Exhibit 96.7

SEC Technical Report Summary Pre-Feasibility Study Uchucchacua

Effective Date: March 15, 2022
Report Date: May 10, 2022

Report Prepared for

Compañía de Minas Buenaventura S.A.A.

Las Begonias 415
Floor 19 San Isidro
Lima 15046
Peru

Report Prepared by

srk consulting

SRK Consulting (Peru) S.A.
Av. La Paz 1227 Miraflores
Lima 18
Perú

SRK Project Number: 20M05010

SRK Consulting (Peru) SA

Av. La Paz 1227, Miraflores
Lima 18, Perú
Tel: +511 206 5900
Email: srk@srk.com.pe

CONSENT OF SRK CONSULTING (PERU) SA

SRK Consulting (Peru) SA ("SRK"), a "qualified person" for purposes of Subpart 1300 of Regulation S-K as promulgated by the U.S. Securities and Exchange Commission ("S-K 1300"), in connection with Compañia de Minas Buenaventura S.A.A.'s (the "Company") Annual Report on Form 20-F for the year ended December 31, 2021 and any amendments or supplements and/or exhibits thereto (collectively, the "Form 20-F"), consent to:

- the public filing by the Company and use of the technical report titled " SEC Technical Report Summary Pre-Feasibility Study for Uchucchacua" (the "Technical Report Summary"), with an effective date of March 15th, 2022, which was prepared in accordance with S-K 1300, as an exhibit to and referenced in the Annual Report;

- the use of and references to SRK, including the status as an expert "qualified person" (as defined in Sub-Part S-K 1300), in connection with the Form 20-F and any such Technical Report Summary; and

- the use of information derived, summarized, quoted or referenced from those sections of Technical Report Summary, or portions thereof, for which SRK is responsible and which is included or incorporated by reference in the Annual Report.

SRK is responsible for authoring, and this consent pertains to, the following sections of the Technical Report Summary:

- 1.1, 1.2, 1.3.1, 1.3.2, 1.3.3, 1.3.4, 1.3.5, 1.3.6, 1.3.7, 1.3.8, 1.3.9, 1.3.10, 1.3.12, 1.3.13, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15.1, 15.3, 15.4, 15.5, 15.6, 15.7, 15.8, 17, 18, 19, 20, 21, 22.1, 22.2, 22.3, 22.4, 22.5, 22.6, 22.7, 23, 24, 25 and Appendixes.

Dated this May 11th, 2022

Angel Mondragón
SRK Consulting (Peru) S.A. - Director

Antonio Samaniego
SRK Consulting (Peru) S.A. - Director

Santiago Office
Cerro El Plomo 5420
Of. 601
Las Condes
Santiago
Chile
Tel +56 2 2231 3900
www.crugroup.com

CONSENT

I, Manuel A. Hernández, a "qualified person" for purposes of Subpart 1300 of Regulation S-K as promulgated by the U.S. Securities and Exchange Commission ("S-K 1300"). In connection with Compañía de Minas Buenaventura S.A.A.'s (the "Company") Annual Report on Form 20-F for the year ended December 31, 2021 and any amendments or supplements and/or exhibits thereto (collectively, the "Form 20-F"), consent to:

- the public filing and use of the technical report summary titled "SEC Technical Report Summary Pre-Feasibility Study for Uchucchacua" (the "Technical Report Summary"), with an effective date of March 15, 2022, as an exhibit to and referenced in the Company's Form 20-F;
- the use of and references to my name, including my status as an expert or "qualified person" (as defined in S-K 1300), in connection with the Form 20-F and any such Technical Report Summary; and
- the use of information derived, summarized, quoted or referenced from the Technical Report Summary, or portions thereof, that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F..

I am a qualified person responsible for authoring, and this consent pertains to, the following sections of the Technical Report Summary:

- Section 1.3.11, 16 and 22.8

Signature of Authorized Person
Name: Manuel A. Hernández Fellow AusIMM - Member 306576
Title: Civil Mining Engineer

Knight Piésold Consultores S.A.
Calle Aricota 106 Piso 5
Santiago de Surco
Lima
T + 51 202-3777
E emurrugarra@knightpiesold.com
www.knightpiesold.com

CONSENT OF THOMAS F. KERR

I, Thomas F. Kerr, MSc., P.Eng., P.E., in connection with the filing of Compañía de Minas Buenaventura S.A.A.'s (the "Company") Annual Report on Form 20-F for the year ended December 31, 2021 (the "Annual Report"), consent to:

- the public filing and use of the technical report summary titled "SEC Technical Report Summary Pre-Feasibility Study for Uchucchacua" with an effective date of March 15, 2022 (the "Technical Report Summary"), as an exhibit to and referenced in the Annual Report;
- the use of and reference to our name, including our status as an expert or "qualified person" (as defined in S-K 1300), in connection with the Annual Report and the Technical Report Summary; and
- the information derived, summarized, quoted or referenced from those sections of the Technical Report Summary, or portions thereof, for which Thomas F. Kerr is responsible that is included or incorporated by reference in the Annual Report.

This consent pertains to the following sections of the Technical Report Summary:

- Section 15.2.

Dated this 5th day of May, 2022.

Thomas F. Kerr, MSc., P.Eng., P.E.

