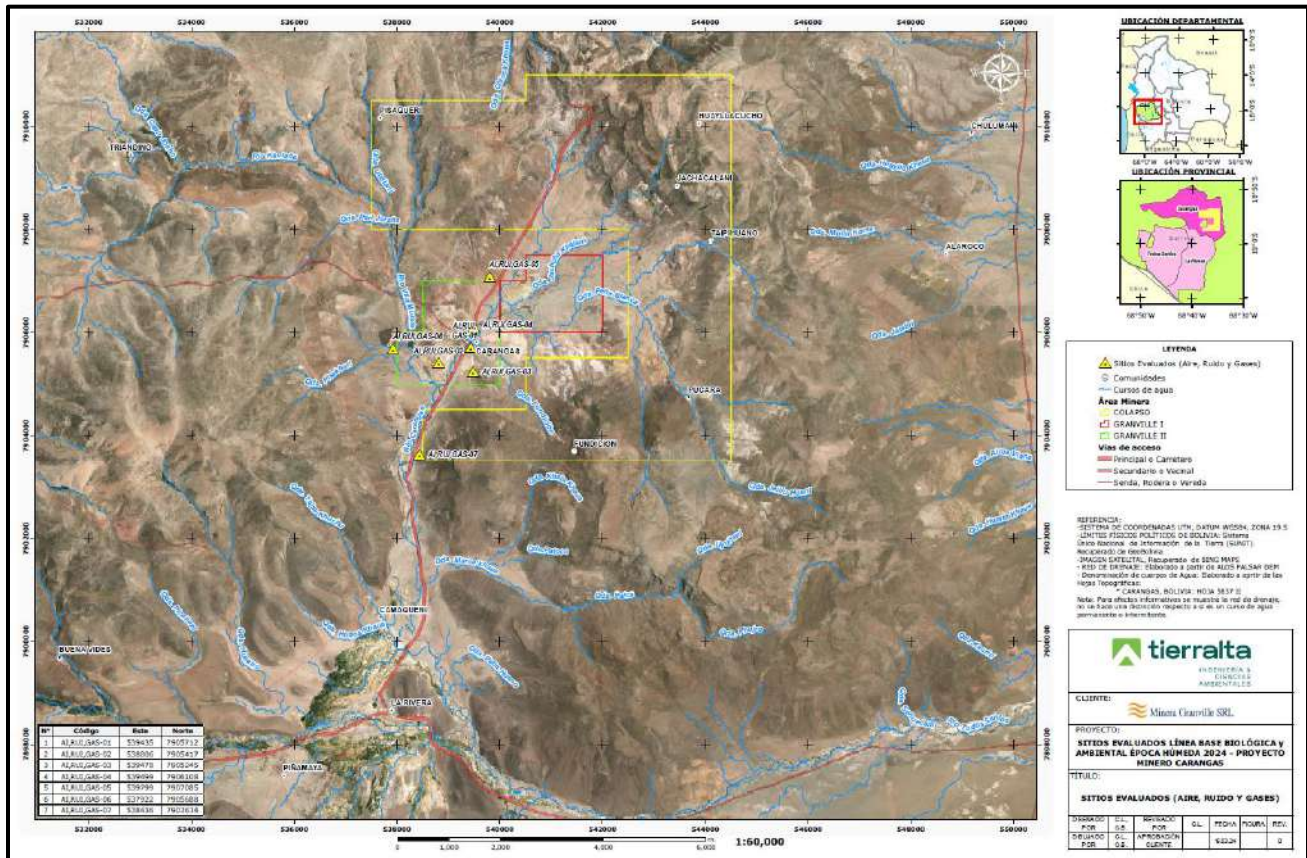
**Table 20-2 Particulate Matter Results**

PARTICULATE		CARANGAS							BOLIVIAN NORM	
Parameters	Unit	AI-01	AI-02	AI-03	AI-04	AI-05	AI-06	AI-07	PERMISSIBLE LIMIT	UNIT
Total Suspended Particulate	mg/m <sup>3</sup>	81.2	14.3	16.5	33.4	33.1	21.2	26.8	260	mg/m <sup>3</sup>
PM <sub>10</sub>	mg/m <sup>3</sup>	60.4	2.4	2.4	26.2	11.0	11,8	14.6	150	mg/m <sup>3</sup>

**Table 20-3 Gases Results**

GASES		CARANGAS							BOLIVIAN NORM	
Parámetros	Unidades	G-01	G-02	G-03	G-04	G-05	G-06	G-07	PERMISSIBLE LIMIT	UNIT
CO	mg/m <sup>3</sup>	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	40	mg/m <sup>3</sup>
SO <sub>2</sub>	µg/m <sup>3</sup>	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	365	µg/m <sup>3</sup>
NO <sub>x</sub>	µg/m <sup>3</sup>	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	400	µg/m <sup>3</sup>
CO <sub>2</sub>	mg/m <sup>3</sup>	0.018	0.018	0.015	.0118	0.009	0.009	0.012		

**Figure 20-4 Sampling Points for Ambient Air, Gases and Noise**



Source: Tierralta Environmental and Biological Report February 2024

### 20.3.3 Noise

For noise, as would be expected, the level is below the maximum limit established on the Bolivian regulation of 68 dB. The highest level measured was 57.6 dB at point RUI-02. Monitoring will continue as the Project progresses.

### 20.3.4 Soil

In Bolivian legislation, no specific regulation establishes maximum permissible limits for soil/sediment; therefore, Tierralta considered Ecuadorian regulations as a reference for the preparation of the Environmental Baseline Study. Eight samples were taken, and only one presented a pH below 6; this sample was from non-cultivated soil. The soil was at least 62% sand and went all the way up to almost 94% sand. The higher sand content implies less organic matter; thus, the soil is not optimal for agricultural purposes or would have a low yield.

## 20.4 Social or Community Requirements

The Carangas project is at an early exploration stage and has obtained the necessary approval from the community to conduct the exploration activities. As of this date, the project has only demographic information. The social baseline has not been completed yet. The social baseline and stakeholder map is planned to start by January 2025; given the footprint of the pit and other project infrastructure, there may be a need for resident relocation, and therefore, a high-quality social baseline will be required to assemble any resettlement plan that may need to be developed.



## 20.5 Mine Closure Requirements

At this stage of the project, a detailed closure plan has not been developed. The Project is expected to prepare a mine closure plan in accordance with the relevant regulations as work on the Project is advanced. An estimate of the closure cost for the financial model is included for the purposes of economic evaluation and is presented in **Table 21-1**.

## 21 CAPITAL AND OPERATING COSTS

RPMGlobal, Moose Mountain Technical Services, and New Pacific Metals teams have prepared the PEA cost estimates discussed in this section. All operating and capital costs have been estimated in real terms, in United States dollars (\$), and are effective as of the date of this report.

### 21.1 Capital Costs

The capital cost estimate for this PEA considers all necessary investments to construct and operate the Carangas project over its LOM. The estimate was derived from a number of sources, including:

- Vendor’s quotations for some of the major equipment,
- Benchmark data,
- Inputs from New Pacific Metals and other similar projects,
- Moose Mountain Technical Services data,
- RPMGlobal data.

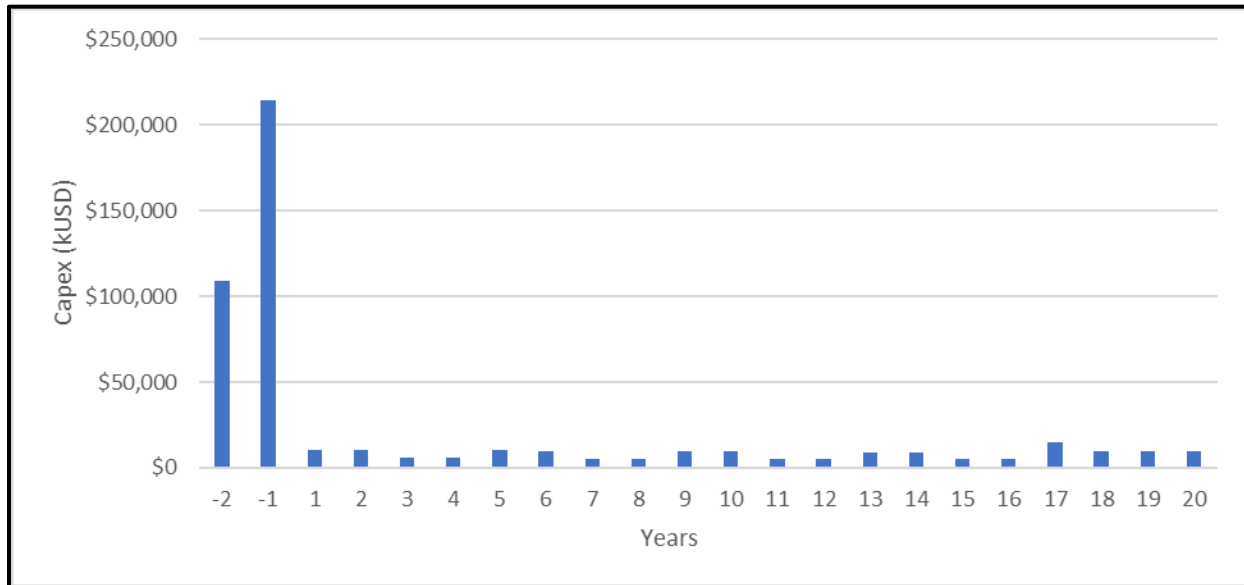
The total project capital cost for Carangas is estimated at \$490 million, comprising an initial capital cost of \$324 million, sustaining capital of \$128 million, and closure capital of \$39 million. Table 21-1-provides a breakdown of the capital costs. Indirect costs and contingency are included in the line items below where applicable.

**Table 21-1 Capital Cost Breakdown**

<b>CAPEX (\$M)</b>	<b>Initial</b>	<b>Sustaining</b>	<b>Closure</b>	<b>Total</b>
Mine Development	43	7		51
Processing Plant	188	32		219
Site Infrastructure	68	23		91
Tailings Storage Facility	14	34		48
Owner’s Cost (Initial Only)	11			11
Closure Cost			39	39
Other Allowance (Sustaining Only)		32		32
<b>Total CAPEX</b>	<b>324</b>	<b>128</b>	<b>39</b>	<b>490</b>

The annual distribution of the capital expenditure is detailed in **Figure 21-1**.

**Figure 21-1 CAPEX Distribution**



### 21.1.1 Mine Development Capital Cost

Mine capital costs have been derived from contractor-supplied unit cost estimates for open pit mining operations applied to the Carangas mine plan and PEA production schedule. Additionally, historical cost data collected by Moose Mountain Technical Services (MMTS) from other South American open-pit mining operations were utilized in the estimate.

Pre-production mine operating costs (i.e., all mine operating costs incurred before mill start-up, covering 19.4 Mt of scheduled waste rock mining) are capitalized and included in the capital cost estimate. Pre-production pit operating costs include drill and blast, load and haul, support, and departmental overhead costs.

The mining contractor will provide the mobile fleet and maintenance facilities required for mining operations, with these costs embedded within the operating cost unit rates. Furthermore, all site development costs for mine operations, including activities such as clearing and grubbing, haul road construction, stockpile preparation, pit dewatering, and crushed rock production, are also capitalized.

The following mine operations infrastructure items are also capitalized:

- Site GPS (global positioning system)
- Mine survey gear and supplies
- Radio communications systems
- Geology, grade control, mine planning and management software licenses
- Geotechnical instrumentation
- Piping for pit dewatering

**Table 21-2** summarizes the Mine Area Capital Cost estimates for the Carangas PEA Project. It is the QP’s opinion that these estimates are reasonable for the location and planned mine development and can be used for a PEA.

**Table 21-2 Mine Area Capital Cost Summary**

Item	\$ M
Capitalized Pre-Production Contractor Mining Costs	39.1
Capitalized Pre-Production Owner Mining Costs	1.7
Site Development Capital Costs	1.8
Mine Operations Infrastructure Capital Costs	0.7
<b>Total Initial Mining Capital</b>	<b>43.3</b>
Site Development Sustaining Capital Costs	7.0
Mine Operations Infrastructure Sustaining Capital Costs	0.4
<b>Total Sustaining Mining Capital</b>	<b>7.4</b>

## 21.1.2 Processing Plant Capital Cost

The capital cost estimate for the processing plant is based on the design criteria outlined in **Section 17**. The cost breakdown is displayed in **Table 21-3**, including all engineering, infrastructure, and equipment associated with the processing plant construction, from the ROM pad to the tailings thickener. The initial capital cost for the Carangas processing plant is estimated at \$187.6 million.

**Table 21-3 Initial Capital Cost - Processing Plant**

Item	\$ M
Civil and Earthwork	24.2
Mechanical	41.7
Structural	10.6
Platework	6.1
Piping	6.7
Electrical and Instrumentation (E&I)	14.9
Misc.	7.6
<b>Total Direct Cost</b>	<b>111.9</b>
Indirect Cost	32.4
Contingency	43.3
<b>Total Processing Plant</b>	<b>187.6</b>

The direct cost estimate for the processing plant capital expenditure was derived from benchmark data and existing quotations from New Pacific Metals. Indirect costs were calculated by applying a 30% factor over the direct costs. A contingency factor of 30% was applied to direct and indirect costs.

The sustaining capital costs for the processing plant were estimated as a percentage of the initial capital cost. A 1% per year factor was applied for the PEA, resulting in an average sustaining capital expenditure of \$1.9 million per year.

## 21.1.3 Site Infrastructure Capital Cost

The infrastructure capital cost includes all supporting services required for mining, processing, and tailings management activities. The initial capital cost associated with infrastructure is estimated at \$67.6 million. A detailed breakdown of the infrastructure initial capital expenditure is provided in **Table 21-4**.

**Table 21-4 Infrastructure Initial Capital Cost**

<b>Item</b>	<b>\$M</b>
Camp Accommodation	4.94
Administrative Buildings	1.48
Laboratories	1.22
Warehouse	1.57
Water	9.50
Power	37.00
Water treatment plants	6.11
Access Roads	2.15
Communications	2.00
Misc.	1.60
<b>Total Infrastructure</b>	<b>67.60</b>

Over half of the infrastructure initial capital cost is attributed to the power supply, as detailed in **Section 18.2**. The second largest cost component is related to water catchment and distribution.

The budgetary quote obtained for the power line included contingency. Other infrastructure costs are allowances, and no additional contingency was added.

For infrastructure sustaining capital, a factor of 2% of the initial cost per year of operation was assumed, equivalent to approximately \$1.35 million per year.

**21.1.4 Tailings Storage Facility Capital Cost**

The TSF capital cost is estimated at \$48.2 million over the life of the mine, which accounts for the five planned stages of tailings dam raises. A detailed breakdown by stage is provided in **Table 21-5**.

**Table 21-5 Tailings Management Capital Cost Breakdown**

<b>Stage</b>	<b>\$M</b>
#1 (2 years)	14.48
#2 (4 years)	8.99
#3 (4 years)	9.05
#4 (4 years)	8.49
#5 (3 years)	7.23
<b>Total Tailings CAPEX</b>	<b>48.2</b>

The tailings capital cost estimate encompasses all necessary investments to construct and operate the tailings storage facility. This includes expenditures related to studies, geotechnical preparation, earthworks, embankment rockfill, seepage pond construction, and other essential components.

A 15% contingency was included for initial and sustaining TSF-related costs.



## 21.1.5 Owner's Capital Cost

Owner's costs presented in this report cover land use compensation for the use of the communities' land for the LOM of the operation and allowance for other community projects, as well as the necessary studies for the project development. The capital cost for this item is estimated at \$11 million.

## 21.2 Operating Costs

The Carangas operating cost estimates are presented in U.S. Dollars (\$) and expressed in real terms. These costs are current as of the date of this report. A summary of the project operating costs is provided in **Table 21-6**.

**Table 21-6 Operating Cost Breakdown**

OPEX	Unit Cost – LOM Average (\$/t ore)
Mine	6.02*
Processing Plant	8.66
Tailings Management	0.36
G&A	3.56
<b>Total OPEX</b>	<b>18.6</b>

\*The mining operating cost per tonne of mill feed.

### 21.2.1 Mine Operating Cost Estimates

The mine operating cost estimates for the Carangas project are based on a mining contractor's quotation received in Q2 of 2024 and applied to the Carangas PEA mine production schedule.

The contractor provided the following unit rates for mining operations at Carangas, which have been directly applied to the scheduled material movement:

- Drilling and Blasting = \$0.66/t
- Loading and Hauling = \$1.35/t
- Incremental Haul Distance per km, over 2 km = \$0.13/t
- Incremental Vertical Haul Distance per 10 m = \$0.013/t
- Rehandle Loading and Hauling = \$1.29/t

The contractor's unit rates incorporate a diesel price input of \$0.53/L, reflecting the current subsidy for mine operations in Bolivia.

Haulage profiles for all material sources to all destinations have been developed for each year of the mine production schedule. The annual average haul distances and vertical elevation changes have been measured and applied to the relevant incremental unit costs.

In addition, the operating cost estimate includes staff salaries and departmental overheads for an owner-employed team, covering roles such as project manager, contracts manager, technical services manager, geologists, surveyors, mine engineers, and a geotechnical engineer.

The estimated average unit mine operating costs are as follows:

- During the Pre-Production Period: \$2.11/t
  - These costs are capitalized and included in the capital cost estimate for mining 19.4 Mt of rock.

- From Years 1-13: \$2.36/t
  - This corresponds to a total cost of \$371M to move 162 Mt of rock.
- From Years 14-17 (Stockpile Rehandle Period): \$1.38/t
  - This corresponds to a total cost of \$18M to rehandle 13 Mt of stockpiled low-grade and oxide ore to the mill.

The total operating cost per tonne of mill feed is estimated at \$6.02/t milled.

It is the QP's opinion that the estimates are reasonable for the location and planned mine operation activities and can be utilized for a PEA.

## 21.2.2 Processing Operating Cost Estimates

Processing operating costs are estimated to average \$8.66/t of ore over the life of mine. A detailed breakdown of these costs is provided in **Table 21-7**.

**Table 21-7 Processing Operating Cost Breakdown**

Processing Operating Cost	Unit Cost – LOM Average (\$/t)
Personnel	0.92
Reagent & Consumables	5.03
Power	1.77
Maintenance	0.60
Water	0.23
Other	0.11
<b>Total Processing Plant</b>	<b>8.66</b>

The processing plant cost estimate is based on preliminary calculations, including estimates for consumptions and quotations for reagents, power, and consumables. The personnel cost estimate was derived using the average Bolivian salaries as of the date of this report.

The prices for reagents and consumables used in the estimate are detailed in **Table 21-8**.

**Table 21-8 Key Reagents and Consumables Price**

Reagent / Consumable	Price (\$/t)
Zinc Sulphate	1,300
Copper Sulphate	3,050
Lime	348
Antiscalant	4,300
Flocculant	6,100
Collector AP3418A	9,100
Collector Aero 404	4,100
Collector SIPX	2,200
Frother MIBC	3,600
Frother W31	3,600
Grinding Ball 125 mm	1,028
Grinding Ball 50 mm	1,108

The power cost estimate is based on an average consumption of 133,505 MWh per year, with an associated cost of \$53/MWh. This cost is derived from a quotation provided by the utility company.

Water costs were calculated based on an annual makeup water consumption of 2,139,282 m<sup>3</sup> per year, at an average cost of \$0.40 /m<sup>3</sup>.

Additional costs, including maintenance, assaying, and services, have been estimated using benchmark data.

The workforce cost estimate distinguishes between salaried and hourly workers. RPM relied on New Pacific Metals for information regarding Bolivian legislation applicable to the Carangas project workforce.

### 21.2.3 Tailings Management Operating Cost Estimates

The operating costs for tailings management were calculated based on the consumables, services, and other costs associated with the operation of the tailings facility. **Table 21-9** provides a breakdown of the tailings management operating costs for each stage.

**Table 21-9 Tailings Management Operating Cost**

Stage	\$ M
#1 (2 years)	2.70
#2 (4 years)	5.35
#3 (4 years)	5.35
#4 (4 years)	5.35
#5 (3 years)	4.11
<b>Total Tailings OPEX</b>	<b>22.90</b>

The tailings management operating cost averages \$0.36 /t ore over the project life of the mine.

### 21.2.4 G&A Operating Cost Estimates

The G&A cost estimate was developed based on the specific characteristics of the project and benchmark data from similar projects. A summary of the G&A operating cost estimate is provided in **Table 21-10**.

**Table 21-10 G&A Operating Cost Estimate**

G&A	\$ M / year
Camp Site Costs	9.13
Flights and land transportation	0.50
Land compensation	1.00
General Operation Management and Personnel	1.50
Mine Operation Insurance	1.00
Others	0.60
<b>Total G&amp;A</b>	<b>13.48</b>
<b>G&amp;A Unit Cost (\$/t ore)</b>	<b>3.56</b>

## 22 ECONOMIC ANALYSIS

A preliminary economics analysis for the Project was completed in connection with the PEA study. The results of the PEA are preliminary in nature and are intended to provide an initial assessment of the Project's economic potential and development options. The PEA mine schedule and economic assessment includes numerous assumptions and is based on both Indicated and Inferred Mineral Resources.

Inferred resources are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves, and there is no certainty that the preliminary economic assessments described herein will be achieved or that the PEA results will be realized. The estimate of Mineral Resources may be materially affected by geology, environmental, permitting, legal, title, socio-political, marketing or other relevant issues. Mineral resources are not Mineral Reserves and do not have demonstrated economic viability. Additional exploration will be required to potentially upgrade the classification of the Inferred Mineral Resources to be considered in future advanced studies. Mineral Resources are constrained by an optimized pit shell at a metal price of \$23.00/oz Ag, \$1,900.00/oz Au, \$0.95/lb Pb, \$1.25/lb Zn, recovery of 90% Ag, 98% Au, 83% Pb, 58% Zn and Cut-off grade of 40 g/t AgEq. Assumptions made to derive a cut-off grade included mining costs, processing costs, and recoveries were obtained from comparable industry situations.

### 22.1 Methodology

The Discounted Cash Flow methodology was employed to calculate the project's Net Present Value, Internal Rate of Return, and Payback period. The cash flow estimates are unlevered and calculated at the Carangas asset level. This economic analysis does not incorporate any corporate-level considerations from New Pacific Metals or any of its subsidiaries.

The NPV was calculated using a 5% discount rate, which is a standard real discount rate for evaluating precious metals projects. The cash flows were discounted from the second half of year -2.

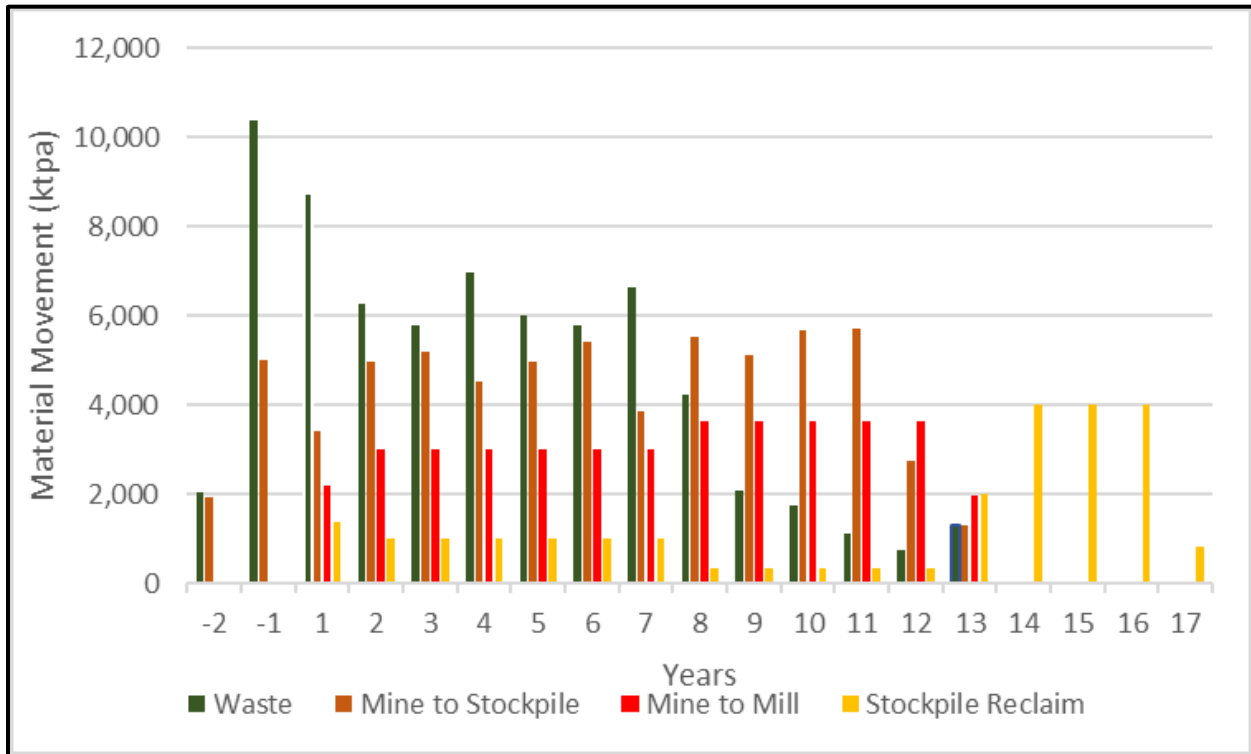
No inflation adjustments were applied to the cash flow model.

The assumptions used for the economic model are described next.

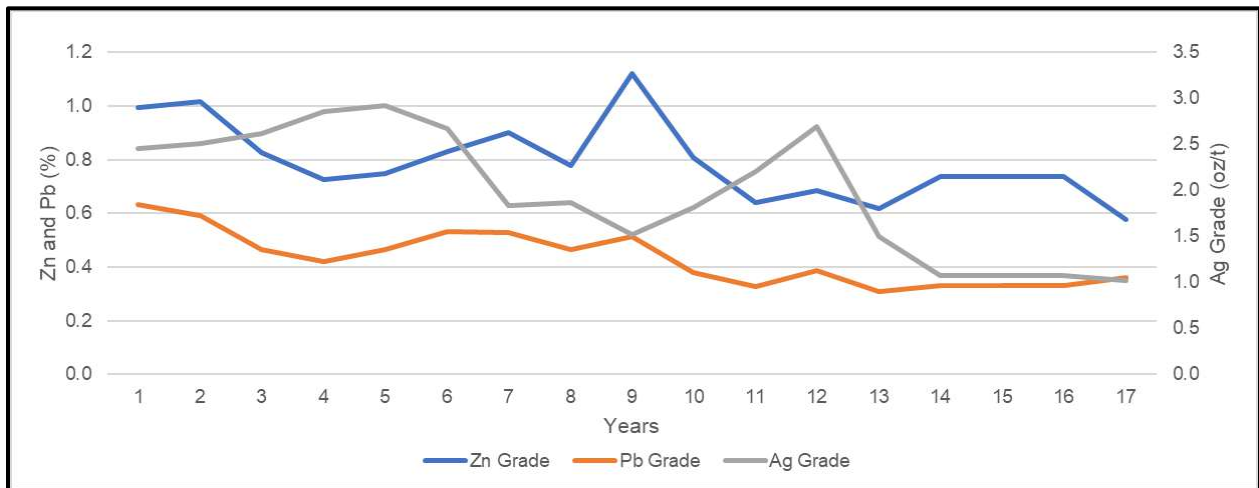
#### 22.1.1 Physicals

The production schedule in the discounted cash flow model is based on the mine plan discussed on **Table 16-6**. The mine plan material movement and head grades are shown in **Figure 22-1** and **Figure 22-2**, respectively.