Senior Principal Engineer

File No.: LI201-00067/71
Cont. No.: PEL-0302-2022

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Abbreviations

[Metric]

The metric system has been used throughout this report. Tonnes are metric of 1,000 kg, or 2,204.6 lb. All currency is in U.S. dollars (US$) unless otherwise stated.

[US System]

The US System for weights and units has been used throughout this report. Tonnes are reported in short tonnes of 2,000lbs. All currency is in U.S. dollars (US$) unless otherwise stated.

To facilitate the reading of large numbers, commas are used to group the figures three by three starting from the comma or decimal point.

Abbreviation	Unit or Term
%	percent
°	degree (degrees)
°C	degree celsius
A	ampere
AA	atomic absorption
AASR	Atomic Absorption Spectroscopy - Aqua regia digestion
A/m^2	amperes per square meter
ACQUIRE	Systematic database software to store data and ensure its integrity
ADI	area of direct influence
ADSI	Area of Direct Social Influence
AEU	Urban Expansion Area
AISI	Area of Indirect Social Influence
ANA	National Water Authority
ANFO	ammonium nitrate fuel oil
Ag	silver
approx.	approximately
Au	gold
AuEq	gold equivalent grade
BISA	Bisa Ingenieria de Proyectos S.A.
BVN	Cía de Minas Buenaventura S.A.A.
BV	Best Value range
Capex	Capital expenditure
CCD	counter-current decantation
CIL	carbon-in-leach
CIRA	Certificate of Absence of Archaeological Remains
CoG	cut-off grade
cm	centimeter
cm^2	square centimeter

Abbreviation	Unit or Term
cm^3	cubic centimeter
cfm	cubic feet per minute
CONENHUA	Consorcio Energetico de Huancavelica S.A.
ConfC	confidence code
CRec	core recovery
CRU	CRU Consulting
CSS	closed-side setting
CSV	Comma Separated Value, is a special type of file that you can create or edit in Excel
CTW	calculated true width
Cu	Copper
°	degree (degrees)
dia.	diameter
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMI	Environmental Management Instruments
EMP	Environmental Management Plan
FA	fire assay
ft	foot (feet)
ft^2	square foot (feet)
ft^3	cubic foot (feet)
g	gram
gal	gallon
g/L	gram per liter
g-mol	gram-mole
gpm	gallons per minute
GPS	Global positioning system
g/t	grams per tonne
ha	hectares
HDPE	Height Density Polyethylene
hp	horsepower
HTW	horizontal true width
ICP	induced couple plasma
ID2	inverse-distance squared
ID3	inverse-distance cubed
i.e.	id est
IEC	International Electrotechnical Commission
IFC	International Finance Corporation
Ingemmet	Institute of Geology, Mining and Metallurgy
ILS	Intermediate Leach Solution

Abbreviation	Unit or Term
ISO	International Organization for Standardization
kA	kiloamperes
kg	kilograms
km	kilometer
km^2	square kilometer
koz	thousand troy ounce
kt	thousand tonnes
kt/d	thousand tonnes per day
kt/y	thousand tonnes per year
kUS$	thousand united states dollars
kV	kilovolt
kW	kilowatt
kWh	kilowatt-hour
kWh/t	kilowatt-hour per metric tonne
L	liter
L/sec	liters per second
L/sec/m	liters per second per meter
lb	pound
LHD	Long-Haul Dump truck
LIMS	Laboratory Information Management System
LLDDP	Linear Low Density Polyethylene Plastic
LOI	Loss On Ignition
LoM	Life-of-Mine
m	meter
m^2	square meter
m^3	cubic meter
masl	meters above sea level
MARN	Ministry of the Environment and Natural Resources
MCP	Mine Closure Plan
MDA	Mine Development Associates
mg/L	milligrams/liter
MINEM	Ministry of Energy and Mines
MINAM	Ministry of Environment
mm	millimeter
mm^2	square millimeter
mm^3	cubic millimeter
MME	Mine & Mill Engineering
Moz	million troy ounces
MsSQL	My Structured Query Language
Mt	million tonnes

Abbreviation	Unit or Term
MTW	measured true width
MW	million watts
m.y.	million years
NGO	non-governmental organization
NI 43-101	Canadian National Instrument 43-101
OEFA	Environmental Evaluation and Oversight Agency
OK	Ordinary Kriging
OSC	Ontario Securities Commission
OSHAS	Occupational Health and Safety Assesment Series
Osinergmin	Supervisory Agency for Investment in Energy and Mining
oz	troy ounce
%	percent
Pb	Lead
PFS	Pre-Feasibility Study
PLC	Programmable Logic Controller
PLS	Pregnant Leach Solution
PMF	probable maximum flood
ppb	parts per billion
ppm	parts per million
QA/QC	Quality Assurance/Quality Control
QKNA	Quantitative kriging neighborhood analysis
RC	rotary circulation drilling
RoM	Run-of-Mine
RQD	Rock Quality Description
SD	Standard Deviation
SEC	U.S. Securities & Exchange Commission
sec	second
SG	specific gravity
SGS	Société Générale de Surveillance
SENACE	National Environmental Certification Authority
SENAMI	Meteorology and Hydrology Service National
SPT	standard penetration testing
SRK	SRK Consulting (Peru) S.A.
st	short tonne (2,000 pounds)
t	tonne (metric tonne) (2,204.6 pounds)
t/h	tonnes per hour
t/d	tonnes per day
t/y	tonnes per year
TSF	tailings storage facility
TSP	total suspended particulates

Abbreviation	Unit or Term
US$	American dollar
US$/ troy oz	Dollars per troy ounce
US$/ha	Dollars per hectare
US$/oz	Dollars per ounce
US$/t.	Dollars per metric ton
µm	micron or microns
V	volts
VFD	variable frequency drive
W	watt
XLS	The XLS extension is that of Excel files in their versions from 97 to 2003
XRD	x-ray diffraction
y	year
Zn	Zinc

1 Executive Summary

1.1 Summary

SRK Consulting (Peru) S.A., (SRK) was retained by Compañía de Minas Buenaventura S.A.A. to prepare an independent Technical Report Summary on the Uchucchacua mining unit, located in the Department of Lima, Peru. Compañía de Minas Buenaventura S.A.A. is a publicly traded company on the New York Stock Exchange (NYSE).

This report was prepared as a PFS Technical Report Summary in accordance with the Securities and Exchange Commission (SEC) S-K regulations (Title 17, Part 229, Items 601 and 1300 until 1305) for Compañía de Minas Buenaventura S.A.A. (NYSE: BVN) by SRK Consulting (U.S.), Inc. (SRK) on the Technical Report Summary for Uchucchacua (TRS).

The purpose of this Technical Report Summary is to report mineral resources, mineral reserves and exploration results.

This report is based in part on internal Company technical reports, previous prefeasibility studies, maps, published government reports, company letters and memoranda, and public information as cited throughout this report and listed in the References Section 24.

Reliance upon information provided by the registrant is listed in the Section 25 when applicable.

The Uchucchacua mining unit (100% owned by Compañía de Minas Buenaventura) began operations in 1975. It is an underground operation that produces silver, lead, and zinc. It is located in the central highlands of Peru and is part of the Oyon mining district, which has produced silver since colonial times. At the end of 2019, the Yumpag Project was incorporated into the unit.

Uchucchacua is located in the district and province of Oyón, department of Lima, The Yumpag project is located 5 km NE of Uchucchacua and is considered part of the mining unit.

The mine is 180 km in a straight-line distance from the city of Lima, at a latitude of approximately 10°37'26'' S, longitude of 76°41'20'' W, and an altitude of 4,450 masl.

The Uchucchacua mining unit, which includes the Yumpag project, consists of veins and replacement bodies associated with structural systems, including the Uchucchacua, Socorro-Cachipampa, Rosa, and Sandra faults, among others. There are currently 5 individual mines in operation: Socorro, Carmen, Casualidad, Huantajalla, and Yumpag. The most important structure to date within this project is the Camila vein.

Uchucchacua operates a conventional concentration operation that processes polymetallic ores to produce mineral concentrates of varying quality. The processing plant consists of two parallel processing lines, which are both flotation circuits: Circuito 1, which has a nominal capacity of 3,000 tonnes per day of fresh feed but operated at only 2,600 tonnes/day in 2017-2019, and Circuito 2, with a nominal capacity of 1,200 tonnes/day but which produced only 1,000 tonnes/day (approx.) in 2017-2020.

1.1.1 Conclusions

a. Geological and Mineral Resources

- Uchucchacua is a silver-bearing deposit with base metals and a high content of manganese hosted in the carbonate rock of the Jumasha Formation from the Upper Cretaceous, related to intrusives from the Miocene. It consists of veins and replacement bodies associated with systems of NE-SW, E-W, and NW-SE structures. Of particular note are the Uchucchacua, Socorro-Cachipampa, Rosa, and Sandra faults, among others. Mineralogy is varied and complex, with the occurrence of silver in sulfides and sulfosalts, with abundant alabandite and manganese calcium silicates. Lead and zinc increase in proximity to the intrusives. Work is currently underway in the Socorro, Carmen-Casualidad, and Huantajalla Mines.
- Yumpag consists of a series of intermediate-sulfidation veins, running predominantly northeast, tensional to the Cachipampa fault, which controls the mineralization in the Uchucchacua Mine. The most important structure to date is the Camila vein, which presents bonanza-type silver-bearing mineralization, associated with the presence of silver sulfosalts and traces of gold. The deposit is very similar to Uchucchacua.
- The main exploration method in Uchucchacua-Yumpag has been diamond drilling. However, other exploration methods in different stages, such as geological mapping, surface/underground geochemical sampling and geophysics, have also been applied since the onset of the project.
- Protocols for drilling, sampling preparation and analysis, verification, and security meet industry-standard practices and are appropriate for a Mineral Resource estimate.
- The geological models are reasonably constructed using available geological information and are appropriate for Mineral Resource estimation.
- The assumptions, parameters, and methodology used for the Uchucchacua-Yumpag Mineral Resource estimate are appropriate for the style of mineralization and proposed mining methods.