**Figure 22-1 Material Movement**



**Figure 22-2 Head Grades**



The metallurgical assumptions used for the preliminary economic analysis are based on the metallurgical testwork results discussed in **Section 13**. Metal recoveries for the 100% Oxidized material, 100% Transitional material and 100% Sulfide material were derived based on their respective recoveries from the rougher flotation and then calibrated against the locked cycle flotation results of the life-of-mine composite sample, which consisted of 12.5% Oxidized material, 2.5% Transitional and 85.0% Sulfide material. It was assumed that metal recoveries, lead content in the silver/lead concentrate and zinc content in the zinc/silver concentrate were independent of the head grades.



**Table 22-1** displays the LOM average metallurgical assumptions used for the preliminary economic analysis. The assumptions are consistent over the life-of-mine and are the same as those in the Process Design Criteria.

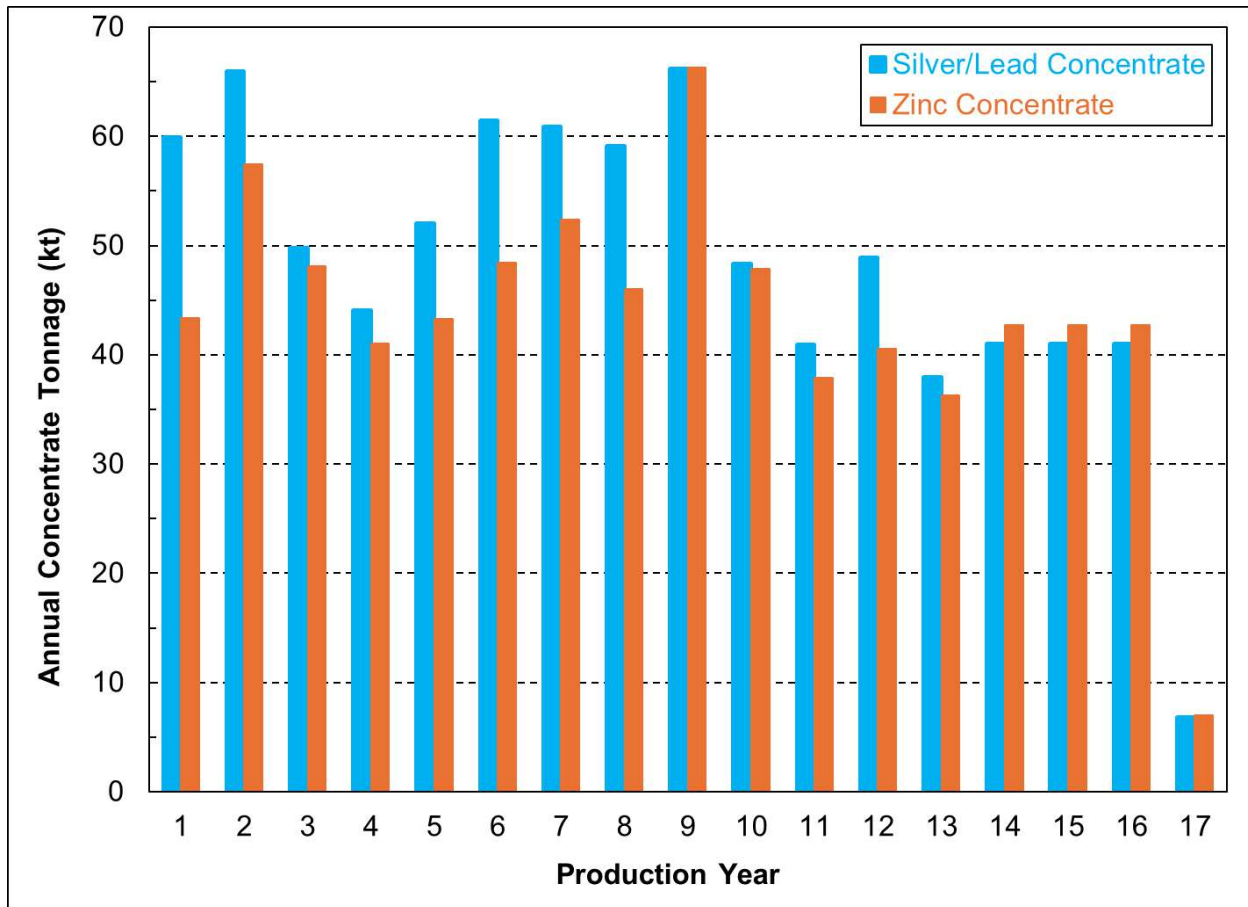
**Table 22-1 LOM Average Metallurgical Assumptions**

	Recovery			Concentrate Grade		
	Zn (%)	Pb (%)	Ag (%)	Zn (%)	Pb (%)	Ag <sup>1</sup> (g/t)
<b>Lead/Silver Concentrate</b>		70.6	80.8		24.0	3,975
<b>Zinc/Silver Concentrate</b>	65.9		6.5	45.8		356

(1) Ag grades based on LOM average head grades

The project will produce approximately 744 kt of Zinc/Silver Concentrate and 826 kt of Silver/Lead Concentrate over the 16.2 years life of mine. Annual concentrate production is shown in **Figure 22-3**.

**Figure 22-3 Concentrate Production**



On a metal basis, the project will produce approximately 7,035 koz of silver per year, or 114.0 Moz, over the life of mine. The majority of the silver reports to the silver/lead concentrate, as shown in **Table 22-1**.

Zinc and lead metal productions are 21 kt zinc/year on average (341 kt in total over the life of mine) and 12 kt lead/year on average (198 kt in total over the life of mine).

## 22.1.2 Revenue

CIF commercial terms were considered.

The following payables were applied:

- Zinc/Silver Concentrate:
  - Zinc payable: 85% of the zinc content, subject to a minimum deduction of 8%.
  - Silver payable: Deduct three ozs and pay 70% of the Ag content
- Lead/Silver Concentrate:
  - Lead payable: 95% of the lead content, subject to a minimum deduction of 3%.
  - Silver payable: 96.5% of the silver content, subject to a minimum deduction of 1.61 oz

**Table 22-2** displays the treatment charges and refining charges considered for the financial model. The concentrate pricing terms are based on preliminary quotations from Bolivian traders provided to the New Pacific team and, subsequently, RPM. It is assumed that the silver/lead concentrate will be sold on the international market, while the zinc/silver concentrate will be sold to domestic smelters in Bolivia.

**Table 22-2 Concentrate Pricing Terms**

	Pricing Terms		
	Treatment Charge	Ag Refining Charge	Logistic
Silver/Lead Concentrate	\$100 /t Conc.	\$0.5 /oz	\$120
Zinc/Silver Concentrate	\$175 /t Conc.	\$0.5 /oz	\$35

The metal prices used are shown in **Table 22-3**.

**Table 22-3 Metal Prices**

Zinc (\$/t)	2,756
Lead (\$/t)	2,094
Silver (\$/oz)	24

Considering the assumptions discussed above, the zinc/silver and silver/lead concentrate prices would average \$971 and \$3,118 /t concentrate, respectively. Most of the Silver/lead concentrate value is due to the high silver content.

## 22.1.3 Operating and Capital Costs

Operating and capital costs used in the financial model are discussed in **Section 21**.

## 22.1.4 Taxation and Royalties

A regular Bolivian corporate income tax rate of 25% is applied. As a mining property, the Project is subject to an additional tax of 12.5%. A tax schedule was prepared for corporate income tax based on information provided by New Pacific. No tax credits have been applied.

## 22.2 Economic Analysis

The economic analysis summary is displayed in **Table 22-4**.

**Table 22-4 Financial Model Economic Analysis Summary**  
(page 1 production profile, page 2 net smelter return, income statement and discounted cashflow)

Op. Year					-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Days in Period					365	366	365	365	365	366	365	365	365	366	365	365	365	366	365	365	365	366	365	365	365	366	
<b>Production Profile</b>				<b>LOM</b>		<b>Average</b>																					
Mine life	16.2																										
<b>Material Movement</b>																											
Mill Feed (Zn/Pb/Ag)	kt	64,438	3,975	0	0	3,600	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	836	0	0	0
Mine to Mill	kt	40,438	2,495	0	0	2,200	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,650	3,650	3,650	3,650	3,650	1,986	0	0	0	0	0	0	0	0
Mine to Stockpile	kt	65,411	4,035	1,946	4,997	3,438	4,967	5,210	4,517	4,957	5,405	3,879	5,511	5,125	5,681	5,705	2,744	1,329	0	0	0	0	0	0	0	0	
Stockpile Reclaim	kt	24,000	1,481	0	0	1,400	1,000	1,000	1,000	1,000	1,000	1,000	350	350	350	350	350	2,014	4,000	4,000	4,000	4,000	836	0	0	0	
Waste	kt	69,886	4,312	2,056	10,363	8,736	6,283	5,790	6,983	5,993	5,795	6,621	4,221	2,074	1,764	1,140	750	1,318	0	0	0	0	0	0	0	0	
Total Material Movement	kt	175,735	10,842	4,002	15,360	14,374	14,250	14,000	14,500	13,950	14,200	13,500	13,382	10,849	11,095	10,494	7,145	4,633	0	0	0	0	0	0	0	0	
<b>Zn/Pb/Ag Mill</b>																											
Throughput (Zn/Pb/Ag)	kt	64,438	3,975	0	0	3,600	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	836	0	0	0
Zn Grade	%	0.80	0.80	0	0	0.99	1.02	0.83	0.73	0.75	0.83	0.90	0.78	1.12	0.81	0.64	0.68	0.62	0.74	0.74	0.74	0.74	0.58	0	0	0	
Pb Grade	%	0.44	0.44	0	0	0.63	0.59	0.46	0.42	0.47	0.53	0.53	0.47	0.51	0.38	0.33	0.39	0.31	0.33	0.33	0.33	0.33	0.36	0	0	0	
Ag Grade (U and M Zones)	g/t	63	63	0	0	76	78	81	89	91	83	57	58	47	57	69	84	47	33	33	33	32	0	0	0		
Ag Grade (U and M)	oz/t	2.0	2.0	0	0	2.5	2.5	2.6	2.9	2.9	2.7	1.8	1.9	1.5	1.8	2.2	2.7	1.5	1.1	1.1	1.1	1.0	0	0	0		
<b>Contained metal</b>																											
Zn	kt	517	32	0	0	36	41	33	29	30	33	36	31	45	32	26	27	25	29	29	29	29	5	0	0	0	
Pb	kt	281	17	0	0	23	24	19	17	19	21	21	19	21	15	13	15	12	13	13	13	3	0	0	0		
Ag	kg	40,621	2,506	0	0	2,744	3,114	3,257	3,550	3,638	3,320	2,283	2,317	1,894	2,262	2,748	3,353	1,868	1,336	1,336	1,336	266	0	0	0		
Ag	koz	1,305.979	81	0	0	88	100	105	114	117	107	73	75	61	73	88	108	60	43	43	43	9	0	0	0		
<b>Recoveries</b>																											
Zn	%	65.9	65.9	0	0	55.4	64.7	66.6	64.6	66.1	66.6	66.6	67.7	67.8	67.8	67.8	67.8	67.1	66.4	66.4	66.4	66.4	66.4	0	0	0	
Pb	%	70.6	70.6	0	0	63.2	67.0	64.4	63.2	66.8	69.3	69.2	76.0	77.5	76.1	75.2	76.2	74.2	74.1	74.1	74.1	54.8	0	0	0		
Ag->Zn	%	6.5	6.5	0	0	12.8	8.1	6.2	6.3	5.9	6.2	5.7	5.6	5.5	5.5	5.5	5.7	6.2	6.2	6.2	6.2	6.2	0	0	0		
Ag->Pb	%	80.8	80.8	0	0	73.4	78.3	80.2	80.1	80.5	80.2	80.6	82.5	83.0	83.0	83.1	83.3	82.8	81.9	81.9	81.9	78.8	0	0	0		
<b>Concentrate Grade</b>																											
Zn	%	45.8	45.8	0	0	45.8	45.8	45.8	45.8	45.8	45.8	45.8	45.8	45.8	45.8	45.8	45.8	45.8	45.8	45.8	45.8	45.8	45.8	0	0	0	
Pb	%	24	24	0	0	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	0	0	0	
Ag->Zn	g/t	356	356	0	0	811	438	419	547	495	425	250	283	157	260	399	456	295	195	195	195	236	0	0	0		
Ag->Pb	g/t	3,975	3,975	0	0	3,361	3,696	5,246	6,449	5,630	4,332	3,025	3,232	2,374	3,882	5,574	5,717	4,072	2,667	2,667	2,667	3,041	0	0	0		
Ag->Zn	oz/t	11	11	0	0	26	14	13	18	16	14	8	9	5	8	13	15	10	6	6	6	8	0	0	0		
Ag->Pb	oz/t	128	128	0	0	108	119	169	207	181	139	97	104	76	125	179	184	131	86	86	86	98	0	0	0		
<b>Products</b>																											
Zn Concentrate	kt	744	46	0	0	43.4	57	48	41	43	48	52	46	66	48	38	41	36	43	43	43	7	0	0	0		
Pb Concentrate	kt	826	51	0	0	60	66	50	44	52	61	61	59	66	48	41	49	38	41	41	41	7	0	0	0		
<b>Metal Production</b>																											
Zn	kt	341	21	0	0	20	26	22	19	20	22	24	21	30	22	17	19	17	20	20	20	3	0	0	0		
Pb	kt	198	12	0	0	14	16	12	11	12	15	15	14	16	12	10	12	9	10	10	10	2	0	0	0		
Ag -> Zn	koz	8,514	525	0	0	1,130	808	647	722	689	661	421	419	335	401	487	594	345	267	267	267	53	0	0	0		
Ag -> Pb	koz	105,514	6,510	0	0	6,477	7,838	8,401	9,141	9,418	8,563	5,919	6,143	5,053	6,036	7,342	8,986	4,970	3,518	3,518	3,518	672	0	0	0		
Total Ag	koz	114,028	7,035	0	0	7,607	8,646	9,048	9,862	10,107	9,224	6,341	6,561	5,388	6,437	7,829	9,580	5,315	3,786	3,786	3,786	726	0	0	0		
<b>Payable Production</b>																											
Zn	kt	281	17	0	0	16	22	18	16	16	18	20	17	25	18	14	15	14	16	16	16	3	0	0	0		
Pb	kt	173	11	0	0	13	14	10	9	11	13	13	12	14	10	9	10	8	9	9	9	1	0	0	0		
Total Ag	koz	106,218	6,553	0	0	6,951	8,009	8,459	9,240	9,480	8,624	5,897	6,124	4,972	6,005	7,346	9,002	4,961	3,493	3,493	3,493	671	0	0	0		
AgEq	koz	153,640	9,479	0	0	9,931	11,711	11,458	11,829	12,312	11,852	9,286	9,203	9,062	8,970	9,743	11,658	7,231	6,097	6,097	6,097	1,102	0	0	0		



Considering the Project on a stand-alone basis, the undiscounted pre-tax cash flow totals \$1,447 million over the mine life, and post-tax payback occurs 3.2 years from the start of production.