Uchucchacua

- Geology and mineralization are well understood through decades of mining production, and SRK has used relevant and available data sources to accompany Compañía de Minas Buenaventura in efforts to develop a scale model of the long-term resource for public reporting purposes. Additional data is likely to exist that could be used to drive a very small-scale interpretation but would have very little impact on mineral resources overall.
- The mineral resources have been estimated by Compañía de Minas Buenaventura, who generated a 3D geological model informed by various types of data (mainly drill holes, mine channels, working mapping and section interpretation) to constrain and control the shapes of minerals veins.
- Drilling data from cores and mine channels were combined into geological structures, Ag, Pb, Zn, Fe and Mn grades were interpolated into block models for the different zones of the mine using Ordinary Kriging and Inverse Distance methods in its different veins. The results were validated visually, through various statistical comparisons. The estimate was sterilized with areas harvested prior to the date of this report; graded consistently with industry standards; and reviewed with Uchuchaccua staff.
- Mineral Resources have been reported using an optimized scenario, based on mining and economic assumptions to support the reasonable potential for economic extraction of the resource. A cutoff has been derived from these economic parameters, and the resource has been reported above this cutoff.
- In SRK's opinion, the mineral resources set forth herein are appropriate for public disclosure and meet the definitions of indicated and inferred resources established by SEC guidelines and industry standards.

Yumpag

- SRK has used relevant and available data sources to accompany Compañía de Minas Buenaventura in the scale modeling effort of a long-term public reporting resource. Additional data is likely to exist that could be used to drive a very small-scale interpretation but would have very little impact on mineral resources overall.
- The mineral resources have been estimated by Compañía de Minas Buenaventura, which generated a 3D geological model informed by various types of data (mainly core drilling and section interpretation) to constrain and control their body shapes.
- Drilling data was used within geological structures, the grades of Ag, Pb, Zn, Fe and Mn were interpolated into block models for the different zones of the mine using Ordinary Kriging and Inverse distance methods in its different veins. The results were validated visually and through various statistical comparisons. Classified consistently with industry standards and reviewed with Yumpag staff.
- Mineral Resources have been reported using an optimized scenario, based on mining and economic assumptions to support the reasonable potential for economic extraction of the resource. A cutoff has been derived from these economic parameters, and the resource has been reported above this cutoff.
- In SRK's opinion, the mineral resources set forth herein are appropriate for public disclosure and meet the definitions of indicated and inferred resources established by SEC guidelines and industry standards.

b. Sample Preparation, Analysis and Security

- In Uchucchacua mine sample preparation, chemical analysis, quality control, and security procedures provide, for the most part, unreliable data to support the estimation of mineral resources and reserves, especially for samples analyzed at the Uchucchacua Internal Laboratory. SRK has considered the QAQC analysis results as a risk in the classification of mineral resources and therefore a more conservative classification of mineral resources will be made.
- In Uchucchacua mine sample preparation, chemical analysis, quality control, and security procedures partially provide unreliable data to support the estimation of mineral resources and reserves, especially for samples analyzed at the Uchucchacua Internal Laboratory. SRK has considered the QAQC analysis results as a risk in the classification of mineral resources and therefore a more conservative classification of mineral resources will be made, downgrading the mineral resource category in specific zones.
- In Yumpag mine sample preparation, chemical analysis, quality control, and security procedures are sufficient to provide reliable data to support the estimation of Mineral Resources and Mineral Reserves.

c. Data Verification

- In Uchucchacua and Yumpag the database has some minor findings or inconsistencies, the vast majority of which correspond to historical information obtained from data migration; however, these inconsistencies cause no significant impacts and the database is consistent and acceptable for Mineral Resource Estimation.

d. Mining and Mineral Reserves

In SRK's opinion the mineral reserves estimation is reasonable in the context of available technical studies, information provided by Buenaventura and the assessment developed by SRK. However, SRK strongly recommends monitoring the following risks that it has identified:

- Mining dilution and mining recovery
- Currency exchange rate

- Production costs
- Geotechnical parameters
- Metallurgical aspects (silver metallurgical recovery, circuit destination, and Rio Seco topics)
- Commercial aspects related to traceability and parameters assignment
- Fine content traceability and reconciliation process
- Local politics

e. Mineral Processing

- Uchucchacua operates two parallel crushing-grinding-flotation circuits producing multiple quality concentrates bearing Pb, Zn, Ag, all of them concentrates high in manganese content.
- During SRK's site visit to Uchucchacua it was observed that the mechanical condition of equipment and supporting structures require maintenance. Rio Seco's facilities appear well maintained and in good operating condition.
- In order to improve the commercial value of its concentrates, Uchucchacua reprocess its concentrate in Rio Seco, a dedicated leaching-flotation facility that selectively removes approximately 98% of the manganese to produce a polymetallic concentrate with elevated silver content, manganese sulfate, and multiple calcium-derived compounds resulting from the neutralization of solutions and gases.
- Uchuchacua's satellite Yumpag deposit is being developed as a replacement ore source. Yumpag project is currently focused on the deposit's drilling definition. At this time, the number of testing results for Yumpag are preliminary, limited and not optimized, nevertheless, available results are positive, suggesting an amenable mineralization for the conventional flotation concentration.

f. Environmental, Permitting, and Social Considerations

- The main activities and components for mining and beneficiation comprising the Uchucchacua MU comply with the legal requirement of being covered by an Environmental Certification. A similar appraisal is given regarding its ancillary components.
- Uchucchacua has Mining operating permits issued by sectoral mining authorities: for mining and ancillary activities, for beneficiation and ancillary activities, for the use of water resources, for discharge into water resources, for drinking water treatment plants, for the protection of cultural heritage, fuel storage; and powder magazines

g. Capital and Operating Costs

In SRK's opinion, the operating cost estimation is reasonable in the context of LoM plan, premises, operational conditions, the information provided by Buenaventura and the assessment developed by SRK. SRK considers that the use of historical records provides a good approximation of the reality of the operation and allows for adequate projection of future costs.

Closure costs were estimated by SRK at ±25% accuracy level. In aspects where the technical information was not enough or due to the lack of technical studies, allowances were considered to cover any unknown technical issue. In the SRK's opinion, the closure cost is reasonable and reflects the reality of Uchucchacua's environmental conditions.

Capital cost expenditure was estimated by Buenaventura and in SRK's best understanding, was estimated following best practices and in accordance with conditions at Uchucchacua. SRK finds the amounts in the optimistic range for the type and size of Uchucchacua's operation. SRK cannot developed a detailed analysis of the capital costs or provide support for the same.

SRK recommends monitoring the following aspects:

- Plan and process to re-start mining operations,
- Monitor the currency exchange rate,
- Prepare support for the capital cost expenditure and update according changes in the conditions for the re-start of the operations.

h. Economic Analysis

Based on the assumptions detailed in this report, the operation is forecasted to generate positive cashflow over the life of the reserves. This estimated cashflow is inherently forward-looking and dependent upon numerous assumptions and forecasts, such as macroeconomic conditions, mine plans and operating strategy, all of which are subject to change.

This yields an after-tax LoM NPV@ 6.04% of US$34.9912M, of which all is attributable to Buenaventura.

The analysis performed for this report indicates that the operation's NPV is most sensitive to variations in commodity prices and in plant performance.

1.1.2 Recommendations

a. Geological and Mineral Resources

Uchucchacua

- SRK recommends developing a detailed geological and structural model to further support the modeling geology of the deposit.
- Only a minor percentage of density sampling information was available, SRK recommends that systematic density sampling programs be carried out covering all veins, adequately distributed along the length and height of the veins.
- The results of QAQC throughout the life of the mine have not been optimal, SRK recommends that the quality control program be adequately followed up, these inappropriate results generated the non-declaration of measured resources.
- SRK recommends implementing a reconciliation program that includes the different types of resource models, reserves, mine plans and plant results.

Yumpag

- SRK recommends developing detailed structural model to further support the modeling geology of the reservoir.
- Density sampling information for resource estimation was insufficient, SRK recommends that systematic density sampling programs be carried out for all surveyed structures.

b. Sample Preparation, Analysis and Security

- In Uchucchacua mine, more frequent precision monitoring should be carried out (fine duplicates, coarse duplicates and twin samples) to detect problems or inconsistencies.
- In Uchucchacua mine, more frequent monitoring of accuracy (Zn) should be carried out in the internal laboratory to detect problems or inconsistencies.
- In Yumpag mine, more frequent precision monitoring (coarse duplicates) should be carried out to detect problems or inconsistencies.
- In Yumpag mine, more frequent monitoring of accuracy (Ag, Zn) should be carried out in the external ALS laboratory to detect problems or inconsistencies.

- In Yumpag mine, the percentage of inclusion of standards should be increased according to the best practices in the industry.

c. Data Verification

- In Uchucchacua and Yumpag mines, SRK recommends conducting is recommended to carry out internal validations of the database; verification of the data export process; and issuing of chemical analysis reports from the Internal Laboratory for future reviews and/or internal audits

d. Mining and Mineral Reserves

- Improvement of metallurgical recovery estimation through on-going performance control of plant operations and the execution of additional metallurgical tests. SRK finds that proposed functions are coherent with the current and future processing plant operations; however, it is necessary to complete additional analysis. Recoveries for silver, lead and zinc in low grade ranges show limited information. Silver recovery for different products must be developed.
- Implement a systematic reconciliation process and improve the traceability of the fine contents. Following best practices in the industry, this process should involve the following areas mine operations: geology, mine planning and processing plant under an structured plan of implementation;
- Improvement of “unit value” calculation by means the parameters traceability and adding some level of differentiation in the commercial terms, separating commercial terms related to the metal or payable content and commercial terms related to the mass of the concentrate.
- Evaluate a simplification of saleable products and adequate assignment of circuit destination for the in-situ materials.
- Geotechnical monitoring of underground operations and implement feedback process to incorporate the monitoring results into the geotechnical model used for underground design purposes.

e. Mineral Processing

- Because the current mechanical and structural condition of the processing plant, SRK is of the opinion that Uchucchacua will need to refurbish it. This will bring the opportunity to modernize some of the equipment and ancillary systems. A successful plant start-up (or re-starting for this particular purpose) must be understood as one that simultaneously achieves: target instantaneous ore throughput (tonnes/hour), target mechanical availability (hours/day, hours/week, hours/month), and nominal concentrate production in terms of tonnage and quality over at least four consecutive months. The Yumpag Project offers multiple opportunities to improve the Uchucchacua-Rio Seco integrated business. A good practice that will facilitate timely evaluation of the business’s potential would be to execute metallurgical testing immediately after obtaining Yumpag’s DDH geochemistry data.
- It is SRK’s opinion that Rio Seco has significant potential to become a custom refinery for third-party non-typical quality concentrates in the region.

f. Environmental, Permitting, and Social Considerations

- Continue executing the plans and programs related to:
  - Mine closure plans, including remediation and reclamation plans, and associated costs.
  - Social relations, commitments, and agreements with individuals and local groups.
  - Mine reclamation and closure.
  - Adequacy of plans (environmental, mine closure, local individuals and groups).