The economic analysis results are shown in **Table 22-5**.

**Table 22-5 Economic Analysis Results**

	Economic Analysis Results
Post Tax NPV @ 5% (\$M)	501
IRR (%)	26
Payback (years)	3.2

RPM considered the 5% discount rate based on New Pacific Metals input, although it observes that this could be aggressive considering the Bolivia risk rate and exposure to other non-precious metals price volatility. A sensitivity analysis was completed, including the discount rate effect.

## 22.3 Sensitivity Analysis

A sensitivity analysis was conducted to evaluate the influence of variations in LOM capital and operating costs. This analysis assessed the impact on post-tax NPV, applying a 5% annual discount rate, and on IRR by adjusting mining cost, process cost, and LOM capex, respectively, by +/-10% to +/-20%. The results of the cost sensitivity analysis are summarized in **Table 22-6**.

**Table 22-6 NPV and IRR Sensitivity Analysis by Input Cost**

Sensitivity Items	Cost Sensitivity				
	-20%	-10%	100% (base case)	+10%	+20%
Mining Cost (Post-tax NPV \$M / IRP)	534/27%	518/26%	501/26%	485/25%	468/25%
Processing Cost (Post-tax NPV \$M / IRP)	563/28%	532/27%	501/26%	470/25%	439/24%
Life-of-Mine Capex (Post-tax NPV \$M / IRP)	558/32%	530/29%	501/26%	473/23%	444/21%

Another sensitivity analysis was conducted for the silver metal price. The change in NPV and IRR is presented in **Table 22-7**.

**Table 22-7 Sensitivity analysis of silver prices**

Silver Price (US\$/oz)	Silver Price Sensitivity				
	\$18.00	\$21.00	\$24.00 (base case)	\$27.00	\$30.00
Result (Post-tax NPV \$M / IRP)	254/17%	378/22%	501/26%	625/30%	748/34%

An additional sensitivity analysis considering different discount rates is shown in **Table 22-8**

**Table 22-8 Sensitivity to Discount Rate**

Discount Rates (%)	5%	8%	10%	12%
Post Tax NPV @ (\$M)	501	359	285	224

The sensitivity analysis results indicate that the post-tax NPV remains positive across the evaluated sensitivity range. The NPV is highly sensitive to variations in silver price and discount rate while showing moderate sensitivity to changes in capital and operating costs.



## 23 ADJACENT PROPERTIES

The Carangas Project is advantageously situated in proximity to several notable mining properties, which provide geological context and potential for regional infrastructure synergies:

- **San Cristóbal Mine** (200 km SE): One of Bolivia's largest mining operations, the San Cristóbal Mine is operated by Sumitomo Corporation, producing significant quantities of silver, zinc, and lead. Its large-scale infrastructure serves as a model of high-efficiency mining within the region, setting industry benchmarks for extraction and processing.
- **Bolívar Mine** (NE): Operated by the Bolivian Mining Corporation (Comibol), the Bolívar Mine is a longstanding polymetallic mining site that yields zinc, lead, and silver. This operation has a history of consistent production and highlights the potential for similar polymetallic resources in the Carangas vicinity.
- **Poopó Mining District** (E): Known for its tin and silver deposits, the Poopó district comprises a mix of small-scale and artisanal mining operations. The ongoing activity in Poopó reflects continued interest and potential in the region, with opportunities for conventional and artisanal resource extraction.
- **Huanuni Mine** (150 km E): Recognized as one of the world's most prominent tin (cassiterite) mines, the Huanuni Mine, also managed by Comibol, additionally yields silver as a by-product. This operation further emphasizes the mineral diversity in the Oruro region.

### Strategic Implications for the Carangas Project

The Carangas Project benefits from its location within a well-established mining ecosystem. Neighbouring operations demonstrate a strong track record of polymetallic production, infrastructure development, and market viability, indicating a significant upside for Carangas. These adjacent properties provide benchmarks for the extraction, processing, and logistical frameworks necessary to advance the Carangas Project from exploration to development.

### Conclusion

Given the Carangas Project's favourable positioning in a historically productive mining region, the project shows substantial promise for a high-value, polymetallic mining operation. The proximal infrastructure and shared resource knowledge within the Oruro Department add critical support to the economic and technical viability of the Carangas Project, positioning it as a strong candidate for further advancement through the PEA stage.

## 24 OTHER RELEVANT DATA AND INFORMATION

No additional information or explanation is necessary to make this Technical Report understandable and not misleading.

### 24.1 Alternate Project Development Plan

#### 24.1.1 Introduction

A secondary project development plan has been considered for the Carangas deposit. This alternate plan envisions a higher throughput mill and larger development footprint to exploit the zinc zone below the PEA mine plan open pit and access and process the Lower Gold Zone of the deposit.

This Lower Gold Zone requires an alternate metallurgical process, developing and alternate saleable product, and so a secondary mill scenario is also planned.

The minable quantities presented in this section should not be added to the mine plan presented elsewhere in this Report.

#### 24.1.2 Mining

The alternate production plan targets the Lower Gold Zone area of the deposit. All mine planning design inputs described in **Section 16.2** are still applied. The pit shell target is the 0.80 PF shell described in **Section 16.3.1** and **Figure 16-3**.

A series of open pit designs have been completed to target this larger project pit shell. All pit design inputs described in **Section 16.4** apply to these pits. **Figure 24-1** and **Figure 24-2** show the plan and section views of these larger pit designs accessing the Lower Gold Zone.

**Table 16-1** summarizes the sub-set of Mineral Resources contained in the alternate larger pit designs. Measured, Indicated and Inferred Class resources are included in the mill feed contents. An NSR cutoff grade of \$13.50/t is chosen, which covers payment for processing, G&A, and low-grade stockpile reclaim costs.

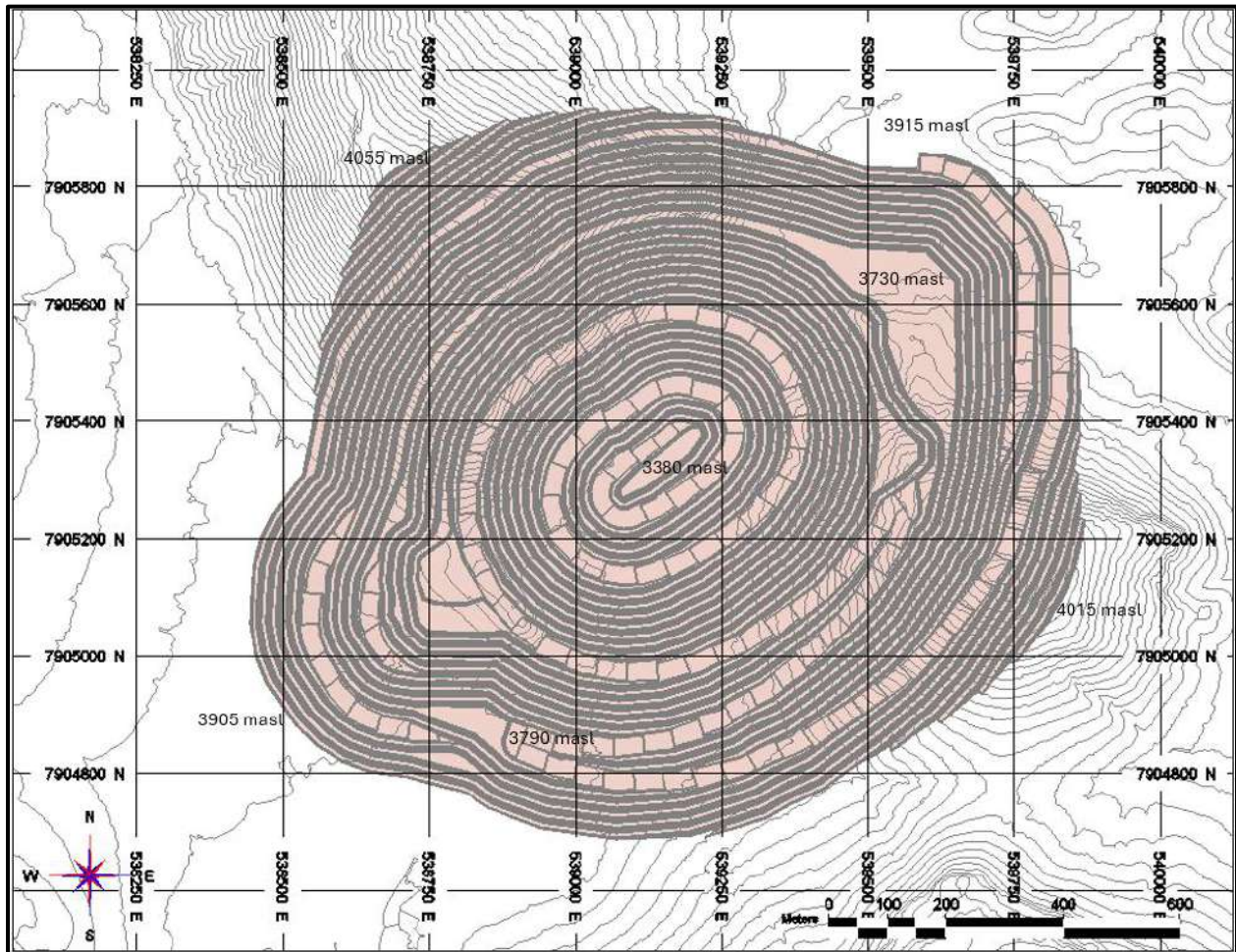
**Table 24-1 Alternate Pit Design Contents**

Factor	Value
Silver Zone Mill Feed	196.0 Mt
Mill Feed NSR	\$31.9/t
Mill Feed Ag Grade	37 g/t
Mill Feed Pb Grade	0.35 %
Mill Feed Zn Grade	0.65 %
Gold Zone Mill Feed	51.3 Mt
Mill Feed NSR Grade	\$47.3/t
Mill Feed Ag Grade	12 g/t
Mill Feed Au Grade	0.75 g/t
Waste Rock	367.6 Mt
Waste: Mill Feed Ratio	1.5

**Notes:**

- (1) The Alternate mine plan Mill Feed estimates are a subset of the August 25, 2023, Mineral Resource estimates and are based on open pit mine engineering and technical information developed at a Scoping level for the Carangas deposit.
- (2) PEA Mine Plan and Mill Feed estimates are mined tonnes and grade. The reference point is the primary crusher. Mill Feed tonnages and grades include open pit mining method modifying factors, such as dilution and recovery.
- (3) Net Smelter Prices (NSP) and metallurgical recoveries are used to define the cutoff grade. NSPs include market price assumptions of \$23.0/oz Ag; \$2,094/t Pb, \$2,756/t Zn. Various smelter and refining terms, offsite costs, and a 6% royalty derive NSPs of \$20.5/oz Ag, \$1,418/t Pb, and \$1,630/t Zn. Metallurgical recoveries of 90% Ag, 83% Pb, and 58% Zn are applied.
- (4) The chosen cut-off grade covers total operating costs of \$13.50/t, which exceeds estimated PEA processing and G&A cost estimates.
- (5) Estimates have been rounded and may result in summation differences.