- Commitments to Ensure Local Procurement and Hiring (local employment program, local goods and services acquisition program)

g. Capital and Operating Costs

- Development of additional technical studies for the mine closure process and to improve the accuracy of cost estimation. SRK believes that there are opportunities to improve and reduce the closure costs supported by technical studies,
- Trace and assign amounts of investment and operating costs correctly in the corresponding accounting items to ensure adequate control, structuring and sorting of the capital and operating cost.
- Additional support in the trace and assign commercial and selling expenses to the value of in-situ material
- Continuous monitoring of cost results (yearly, quarterly); these results should be used as feedback on the operating and capital cost estimation).

1.2 Economic Analysis

Uchucchacua's operation consists of an underground mine and processing facilities. The operation is expected to have a 5year life; the first year of operation is modeled.

The economic analysis metrics are prepared on an annual after-tax basis in US$. The results of the analysis are presented in Table 1-1. The results indicate that the operation returns an after-tax NPV@6.04% of US$34.98M (all attributable to Buenaventura). Note that because the mine is operating and is valued on a total project basis where prior costs are treated as sunk, IRR and payback period analysis are not relevant metrics.

Table 1-1: Indicative Economic Results

	Units	Value
LoM Cash Flow (Unfinanced)		
Total Net Sales	M US$	1,105.85
Total Operating cost	M US$	651.76
Total Operating Income	M US$	183.35
Income Taxes Paid	M US$	22.80
EBITDA		
Free Cash Flow	M US$	321.94
NPV @ 6.04%	M US$	249.25
After Tax		
Free Cash Flow	M US$	40.78
NPV @ 6.04%	M US$	34.99

Source: SRK

1.3 Technical Summary

1.3.1 Property Description

Uchucchacua is located in the district and province of Oyón, department of Lima, and in the district of Yanahuanca, province of Daniel Alcides Carrion, department of Pasco. Straight-line distance to the city of Lima is 180 kms in a straight-line distance from the city of Lima, and the mine is located approximately at a latitude of approximately 10°37'26'' S, longitude of 76°41'20'' W, and an altitude of 4,450 masl. The Yumpag project is located 5 km NE of Uchucchacua and is considered part of the mining unit.

The property can be accessed from Lima, via the road Lima - Sayán - Churín – Oyón -– Uchucchacua, for approximately a total travel distance of approximately of 322 km. The second access is via the road Lima - La Oroya - Cerro de Pasco -– Uchucchacua, for a total travel distance of; approximately a total of 390 km.

1.3.2 Land tenure

The Uchucchacua mining unit, including Yumpag, is comprised of 28 mining concessions. These 28 concessions represent the area of mines and exploration projects. Mining and exploration activities are carried out within these mining concessions, 46,000 hectares (Ha) approximately.

1.3.3 History

Uchucchacua was discovered during the Spanish viceroyalty. Evidence of this is the many Spanish workings in the areas of Nazareno, Mercedes, Huantajalla and Casualidad. At the beginning of 1960, Cia. de Minas Buenaventura started prospecting exploration in the area. From 1969 to 1973, Buenaventura installed a pilot plant that initially treated ores from the Socorro and Carmen mines. Satisfactory results led to the installation of an industrial plant in 1975. Currently, the Socorro, Carmen, Casualidad and Yumpag mines are operating fully while operations at Huantajalla are partial. Uchucchacua has a treatment capacity of 4,200 metric tons per day.

1.3.4 Geological and Mineralization

The geology consists of sedimentary rocks of the Upper Cretaceous carbonate sequence. At the base limestones of the Jumasha and Celendín formations exist; these sedimentary rocks have been strongly folded and faulted. On top of these units and in erosional unconformity, the red layers of Casapalca formation were deposited, and then finally covered by Calipuy group volcanic rocks and Tertiary intrusives.

Uchucchacua is a polymetallic deposit associated with replacement bodies and veins. Its mineralization (Ag, Zn, Pb, Fe and Mn) is located in a sequence of carbonate rocks of the Upper Cretaceous Jumasha Formation.

1.3.5 Exploration Status

SRK notes that the property is an active mining operation with a long history and that results and interpretation from exploration data are generally supported in more detail by extensive drilling and by active mining exposure of the orebody in underground works.

The area around Uchucchacua-Yumpag Operations has been extensively mapped, sampled, and drilled over several years of exploration work. For this report, active mining, and extensive exploration drilling, should be considered the most relevant and robust exploration work for the current mineral resource estimation.

1.3.6 Mineral Resources Estimates

Uchucchacua Unit

The 2021 Mineral Resource Update was based on channel sample and drill hole information obtained by Minera Uchucchacua. Mineralized domains identifying potentially economically mineable material were modeled for each vein and used to code drill holes and channel samples for geostatistical analysis, block modeling, and grade interpolation by ordinary kriging or inverse distance weighting.

Net smelter return (NSR) values for each mining block take into account expected terms of trade, average metallurgical recovery, the average grade in concentrate and projected long-term metal prices. Mineral Resources take into account operating costs and have been reported above as a differentiated NSR cut-off.

The resource confidence classification considers some aspects that affect the confidence in the resource estimate, including geological continuity and complexity; data density and orientation; accuracy and precision of the data; and continuity of grade. Mineral resources are classified as measured, indicated or inferred. The criteria used for the classification include the number of samples, the spatial distribution, the distance from the block centroid and the Confidence Limits Methodology.