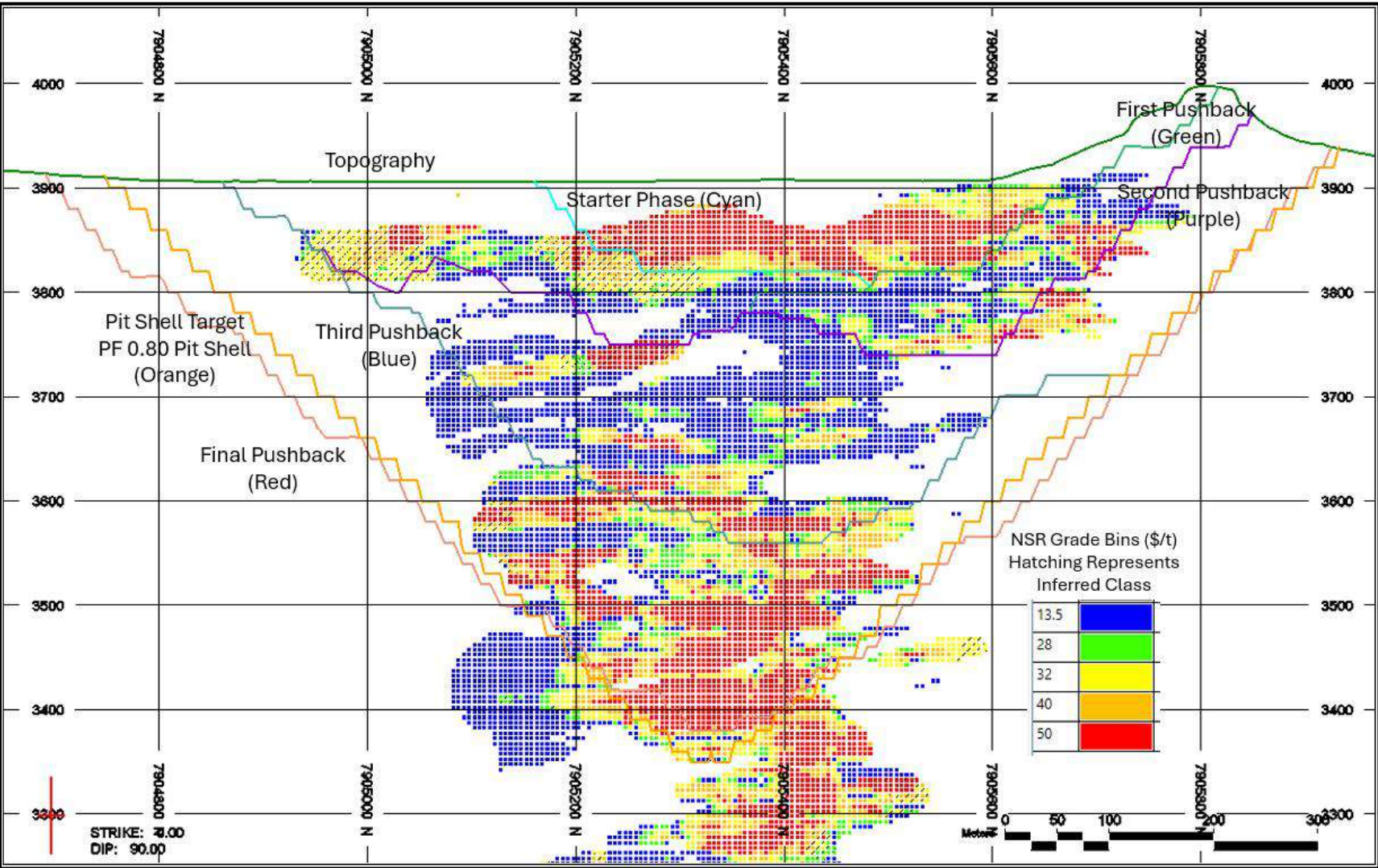
Figure 24-1 Alternate Open Pit Design, P625



Source: Moose Mountain, 2024



Figure 24-2 Alternate Pit Designs, NS Section View, 593150E



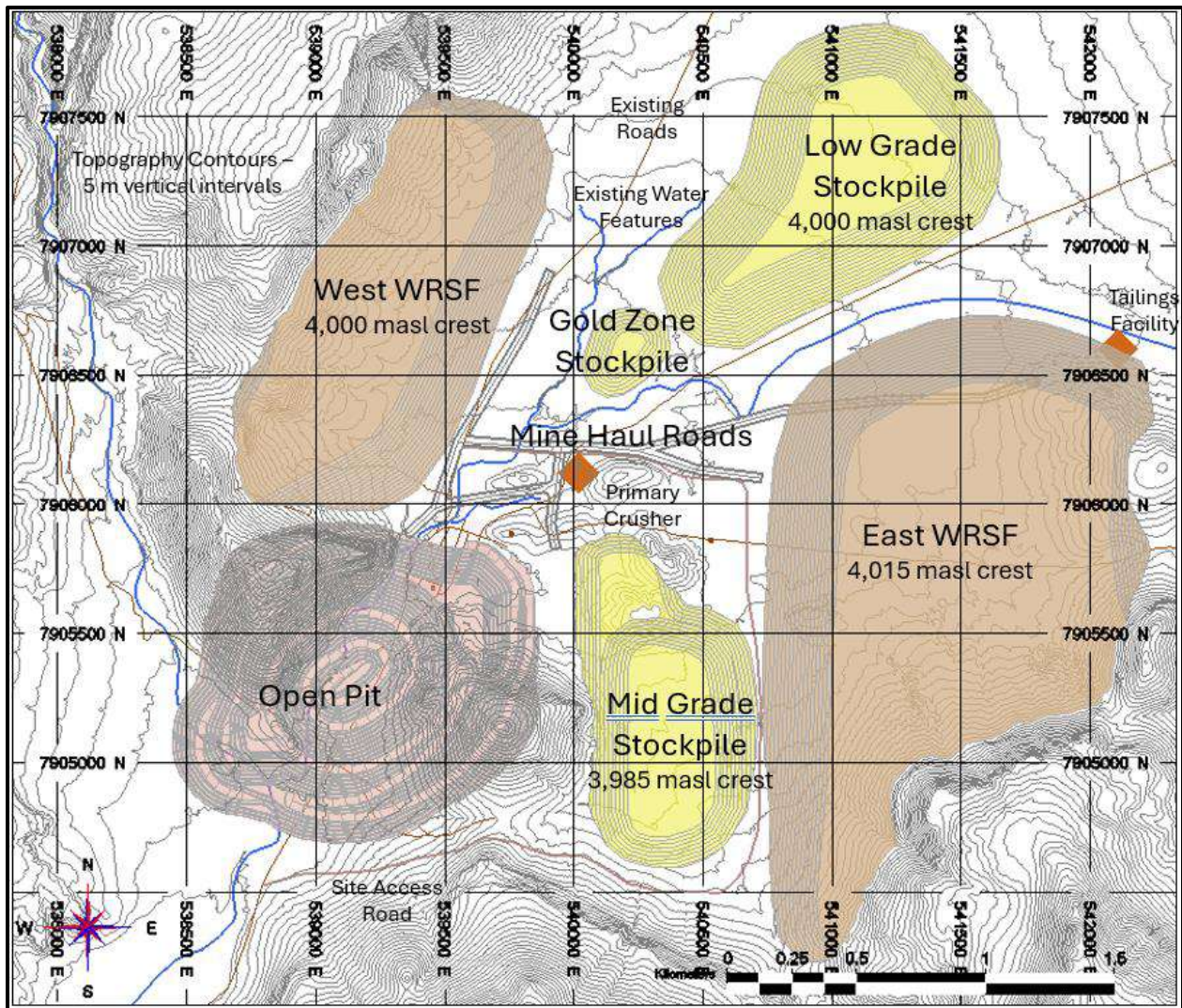
Source: Moose Mountain, 2024

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An alternative WRSF and stockpile scenario, shown in **Figure 24-3**, is designed at a scoping level to store all materials mined in this alternate mine plan. Resources mined in excess of mill feed targets will be sent to on-surface stockpiles and reclaimed at the mill by the end of the project's life. The low-grade stockpile is intended to store silver zone resources grading \$13.50/t to \$20.00/t NSR, and the medium-grade stockpile is intended to store silver zone resources grading above \$20.00/t NSR. The gold zone stockpile is intended to store all Lower Gold Zone resources. Both the gold zone and mid-grade stockpiles are planned to be rehandled and exhausted before the open pit is exhausted. The low-grade stockpiles are planned to be completely rehandled and exhausted after the open pit is mined out.

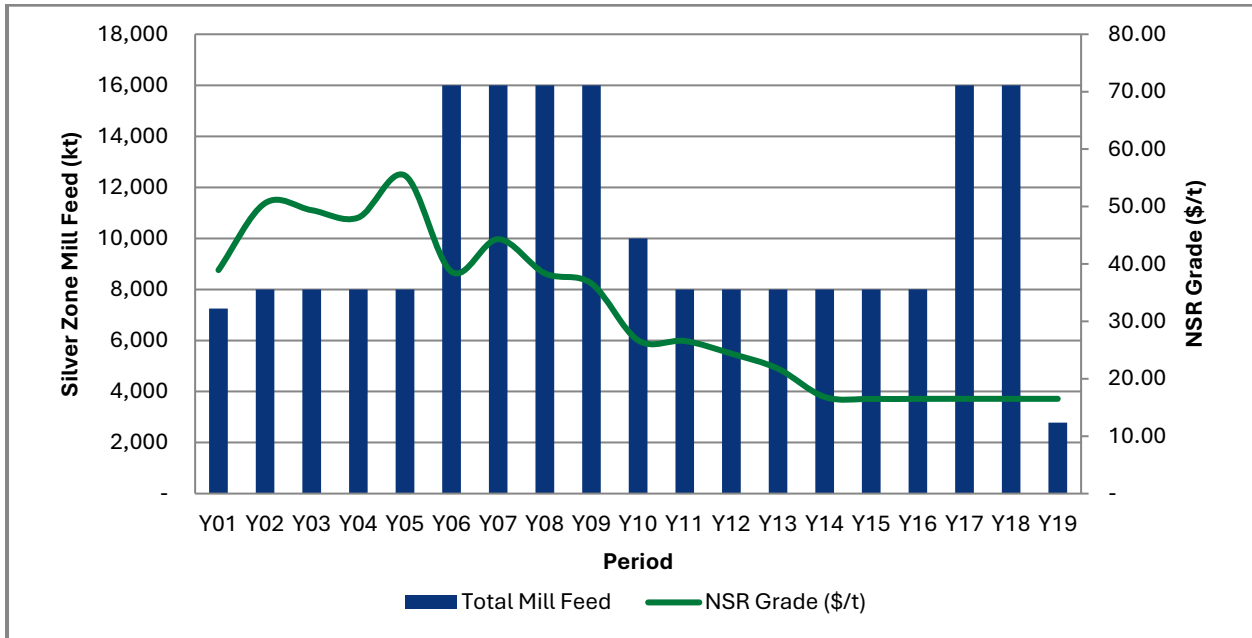
**Figure 24-3 Mine General Arrangement for Alternate Project Case**



Source: Moose Mountain, 2024

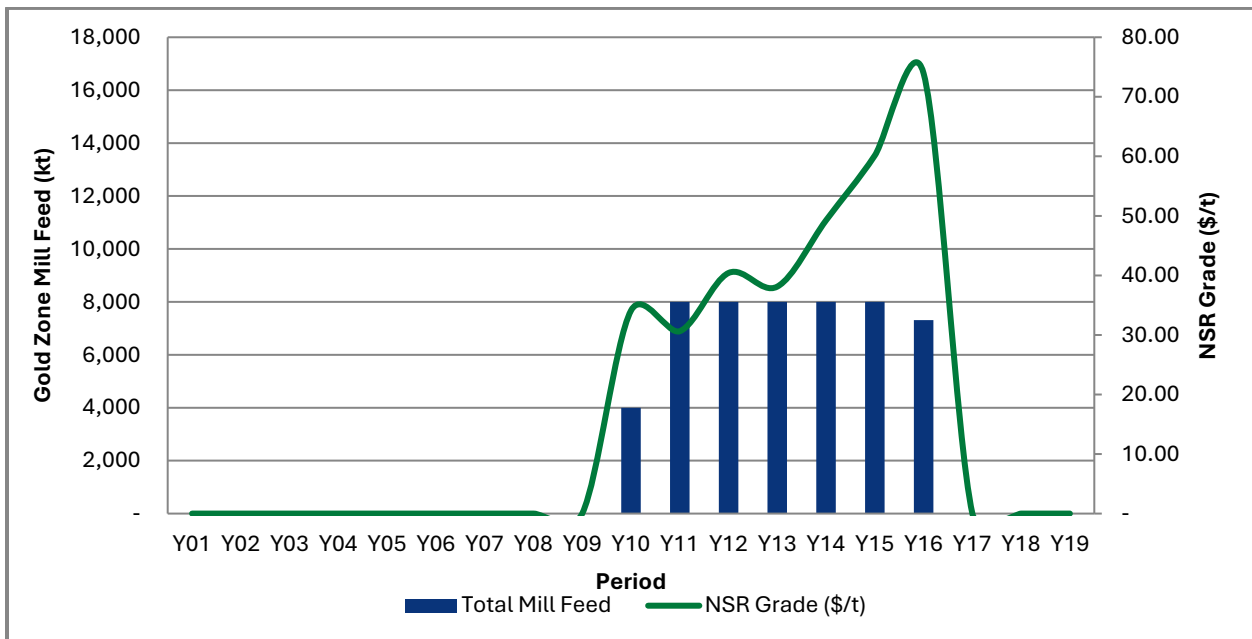
The alternate mine plan initially targets silver zone milling at a rate of 8 Mtpa (22 ktpd), expanding to 16 Mtpa (44 tpd) in Year 6 of the project. In Year 10 of the project, half of the mill is converted to process Lower Gold Zone materials. Once the pit is completely mined out, in Year 16 of the project, the entire mill is converted back to handle silver zone milling, and the low-grade stockpile is completely rehandled and exhausted. **Figure 24-4 to Figure 24-6** describe the alternate mine plan production schedule, showing silver and gold zone mill feed tonnes and grade and overall pit and stockpiled mined tonnes.

**Figure 24-4 Alternate Production Scenario: Silver Zone Mill Feed**



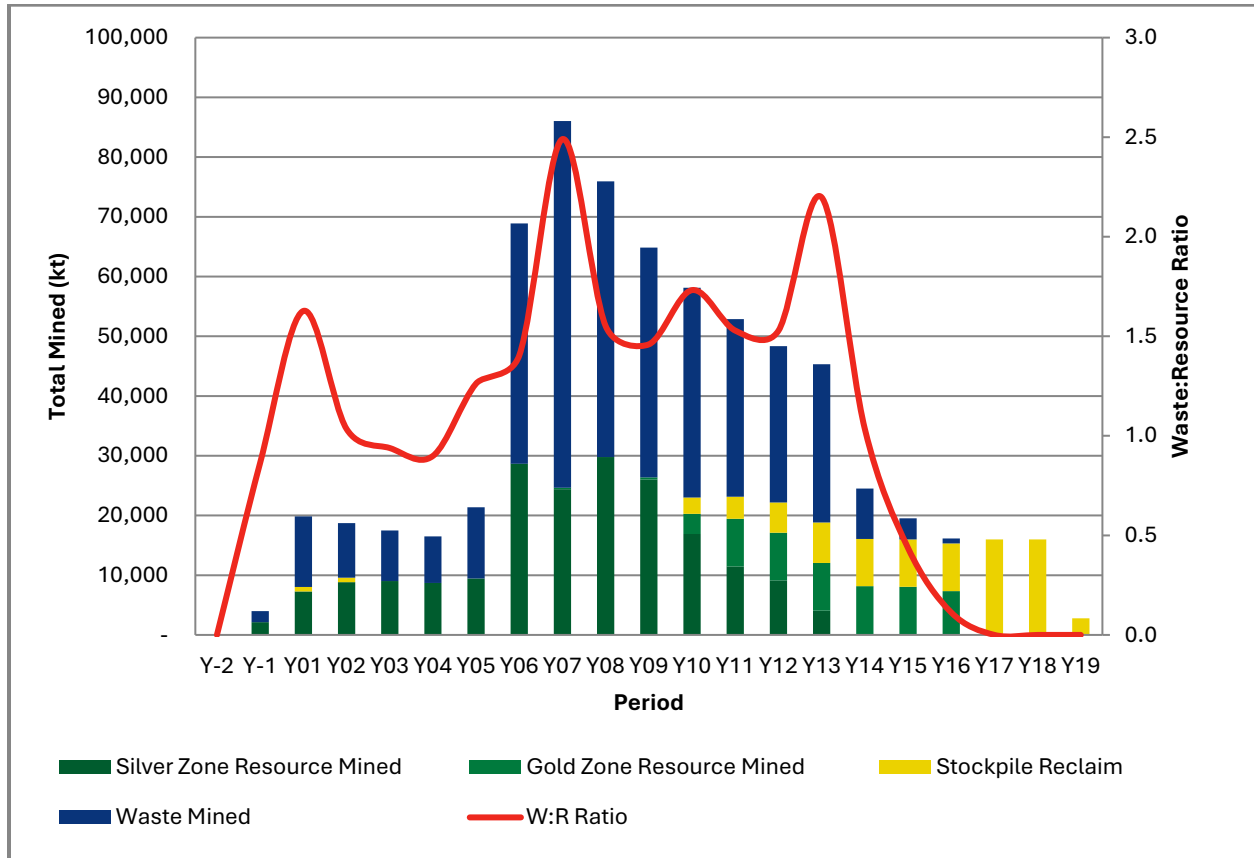
Source: Moose Mountain, 2024

**Figure 24-5 Alternate Production Scenario Gold Zone Mill Feed**



Source: Moose Mountain, 2024

**Figure 24-6 Alternate Production Scenario Mine Production Summary**



Source: Moose Mountain, 2024

## 25 INTERPRETATION AND CONCLUSIONS

### 25.1 Geology and Mineralization

Carangas is a large silver-gold-lead-zinc polymetallic deposit hosted in a caldera-diatreme volcanic complex of the Tertiary age in the South American Epithermal-Porphyry Belt. Controlled by the temperature and pressure of the underlying hydrothermal system, mineralization is zoned into separate zones: a near-surface Upper Silver Zone dominated by silver plus a moderate amount of lead and zinc, a Middle Zinc Zone dominated by zinc plus minor amount of silver and lead, and a Lower Gold Zone dominated by gold plus small amount of silver, copper and zinc. Gold mineralization remains open to north and northeast directions at depth. Beyond the drilled area, there are multiple IP chargeability anomalies with geophysical signatures similar to those of the known mineralization. These anomalies constitute targets for future drilling to assess if additional material is suitable for consideration in Mineral Resources.

### 25.2 Data Verification and Mineral Resources

New Pacific has established working procedures and protocols regarding core logging, sampling, core quality assurance/quality control (QAQC) and data validation, including insertion of standards, duplicates, blanks and umpire check samples, with which the QP is satisfied. In the opinion of the QP, the data acquisition, analysis and validation comply with the industry best practices and are appropriate for Mineral Resource estimate and technical reporting, and there are no other known significant risks and uncertainties that could reasonably be expected to affect the reliability or confidence in the exploration information and Mineral Resource estimate.

Under the assumptions presented in this Technical Report, and based on the data available as of June 1, 2023, RPM estimated the Mineral Resources of the Project meet the 2014 CIM Definition Standards, the 2019 CIM Best Practice Guidelines, NI 43-101 guidelines and show reasonable prospects of eventual economic extraction.

### 25.3 Exploration Potential

Previous work at the Carangas Project demonstrated the potential to expand the Mineral Resources. Gold mineralization remains open to north and northeast directions and at depth. Below the conceptual pit constraint, gold-dominated mineralized material of similar size and grade to the reported Mineral Resources of the Au Domain exists within the conceptual pit.

Beyond the drilled area, multiple IP chargeability anomalies with similar geophysical signatures to the known mineralization exist. These anomalies constitute targets for future drilling to assess whether additional material suitable for consideration in Mineral Resources exists.

RPM notes that at this stage, any of the IP chargeability anomalies prospects mentioned in this report have not been reported as Mineral Resources, and there is no guarantee that through further exploration, Mineral Resources will be defined.

### 25.4 Mining

Reasonable open pit mine plans, mine production schedules, and mine capital and operating cost estimates have been developed for the Carangas project PEA, exploiting 64.4 Mt of resource containing 63 g/t Ag, 0.44% Pb, and 0.80% Zn at a 1.7 waste to mill feed mining ratio.

Pit and stockpile layouts and mine operation plans are typical of other regional open pit metal mines. Contractor-mined open pit activities have been proven effective in these other regional operations.

The mine plan and estimated mine capital and operating cost estimates are reasonable at a scoping level of engineering and support the cash flow model and financials developed for the PEA.



## 25.5 Mineral Processing and Metallurgical Testing

The metallurgical testwork program in Section 13 was carried out by ALS Metallurgy in Kamloops, British Columbia, Canada, under the supervision of Dr. Jinxing Ji on behalf of New Pacific Metals Corp. Dr. Jinxing Ji is a consulting metallurgist with JJ Metallurgical Services and is a registered professional engineer (P.Eng) in the province of British Columbia, Canada.

The PEA metallurgical testwork program was built upon the earlier metallurgical testwork carried out by Bureau Veritas Minerals/Metallurgical in Richmond, British Columbia, Canada and ALS Metallurgy in Kamloops, British Columbia, Canada. The PEA metallurgical testwork program focused on flotation for the mineralized materials in the Upper Silver Zone to produce silver/lead concentrate and zinc/silver concentrate and on cyanide leach for the mineralized material in the Lower Gold Zone to produce gold doré. Furthermore, comminution testing, mineralogical analysis, gravity concentration, gold flotation, and cyanide leach of gold flotation concentrate were also carried out. For flotation and cyanide leach, the PEA metallurgical testwork program covered four composite samples from the Upper Silver Zone and one composite sample from the Lower Gold Zone. These composite samples were selected from a large number of drill holes and intervals widely distributed across the deposit.

The QP reviewed the selection of these composite samples, the metallurgical testing procedures, and data interpretations and considered them appropriate and reasonable. Nevertheless, the completed metallurgical testwork programs are still preliminary and thus are limited to represent the entire deposit. Further metallurgical testwork programs have been planned.

## 25.6 Recovery Methods

Process flowsheet for the silver/lead/zinc mineralized materials from the Upper Silver Zone is summarized in the following:

- A conventional process flowsheet is selected for the PEA. It includes a primary crushing circuit with a single jaw crusher. The crushed material is then conveyed to a coarse ore stockpile. After being reclaimed, the crushed material is conveyed to a grinding circuit consisting of a SAG mill, a ball mill, and a pebble crusher. The screen undersize of the product from the SAG mill is combined in a pumpbox with the product from the ball mill and then pumped to a cyclone for classification. The cyclone underflow returns to the ball mill for further size reduction, and the cyclone overflow flows to a trash screen. The screen undersize then flows to a conditioning tank in the silver/lead flotation circuit.
- Collectors AP3418A and Aero 404 are used to float the silver and lead mineralization. The silver and lead are first floated in a rougher circuit. After regrinding, the rougher concentrate is upgraded in a three-stage cleaner circuit. The first-stage cleaner is operated in an open circuit to reject pyrite. The final silver/lead concentrate is thickened and then filtered.
- The tailings from the silver/lead circuit will be thickened first, and then the thickener underflow is forwarded to a conditioning tank in the zinc circuit. Dilution water will be added as required. Copper sulfate is used to activate sphalerite. The activated sphalerite is then floated with the collector SIPX. After regrinding, the zinc rougher concentrate is updated in a three-stage cleaner circuit. The final zinc/silver concentrate is then thickened and then filtered. The first-stage cleaner circuit will be operated in an open or closed circuit, subject to zinc recovery and pyrite rejection.
- The tailing from the zinc circuit is then thickened, and the resultant thickener underflow is pumped to the TSF for disposal.

The processing plant proposed for the Carangas Project is designed with a nominal capacity of 4.0 Mtpa with the LOM average head grades of 63 g/t silver, 0.44% lead and 0.80% zinc. The life-of-mine total silver/lead concentrate production is 826 kt containing 3,975 g/t silver and 24.0% lead, and the life-of-mine total zinc/silver concentrate production is 744 kt containing 356 g/t silver and 45.8% zinc.



While the recovery methods under consideration are well-established and widely applied, further testing and engineering studies are necessary to identify the optimal flowsheet, equipment selection, design parameters, and projected metallurgical performance.

## 25.7 Infrastructure

The project infrastructure described in this report shows descriptions to be built at the Site before starting operations. The most essential infrastructures are the project's water and power supply.

The power supply can be secured by an agreement with the Government-owned power producer and build a transmission line to connect to the substation at the Site. The Company has engaged with Bolivia's power transmission company ENDE (Empresa Nacional de Electricidad), obtaining quotations for transmission line construction and power supply.

Raw water supply for construction is secured by the stream that crosses the site after a few water containments inside the project area, but for operations, the water requirements will be met through a pipeline system, drawing from a combination of groundwater via water wells and surface water from the nearby rivers.

The access road, especially the last couple of kilometres to the site, will require an upgrade and maintenance every year.

Fuel is supplied by fuel trucks. It is important to get an agreement with a contractor to ensure on-time supply and the required quantities. All non-process buildings required to run the operations are typical buildings for this climate and will perform as required.

The QP believes that all in-site infrastructure can support operations for the life of the mine. The next step of Detail Engineering and Design is to confirm or modify the infrastructure at the Site.

## 25.8 Tailings Storage Facility

Three locations were considered for conventional TSF options and one for a dry stack. Two of the conventional TSF locations (NE and SE tributaries of the Carangas River) were discarded due to insufficient capacity. The third conventional TSF location is designated as Conventional TSF Option 1. It is located in the floodplain of the Carangas River and allowed to achieve the required capacity.

A High-density Thickened Tailings TSF was also considered preliminary. However, due to the site's topography, it was estimated that it would require an area similar to or larger than that of the Conventional TSF Option 1 and would require numerous discharge towers for the tailings to have adequate flow and fill the impoundment. Therefore, this option was deemed unpractical and was not further evaluated.

The dry stack OPEX was estimated to be several times that of the Conventional TSF Option 1. Therefore, Conventional TSF Option 1, which utilizes a well-known technology for the project region, was selected for this PEA of the Carangas Project.

The Conventional TSF Option 1 has been designed to be constructed in five stages. It has a total capital cost of U\$48.24 million and a total OPEX of \$22.87 million. The PEA-level design of the conventional slurry TSF has been completed assuming that subsurface conditions will be adequate based on general geology information, without performing a meteorological/hydrological study of the Carangas River, and assuming that waste rock will be geochemically adequate for the construction of the containment embankment.

## 25.9 Environmental Studies

The baseline studies that were initiated are reasonable for what is expected to be able to produce the required EIA. These studies should continue to have an in-depth understanding of the physical and biological aspects of the project's area of influence.

### 25.10 Market Studies and Contracts

The Carangas project will generate revenue by selling silver-bearing lead and zinc/silver concentrates. The project is expected to produce approximately 826 kt of silver/lead concentrate with an average grade of 3,975 g/t silver and 24% lead and 744 kt of zinc/silver concentrate with an average grade of 45.8% zinc and 356 g/t silver.

The primary commodities are traded at well-known prices, ensuring stable sales prospects. The initial market response shows strong demand for the project's concentrates, with favourable pricing and low treatment charges. The analysis suggests that these concentrates can be sold without penalties and emphasizes the stability of the silver and lead market. Treatment and refining charge assumptions were provided by New Pacific Metals and are within the expected market range. Different logistic assumptions were used for each concentrate. The silver/lead concentrate is considered being exported to the international market, while the zinc/silver concentrate is to be sold to a Bolivian buyer.

Contracts: No contractual arrangements for mining, concentrate trucking, rail freight, port usage, shipping, or smelting and refining are currently in place. Furthermore, no contractual sales arrangements have been made for the silver/lead concentrate or zinc/silver concentrate at this time. Initial testwork of the two concentrates indicates no penalty elements are expected. The payable elements in the zinc/silver concentrate are expected to be zinc and silver. The silver/lead concentrate payables will be lead and silver, with a major contribution of silver to its final value due to its high content.

### 25.11 Capital Costs

The capital cost estimate is derived from a blend of supplier quotations and industry benchmarking. It encompasses both direct and indirect costs, including, but not limited to, engineering, procurement, construction, and start-up expenses. Cost estimate accuracies are considered sufficient for a PEA level of study.

To address uncertainties inherent to the PEA-level study, contingency was applied in areas of the capital costs estimate.

The initial capital expenditure is projected at \$324 million, while the total capital expenditure for the project is estimated at \$490 million. Closure costs are anticipated to be \$39 million.

### 25.12 Operating Costs

The operating cost estimate encompasses mining, processing, and general and administrative (G&A) expenses. This estimate is derived from a combination of supplier quotations and industry benchmarking. It is important to note that no inflation or contingency has been factored into the operating costs.

The life-of-mine operating cost is projected to average \$18.6 per tonne of processed ore.

### 25.13 Indicative Economic Results

A preliminary economics analysis for the Carangas project was completed in connection with the PEA study. The economic analysis and its underlying assumptions are preliminary in nature and include forward-looking statements. These statements involve a number of significant assumptions, including, but not limited to, Mineral Resource estimates, the proposed mine plan, cost estimates, metallurgical recoveries, concentrate grades,

environmental and social considerations, infrastructure requirements, product marketing, and associated costs. There is no certainty that the economic projections within this report will be realized.