Mineral Resources excluding Mineral Reserves of the Uchucchacua Mine are reported as of December 31, 2021 and are detailed in Table 1-2.

Table 1-2: Summary of Mineral Resources

Classification	Tonnes	Ag	Pb	Zn	Mn	Fe	NSR	Width
	(000)	oz/t	pct	pct	pct	pct	US$/t	m
Measured	620	7.95	1.06	1.69	6.94	3.96	136.38	1.71
Indicated	1,607	7.86	1.1	1.85	6.85	5.61	136.71	2.04
Measured & Indicated	2,227	7.88	1.09	1.8	6.87	5.15	136.62	1.95
Inferred	7,029	11.73	1.49	2.2	6.58	6.57	203.9	2.96

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

Notes on mineral resources:

- Mineral Resources are defined by the SEC Definition Rules for Mineral Resources and Mineral Reserves.
- Mineral Resources are exclusive of Mineral Reserves
- Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability
- The reference point for the Mineral Resources estimate is insitu. Mineral Resources were estimated as of june 30,2021. The estimate has an effective date of 31 december, 2021. The Qualified Person Firm responsible for the resource estimate is SRK Consulting (Peru) S.A.
- Mineral Resources are reported above a differentiated NSR cut-off grade for structures based on actual operating costs
- Metal prices used in the NSR assessment are US$27.5/oz for silver, US$2,515/t for lead and US$2,624/t for zinc.
- Extraction, processing and administrative costs used to determine NSR cut-off values were estimated based on actual operating costs as of 2021
- Cesar Cerdán, Engineer. (AIG #7206) is the Qualified Person for the resources being an employee of SRK Consulting Peru.
- Tones are rounded to the nearest thousand

- Totals may not add due to rounding.
- The database was of June 30, 2021, and the depletion was of October 15, 2021. Therefore, the effective date was October 15, 2021.

Factors that may affect estimates include metal price and exchange rate assumptions; changes in the assumptions used to generate the cut-off grade; changes in local interpretations of the geometry of mineralization and continuity of mineralized zones; changes in geological form and mineralization and assumptions of geological and grade continuity; variations in density and domain assignments; geo-metallurgical assumptions; changes in geotechnical, mining, dilution and metallurgical recovery assumptions; switch to design and input parameter assumptions of conceptual stope designs that constrain estimates; and assumptions as to the continued ability to access the site, retain title to surface and mineral rights, maintain environmental and other regulatory permits, and maintain the social license to operate.

There are no other known environmental, legal, title, tax, socioeconomic, marketing, political or other factors that could materially affect the estimate of Mineral Resources or Mineral Reserves that are not discussed in this Report.

Yumpag Project

The 2021 Mineral Resource Update was based on drill hole information obtained by Yumpag Project. Mineralized domains identifying potentially economically mineable material were modeled for each structure and used to code drill holes samples for geostatistical analysis, block modeling, and grade interpolation by ordinary kriging or inverse distance weighting.

Net smelter return (NSR) values for each mining block take into account expected terms of trade, average metallurgical recovery, the average grade in concentrate and projected long-term metal prices. Mineral Resources take into account operating costs and have been reported above as a differentiated NSR cut-off.

The resource confidence classification considers some aspects that affect the confidence in the resource estimate, including geological continuity and complexity; data density and orientation; accuracy and precision of the data; and continuity of grade. Mineral resources are classified as measured, indicated or inferred. The criteria used for the classification include the number of samples, the spatial distribution, the distance from the block centroid and the Confidence Limits Methodology.

Mineral Resources excluding Mineral Reserves of the Yumpag Project are reported as of August 31, 2021 and are detailed in Table 1-3.

Table 1-3: Summary Mineral Resources

Classification	Tonnes	Ag	Pb	Zn	Fe	Mn	NSR
	(000)	oz/t	pct	pct	pct	pct	US$/t
Measured	9	20.76	0.44	0.65	3.41	22.33	269.40
Indicated	195	16.07	0.31	0.56	2.98	19.53	207.32
Measured & Indicated	204	16.28	0.32	0.57	3.00	19.65	210.07
Inferred	148	27.18	0.65	1.07	4.35	22.83	363.25

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

Notes on mineral resources:

- Mineral Resources are defined by the SEC Definition Rules for Mineral Resources and Mineral Reserves.

- Mineral Resources are exclusive of Mineral Reserves
- Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability
- Mineral Resources were estimated as of December 31, 2021 and reported as of August 31, 2021 taking into account production-related depletion for the period through December 31, 2021.
- Mineral Resources are reported above a differentiated NSR cut-off grade for structures based on actual operating costs
- Metal prices used in the NSR assessment are US$27.5/oz for silver, US$2,515/t for lead and US$2,624/t for zinc.
- Extraction, processing and administrative costs used to determine NSR cut-off values were estimated based on actual operating costs as of 2021
- Cesar Cerdán, Engineer. (AIG #7206) is the Qualified Person for the resources being an employee of SRK Consulting Peru.
- Tonnes are rounded to the nearest thousand
- Totals may not add due to rounding.

Factors that may affect estimates include metal price and exchange rate assumptions; changes in the assumptions used to generate the cut-off grade; changes in local interpretations of the geometry of mineralization and continuity of mineralized zones; changes in geological form and mineralization and assumptions of geological and grade continuity; variations in density and domain assignments; geo-metallurgical assumptions; changes in geotechnical, mining, dilution and metallurgical recovery assumptions; switch to design and input parameter assumptions of conceptual stope designs that constrain estimates; and assumptions as to the continued ability to access the site, retain title to surface and mineral rights, maintain environmental and other regulatory permits, and maintain the social license to operate.