The preliminary economics analysis includes Inferred Mineral Resources that are considered geologically speculative. There is no certainty that the 2024 PEA based on the Mineral Resources will be realized. Mineral Resources that are not mineral reserves have not demonstrated economic viability.

The discounted cash flow methodology was employed to calculate the project's net present value, internal rate of return, and payback period. The cash flow estimates are unlevered and calculated at the Carangas asset level. This economic analysis does not incorporate any corporate-level considerations from New Pacific Metals or any of its subsidiaries.

The NPV was calculated using a 5% discount rate, which is a standard real discount rate for evaluating precious metals projects. The cash flows were discounted from the second half of year –2. No inflation adjustments were applied to the cash flow model.

Considering the Project on a stand-alone basis, the undiscounted pre-tax cash flow totals \$1,447 million over the mine life, and post-tax payback occurs 3.2 years from the start of production. The economic analysis yielded a post-tax NPV at 5% of \$501 million, with an IRR of 26%.

A sensitivity analysis was conducted to evaluate the influence of variations in LOM capital and operating costs. The sensitivity analysis results indicate that the post-tax NPV remains positive across the evaluated sensitivity range. The NPV is highly sensitive to variations in silver price and discount rate while showing moderate sensitivity to changes in capital and operating costs.

## 25.14 Project Risks and Opportunities

The key risks and opportunities identified for the Carangas project are described below:

### 25.14.1.1 Risks

#### Economic and Market-Related Risks

- **Metal Prices:** Declines in metal prices could increase the economic cutoff grade or reduce the selected open pit limits, decreasing the resource base available for the mine plan.
- **Operating Cost Assumptions:** Preliminary estimates rely on current market rates, including a \$0.53/L diesel price subsidized by the Bolivian government. Changes to this subsidy or shifts to market-driven fuel prices could significantly impact mining costs.
- **Treatment and Refining Charges:** Current projections are based on a preliminary quotation but may vary with market conditions and concentrate specifications.
- **Logistics for Zinc/silver concentrate:** Assumes a local Bolivian buyer, keeping transportation costs low. Costs may increase if export is required.
- **Capital and Operating Cost Estimates:** Based on initial quotes and benchmarks; further detailing may lead to adjustments as the project progresses potentially increasing cost estimates from those presented in this report.

#### Technical and Operational Risks

- **Mineral Resources Classification:** The PEA relies on Inferred and Indicated Mineral Resources; upgrading to Measured Resources through additional drilling is essential to increase confidence in the resource base.
- **Geotechnical and Hydrogeological Factors:** Geotechnical studies could result in shallower pit slope angles, raising the overall stripping ratio. Hydrogeological analysis may also reveal more costly requirements for pit water management and slope depressurization.

- **Geochemical Factors:** Geochemical testing, especially for open-pit waste rock, could identify a need for more stringent and costly potentially acid-generating management solutions than those assumed in this study.
- **Metallurgical Assumptions and Processing Efficiency:** Metallurgical recoveries and concentrate grades are based on preliminary testing and observed correlations. Additional testing is needed to refine these projections.
- **Mining and Milling Operations:** Meeting the planned production rate relies on maintaining grade control and achieving anticipated recoveries. Reduced selectivity, recovery rates, or increased dilution would raise costs and challenge PEA production goals.
- **Tailings Storage Facility Design:** TSF design and cost assumptions depend on adequate subsurface conditions for embankment foundations and geochemically suitable waste rock for embankment construction.

## Infrastructure and Resource Supply Risks

- **Water Supply:** The water supply sources have been defined. Further hydrological studies and positive collaboration with the community will be essential to ensure stable water availability and uninterrupted operations.
- **Power Supply:** Although a plan exists to connect to the national grid, further studies are needed to confirm the cost, schedule, and reliability of this option.
- **Workforce Availability:** The project's remote location, high altitude, and climate pose challenges to attracting skilled and unskilled labor.

## Environmental, Social, and Governance (ESG) Risks

- **Land Tenure, Permitting, and Social License:** Maintaining land tenure, securing environmental licenses, and upholding the social license to operate are critical. The project's success will depend on robust governance and a positive local presence.
- **Political and Economic Stability:** Bolivia's recent social, economic, and political instability increases risk for foreign investment. Political shifts could also impact fuel and power supplies to the mine, posing a risk to uninterrupted operations.

### 25.14.1.2 Opportunities

#### Economic and Market-Related Opportunities

- **Metal Prices:** If metal prices increase beyond the PEA assumptions, it could enable processing of lower-grade stockpiles, which are currently excluded in the mine plan, thereby extending the mine life and improving project economics.
- **Alternative Mining Plan:** There is an opportunity for an alternate production plan aimed at the Lower Gold Zone of the deposit, leveraging a larger open pit design. This approach retains all the established mine planning and design criteria, utilizing the 0.80 PF pit shell as the target. With comprehensive open pit designs tailored to access the Lower Gold Zone, this plan has the potential to expand resource extraction.

#### Technical and Operational Opportunities

- **Resource Expansion through Drilling:** There is potential to extend the Resource base a depth with further drilling. Furthermore, exploration in geophysical anomaly zones could lead to resource expansion, potentially increasing the resource base.
- **Enhanced Metallurgical Recoveries:** With the uncertainty in the projected metallurgical recoveries, further metallurgical testing may allow for optimization of the processing flowsheet, improving metal recoveries.

- Metallurgical Assumptions and Processing Efficiency: Potential to reduce slurry viscosity in the zinc circuit through selective collectors, instead of Sodium Isobutyl Xanthate, may improve processing at a moderately high pH level. More studies are required to confirm this.



## 26 RECOMMENDATIONS

The QPs make the following recommendations for further work.

### 26.1 Geology

#### 26.1.1 Drilling

Based on the outcomes of the Mineral Resource estimate and the current stage of the Project, RPM recommends additional drilling be undertaken.

- **Infill drilling:** the existing drilling grid is largely 50 m by 50 m in the majority of the drilled area and supports the Indicated Mineral Resources category. An appropriate amount of infill drilling is needed in the core area of the known mineralization system to further confirm the continuity of mineralization, hence enhancing the confidence in the Mineral Resources to facilitate future advanced technical and economic studies of the Project.
- **Step-out drilling:** gold mineralization continues below the conceptual pit constraint and remains open to the north and northeast directions. Therefore, step-out drilling is justified to unveil the potential of additional Mineral Resources.
- **Exploration drilling:** multiple strong IP chargeability anomalies were identified beyond the drilled areas. These anomalies displayed geophysical signatures similar to that of the known mineralization system. It is reasonable to anticipate that these anomalies may host mineralization similar to the one drilled so far and hope for the addition of Mineral Resources through new drilling campaigns in the future.

#### 26.1.2 Geology Study, Mapping and Prospecting

- Maintain the partnership with the universities in Bolivia to continue geological studies on the Carangas deposit to further understand the mineralization styles and genesis and support future exploration targeting.
- Initiate exploration programs of geological mapping and prospecting over the IP chargeability anomalies for refining targets of drilling tests.

### 26.2 Mining

The following recommendations are made with regard to advancing the mine engineering of the Carangas project to a Pre-Feasibility Study, with a budget for each recommended program included:

- Reassess the mine plan upon completion of the drilling aimed at upgrading Inferred class Mineral Resources to Indicated class Mineral Resources.
- Targeted open pit geotechnical drilling using triple-tube HQ holes and televiewer with oriented cores. Recommend five drillholes on all sides of the planned open pit and an estimated total length of 3,500 m. Installation of vibrating wire piezometers in select holes.
  - Laboratory testing for intact rock strength (unconfined compressive strength tests, point load tests, and indirect tensile strength tests) and discontinuity strength (direct shear tests).
  - Build up of 3D fault and rock mass fabric models.
  - Packer testing should be conducted to determine the pit's hydrogeology and hydraulic conductivity, including refining pit water inflow estimates.
- Further hydrogeological and hydrological characterization are required in the pit areas (costed elsewhere in recommendations).
- Geochemical characterization of waste rock for the purposes of updated PAG modelling. It is possible to utilize existing and planned exploration and geotechnical drill core for geochemical samples, and no additional drilling has been planned for these studies in the estimated budget.

- Topsoil and overburden assessment for the open pit to estimate topsoil and overburden storage requirements.
- Condemnation drilling of the footprints identified for the waste rock storage facilities, as well as site infrastructure. Condemnation drilling ensures no valuable mineralization exists below these planned facilities so that it is not locked in the ground from future potential exploitation.
- Drill penetration and blast fragmentation studies, testing properties in all lithologies, as well as within mineralized areas and within waste rock. It is possible to utilize existing and planned exploration and geotechnical drill core for rock samples, and no additional drilling has been planned for these studies in the estimated budget.
- Study the impact and potential economic benefit of processing PEA planned stockpiled sub-grade waste, with contents of 41Mt averaging \$22/t NSR.
- Study the impact of mining to 0.80 PF pit shell, down into the Lower Gold Zone, with the potential to exploit an additional 59 Mt of resources above \$28/t NSR and a further 126 Mt resource (beyond the 41 Mt already planned in this PEA) between the breakeven cutoff grade of \$13.50/t NSR and the chosen \$28/t NSR cutoff grade.
- Updates to designs of open pits, waste storage piles, stockpiles, and mine haul roads incorporating results from all other recommended work programs.
- Mine operational and cost trade-off studies examining contractor vs. owner equipment fleet, lease vs. purchase equipment fleet, cost comparisons of various equipment class sizes, and utilization of electrically driven mine equipment (including trolley systems for haulers) over diesel-driven units. This includes further engagement with multiple potential contractors for mining operations, with more detailed quotations for operations.

## 26.3 Mineral and Metallurgical Testing

Further metallurgical testing is recommended to improve flotation performance, reduce consumption of chemical reagents and generate necessary parameters for the process plant design.

- Coarse assay reject materials have so far been used in the flotation testing. These materials might have been partially oxidized during storage. A composite sample consisting of core intervals in the Upper Silver Zone is recommended for further flotation testing.
- The bulk flotation was applied to the oxidized sample, while the sequential selective flotation was applied to the transitional sample, sulfide sample and LOM composite sample. Operating conditions between the bulk flotation and the selective flotation are fundamentally different. It is recommended that the flotation testing with the individual samples be continued.
- The issue of high slurry viscosity was encountered in the zinc flotation circuit at a high pH with the addition of lime. The mitigation approaches need to be investigated.
- More samples in various locations and elevations in the deposit are recommended for comminution testing.
- Some of the zinc minerals may have been activated in situ. Mineralogical investigations are recommended to identify the elements that result in such activation. Furthermore, the surface conditioning is recommended for investigation to deactivate zinc minerals.
- The cross-contamination of process waters between silver/lead circuit and zinc circuit will likely deteriorate flotation performance. Thus, it is recommended to investigate and quantify such impact.
- The testing of thickening is required for the flotation tailings.
- The testing of thickening and filtration is required for the silver/lead concentrate and zinc concentrate.
- The measurement of transportable moisture limit is recommended for the silver/lead concentrate and zinc/silver concentrate.

## 26.4 Infrastructure

It is highly recommended that water wells around the area be searched for as a primary source of fresh water for construction and operations. The search for water wells for a period of 1 month will cost \$25,000.

A hydrology study is required from the project team to quantify the monthly water availability (dry and wet season) in the area from local streams and nearby rivers, analyze the water quality, and locate the water catchment points and distance to the project industrial zone.

The information from these searches and studies can modify the infrastructure's Capex and Opex water usage and costs.

A geotechnical investigation is required to confirm if subsurface conditions are adequate for the TSF containment embankment foundation and to evaluate infiltration from the impoundment area.

A meteorological/hydrological study shall be performed to model flood routing through the TSF impoundment to evaluate the hydraulic safety of the TSF and ensure that the assumed freeboard is adequate.

The tailings embankment is presently designed to be constructed with waste rock. The next project phase needs a geochemical evaluation to check it is not acid-forming or metal-leaching above regulatory and guidelines thresholds.

## 26.5 Environment and Social

The baseline work needs to continue to get an in-depth understanding of the projects that are of influence and produce an EIA that will comply with the expectations of the regulator.

The social baseline should be initiated as quickly as possible, whether or not there is a need for involuntary resettlement. The town of Carangas is close to the project, requiring a robust community engagement plan and social investment plan.

## 26.6 Estimated Budget for Recommendations

The estimated budget to complete the abovementioned main activities is \$6,925,000, as outlined in **Table 26-1**. This estimate excludes regular ongoing corporate costs that are not considered at the project level.

**Table 26-1 Estimated Budget for Recommendations**

<b>Area</b>	<b>Estimated Budget (US\$)</b>
<b>Geology and Mineral Resources</b>	
Drilling 12,000 m	2,400,000
Geology Study Mapping and Prospecting	200,000
Hydrogeology	200,000
<b>Total Estimated Cost – Next Phase of Geology Study</b>	<b>2,800,000</b>
<b>Processing</b>	
Metallurgical Testwork	500,000
<b>Total Estimated Cost – Next Phase of Metallurgical Testwork</b>	<b>500,000</b>
<b>Mining and Design</b>	
Open Pit Geotechnical Drilling and Analysis	1,000,000
Open Pit Waste Rock Geochemical Sampling, Testing, and Analysis	400,000
Open Pit Topsoil and Overburden Assessment	200,000
Condemnation Drilling	1,000,000
Drill Penetration and Blast Fragmentation Studies	50,000
Updated Mine Optimization within the Lower Gold Zone and Stockpiled Low Grade	150,000
Updated Open Pit Mine Engineering	150,000
Mining Vendor and Contractor Engagement	50,000
<b>Total Estimated Cost – Next Phase of Mining Study</b>	<b>3,000,000</b>
<b>Infrastructure</b>	
Survey for wells for fresh water supply	25,000
<b>Total Estimated Cost – Next Phase of Infrastructure</b>	<b>25,000</b>
<b>Tailings Storage Facility</b>	
Geotechnical Investigation and Analyses for Embankment and Impoundment	200,000
Meteorological/Hydrological Study for TSF Hydraulic Safety	250,000
Geochemical Testing of Waste Rock for Embankment Construction	150,000
<b>Total Estimated Cost - Next Phase of Tailings Storage Facility</b>	<b>600,000</b>
<b>Total Estimated Cost - Next Phase</b>	<b>6,925,000</b>

Source: compiled by RPMGLOBAL, 2024

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## IMPORTANT NOTICE AND CAUTIONARY NOTE REGARDING FORWARD-LOOKING INFORMATION

This report was prepared as a National Instrument 43-101 Technical Report for New Pacific Metals Corp (NPM) by RPMGlobal Canada Ltd (RPM). The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in RPM's services, based on: i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this report. This report is intended for use by NPM subject to the terms and conditions of its contract with RPM and relevant securities legislation. The contract permits NPM to file this report as a Technical Report with Canadian securities regulatory authorities pursuant to National Instrument 43-101, Standards of Disclosure for Mineral Projects. Except for the purposes legislated under provincial securities law, any other uses of this report by any third party is at that party's sole risk. The responsibility for this disclosure remains with NPM. The user of this document should ensure that this is the most recent Technical Report for the property as it is not valid if a new Technical Report has been issued.

Certain of the statements and information in this technical report constitute "forward-looking statements" within the meaning of the U.S. Private Securities Litigation Reform Act of 1995 and "forward-looking information" within the meaning of applicable Canadian provincial securities laws. Any statements or information that express or involve discussions with respect to predictions, expectations, beliefs, plans, projections, objectives, assumptions or future events or performance (often, but not always, using words or phrases such as "expects", "is expected", "anticipates", "believes", "plans", "projects", "estimates", "assumes", "intends", "strategies", "targets", "goals", "forecasts", "objectives", "budgets", "schedules", "potential" or variations thereof or stating that certain actions, events or results "may", "could", "would", "might" or "will" be taken, occur or be achieved, or the negative of any of these terms and similar expressions) are not statements of historical fact and may be forward-looking statements or information. Such statements include, but are not limited to, statements regarding: inferred, indicated or measured Mineral Resources or Mineral Reserves on the Project.

Forward-looking statements or information are subject to a variety of known and unknown risks, uncertainties and other factors that could cause actual events or results to differ from those reflected in the forward-looking statements or information, including, without limitation, risks relating to the factors described under the heading "Risks" in this technical report and in the Company's annual information form for the year ended June 30, 2024 and its other public filings. This list is not exhaustive of the factors that may affect any of the Company's forward-looking statements or information.

The forward-looking statements are necessarily based on a number of estimates and assumptions that, while considered reasonable by the authors, are inherently subject to uncertainties and contingencies. These estimates, assumptions, beliefs, expectations and options include, but are not limited to, the accuracy and reliability of estimates, projections, forecasts, studies and assessments. Although the forward-looking statements contained in this technical report are based upon what the authors believe are reasonable assumptions, there can be no assurance that actual results will be consistent with these forward-looking statements. All forward-looking statements in this technical report are qualified by these cautionary statements. Accordingly, readers should not place undue reliance on such statements. Other than specifically required by applicable laws, the Company is under no obligation and expressly disclaims any such obligation to update or alter the forward-looking statements whether as a result of new information, future events or otherwise except as may be required by law. These forward-looking statements are made as of the date of this technical report.

## 28 DATE AND SIGNATURE PAGE

This report titled “NI 43-101 Technical Report Carangas Deposit Preliminary Economic Assessment” and with the effective date of September 5, 2024 was prepared and signed by the following authors:

### ***Original Signed***

Dated	Mr. Anderson G. Candido, FAusIMM
15 November 2024	Principal Geologist RPMGlobal USA Inc.

### ***Original Signed***

Dated	Mr. Marc Shulte, P.Eng (BC)
15 November 2024	Vice President of Engineering and Operations Moose Mountain Technical Services

### ***Original Signed***

Dated	Mr. Marcelo del Giudice, FAusIMM
15 November 2024	Principal Metallurgist RPMGlobal Brazil

### ***Original Signed***

Dated	Mr. Jinxing Ji, P.Eng (BC)
15 November 2024	Consulting Metallurgist JJ Metallurgical Services Inc

***Original Signed***

Dated

15 November 2024

Mr. Gonzalo Rios, FAusIMM

Executive Consultant - ESG  
RPMGlobal Canada Ltd.

***Original Signed***

Dated

15 November 2024

Mr. Pedro Repetto, P.E.

Principal Civil/Geotechnical Engineer  
RPMGlobal USA Inc.

## 29 CERTIFICATE OF QUALIFIED PERSON

### CERTIFICATE OF QUALIFIED PERSON

I, Anderson G Candido, FAusIMM., as an author of the technical report titled “NI 43-101 Technical Report Carangas Deposit Preliminary Economic Assessment” (the “Technical Report”) prepared for New Pacific Metals Corp. with an effective date of September 5, 2024, do hereby certify that:

I am Principal Geologist with RPMGlobal USA, Inc. of Suite 210, 7921 Southpark Plaza, Littleton, CO 80120 USA.

I am a graduate of Bachelor of Science (Geology Engineer) from the Ouro Preto Federal University in 2003 with a Bachelor.

I am registered as a Professional Geologist in the Australasian Institute of Mining and Metallurgy (Fellow Member n 990424 “FAusIMM”). I have worked as a principal geologist for a total of 19 years since my graduation. My relevant experience for the purpose of the Technical Report is:

Geology and Mineral Resource Evaluation

Exploration geological works

Geology Development and Operations

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 fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

I visited the Carangas Gold-Silver Project site from March 27 to 30, 2023 to verify and have a good geology understanding and project perspectives.

I am responsible for Sections 4, 5, 6, 7, 8, 9, 10, 11, 12, and 14 and partially for Sections 1, 2, 3, 25, 26, and 27 of the Technical Report.

I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.

I have had no prior involvement with the property that is the subject of the Technical Report.

I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated Nov 15<sup>th</sup>, 2024

*Original signed and sealed by*

Anderson G Candido, FAusIMM



## CERTIFICATE OF QUALIFIED PERSON

I, Marc Schulte, P.Eng., working as the Vice President of Engineering and Operations, with Moose Mountain Technical Services, with an office address of #210 1510 2nd Street North Cranbrook, BC V1C 3L2, as an author of the technical report titled “NI 43-101 Technical Report Carangas Deposit Preliminary Economic Assessment” (the “Technical Report”) prepared for New Pacific Metals Corp. with an effective date of September 5, 2024, do hereby certify that:

I am a member of the self-regulated association Engineers and Geoscientists BC (#54035). I graduated with a Bachelor of Science in Mining Engineering from the University of Alberta in 2002.

I have worked as a mining engineer for over 24 years since my graduation from university. Throughout my career I have worked on numerous open pit base and precious metals projects, within project engineering studies and within mining operations, on mineral reserve estimates, mine planning, and mine cost estimates.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 *Standards of Disclosure for Mineral Projects* (NI 43–101) for those sections of the technical report that I am responsible for preparing.

I have not visited the Carangas Gold-Silver Project site.

I am responsible for Sections 1.2.11, 1.2.12, 1.2.17 (mining costs), 15, 16, 21.1.1, 21.2.1, 24.1, 25.4, and 26.2 of the technical report.

I have had no prior involvement with the property that is the subject of this Technical Report.

I am independent of New Pacific Metals Corp. as independence is described by Section 1.5 of NI 43–101.

I have read NI 43–101 and the sections of the technical report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the technical report, to the best of my knowledge, information and belief, the sections of the technical report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the technical report not misleading.

Dated Nov 15<sup>th</sup>, 2024

Original signed and sealed by

Marc Schulte, P.Eng.

## CERTIFICATE OF QUALIFIED PERSON

I, Marcelo del Giudice, FAusIMM, am working as a Principal Metallurgist for RPM Global, of 8<sup>o</sup> floor, 330 St Antonio de Albuquerque, Belo Horizonte, MG - Brazil. This certificate applies to the technical report titled "NI 43-101 Technical Report Carangas Deposit Preliminary Economic Assessment" (the "Technical Report") prepared for New Pacific Metals Corp. with an effective date of September 5, 2024, do hereby certify that:

I am a Fellow Member of the Australasian Institute of Mining and Metallurgy ("FAusIMM").

I am a professional metallurgist having graduated with an undergraduate degree of Bachelor of Science (Metallurgical Engineering) from the Minas Gerais Federal University in 2009. I obtained a Master of Science degree in Chemical Engineering in 2014 from the University of São Paulo.

I have been continuously and actively engaged in the mineral processing, project development, and operation of mineral projects since graduation from university.

I am a Qualified Person for the purposes of the National Instrument 43-101 of the Canadian Securities Administrators ("NI 43-101").

I visited the Carangas Gold-Silver Project site between 30 October and November 2, 2023.

I am the author of this report and responsible for Sections 17, 18 (with the exception of 18.8), 19, 21, and 22, and partially for Sections 1, 2, 3, 25, and 26.

I have had no prior involvement with the properties that are the subject of the Technical Report.

To the best of my knowledge, information and belief, the Technical Report contains all the scientific and technical information that is required to be disclosed to make the Technical Report not misleading as of the effective date of the report, 25 August 2023.

I am independent of New Pacific Metals Corp. in accordance with the application of Section 1.5 of NI 43-101.

I have read NI 43-101 and Form 43-101F1 and the Technical Report has been prepared in compliance with that instrument and form.

I consent to the filing of the Technical Report with any stock exchange or any other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their website and accessible by the public, of the Technical Report.

Dated Nov 15<sup>th</sup>, 2024

Original signed and sealed by

Marcelo del Giudice, FAusIMM

## CERTIFICATE OF QUALIFIED PERSON

I, Jinxing Ji, P.Eng., as an author of the technical report titled "NI 43-101 Technical Report Carangas Deposit Preliminary Economic Assessment" (the "Technical Report") prepared for New Pacific Metals Corp. with an effective date of September 5, 2024, do hereby certify that:

I am employed as Consulting Metallurgist with JJ Metallurgical Services Inc. with an office at 7547 Lambeth Drive, Burnaby, British Columbia, Canada, V5E 4A5.

I graduated from Shanghai University in China with B.Eng Metallurgy in 1982 and M.Eng Metallurgy in 1985 and from The University of British Columbia in Canada with Ph.D. Metallurgy in 1993.

I am a registered professional engineer (license# 59035) in good standing of the Engineers and Geoscientists BC (EGBC) in the province of British Columbia, Canada with core competency in metallurgy. I have practiced my profession in the mining industry continuously since 1993. My relevant experiences include mineral/metallurgical testing, process development, base metal metallurgy, precious metal metallurgy, and process plant design, commissioning, optimization and operational support.

I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43101) 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 fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

I visited the Carangas Property in Bolivia from 21 to 23 May 2022.

I am responsible for Sections 13 and parts of Section 1, 17, 25 and 26 of the Technical Report in relation to metallurgy.

I am independent of the Issuer as the independence is defined in Section 1.5 of NI 43-101.

I have had prior involvement with the Carangas project as an independent metallurgical consultant for the mineral/metallurgical testing under "Carangas Silver-Gold Project – Department of Oruro, Bolivia – NI43-101 Mineral Resource Estimate Technical Report, New Pacific Metals Corp." with affective date of 25 August 2023.

I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101 and Form 43-101F1.

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated Nov 15<sup>th</sup>, 2024

Original signed and sealed by

Jinxing Ji, P.Eng.

## CERTIFICATE OF QUALIFIED PERSON

I, Gonzalo Rios, FAusIMM, as an author of the technical report titled "NI 43-101 Technical Report Carangas Deposit Preliminary Economic Assessment" (the "Technical Report") prepared for New Pacific Metals Corp. with an effective date of September 5, 2024, do hereby certify that:

I am Executive Consultant - ESG with RPMGlobal Canada, Inc. of 150 King Street West, Suite 308-03 Toronto, ON M5H 1J9 Canada.

I am a graduate of University of Toronto in 1992 with a B.Sc. in Chemistry.

I am registered as a Fellow in Australasian Institute of Mining and Metallurgy, FAusIMM 3089013. I have worked as an environmental professional for a total of 30 years since my graduation. My relevant experience for the purpose of the Technical Report is:

Environmental Management

Mine Closure and Remediation Planning

Environmental Permitting

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 fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

I did not visit the Carangas project.

I am responsible for Section 20 and partially for Sections 1, 2, 3, 25, and 26 of the Technical Report.

I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.

I have had no prior involvement with the property that is the subject of the Technical Report.

I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the Technical Report contains/Section 20 in the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated Nov 15<sup>th</sup>, 2024

Original signed and sealed by

Gonzalo Rios, FAusIMM

## CERTIFICATE OF QUALIFIED PERSON

I, Pedro Repetto, P.E., as an author of the technical report titled "NI 43-101 Technical Report Carangas Deposit Preliminary Economic Assessment" (the "Technical Report") prepared for New Pacific Metals Corp. with an effective date of September 5, 2024, do hereby certify that:

I am a Principal Civil/Geotechnical Engineer with RPMGlobal USA, Inc. of Suite 1110, 7887 East Belleview Ave., Denver, CO 80111, USA.

I am a graduate of Pontificia Universidad Catolica del Peru, Lima, Peru in 1966 with a degree of Civil Engineer; and Purdue University, Indiana, USA in 1970 with a degree of Master of Science in Civil Engineering.

I am registered as a Professional Engineer in the state of Colorado, USA (Reg.# 0036946). I have worked as a civil engineer in mining projects for a total of 54 years since my graduation. My relevant experience for the purpose of the Technical Report is:

Tailings Management

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 fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

I have not visited the Carangas Project site.

I am responsible for Section 18.18 Tailings Storage Facility of the Technical Report.

I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.

I have had no prior involvement with the property that is the subject of the Technical Report.

I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

At the effective date of the Technical Report, to the best of my knowledge, information, and belief, Section 18.18 of the Technical Report for which I am responsible contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated Nov 15<sup>th</sup>, 2024

Original signed and sealed by

Pedro Repetto, P.E.,





– END OF REPORT –

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