There are no other known environmental, legal, title, tax, socioeconomic, marketing, political or other factors that could materially affect the estimate of Mineral Resources or Mineral Reserves that are not discussed in this Report.

1.3.7 Mineral Reserves Estimates

Mineral reserves Estimation for Uchucchacua mine considers the uses of mechanized and semi mechanized underground methods to extract mineral reserves

Proven and probable mineral reserves are converted from measured and indicated mineral resources. Conversion is based on mine design, mine sequence and economic evaluation. The in situ value is calculated from the estimated grade and certain modifying factors.

The mine LoM plans and resulting mineral reserves stated in this report are based on pre-feasibility level studies.

Mineral reserves effective date is December 31st, 2021

Cost estimations are based on the historic cost of years 2018-2020. Forecast cost estimated considers criteria for future operational conditions and an additional 10% contingency. For the case of mining costs of Yumpag a contingency between 13% and 16% was considered.

Mineral reserves are reported above marginal NSR cut-off value for underground materials. The marginal cut-off considers only the variable cost.

Metallurgical recovery is estimated and assigned to a block model attribute using the recovery functions defined for each element and concentrate.

SRK identified risks related to: mining dilution and mining recovery, currency exchange rate, production costs, geotechnical parameters, metallurgical and commercial aspects and local politics. However, to the best of SRK's knowledge and based on available technical studies and information provided by Buenevantura, no fatal flaw is present. In the QP's opinion, the mineral reserves estimation is reasonable.

Summary mineral reserves are shown in the Table 1-4.

Table 1-4: Uchucchacua Underground Summary Mineral Reserve Statement as of December 31st, 2021

Mining Method	Confidence category	Tonnage (kt)	Silver Grade (oz/t)	Lead Grade (%)	Zinc Grade (%)	Manganese Grade (%)
Uchucchacua Bench & Fill	Proven	513	213.55	1.27	2.18	4.75
	Probable	3,662	220.54	1.34	2.22	4.72
	Sub-total Proven & Probable	4,175	219.68	1.33	2.22	4.72
Uchucchacua Cut & Fill	Proven	70	234.06	1.45	3.22	1.74
	Probable	355	300.66	1.17	2.24	2.69
	Sub-total Proven & Probable	425	289.68	1.22	2.40	2.53
Yumpag Over Drift & Fill	Proven	19	451.87	0.24	0.29	17.59
	Probable	544	545.05	0.39	0.75	16.72
	Sub-total Proven & Probable	562	541.97	0.39	0.73	16.75
Yumpag Bench & Fill	Proven	3	1,104.34	1.02	1.95	15.47
	Probable	857	640.24	0.51	0.93	16.45
	Sub-total Proven & Probable	860	641.95	0.51	0.93	16.45
Yumpag SARC **	Proven	0	0.00	0.00	0.00	0.00
	Probable	96	613.65	0.41	0.84	17.31
	Sub-total Proven & Probable	96	613.65	0.41	0.84	17.31
TOTAL	Proven	605	227.93	1.26	2.24	4.85
	Probable	5,514	329.78	1.09	1.85	7.82
	Total Proven & Probable	6,119	319.72	1.11	1.89	7.52

Source: SRK, 2021

(1) Buenaventura's attributable portion of mineral resources and reserves is 100.00% (Amounts reported in the table corresponds to the total mineral reserves)

(2) The reference point for the mineral reserve estimate is the point of delivery to the process plant.

(3) Mineral reserves are current as of December 31st, 2021 and are reported using the mineral reserve definitions in S-K 1300. The Qualified Person Firm responsible for the estimate is SRK Consulting (Peru) SA

(4) Key parameters used in mineral reserves estimate include:

(a) Average long term prices of silver price of 25.00 US$/oz, lead price of 2,286 US$/t, zinc price of 2,385 US$/t

(b) Variable metallurgical recoveries are accounted for in the NSR calculations and defined according to recovery functions, that average 83% for silver, 64% for lead and 44% for zinc

(c) Mineral reserves are reported above a marginal net smelter return cut-off of:
Uchucchacua Zone (Circuit 1): 74.99 US$/t for bench & fill and 83.48 US$/t for cut & fill mining methods;
Uchucchacua Zone (Circuit 2): 58.01 US$/t for bench & fill and 66.51 US$/t for cut & fill mining methods;
Yumpag Zone: 72.03 US$/t for over drift & fill, 65.62 US$/t for bench & fill and 62.81 US$/t for overhand sublevel stoping mining methods.
165.62

(d) Ore from Uchucchacua Zone is scheduled to be processed throught circuit 1 and circuit 2.
Ore from Yumpag Zone is scheduled to be processed throught circuit 2.

(5) Mineral reserves tonnage, grades and contained metal have been rounded to reflect the accuracy of the estimate, and numbers may not add due to rounding

1.3.8 Mining Methods

The Uchucchacua mining unit applies two underground mining methods:

Bench & Fill with long holes, this method corresponds to an adaptation of sublevel stoping (SLS), entails longitudinal mining of the vein. A lower and upper sublevel are built, and leaving an ore bench between them, which is mined by long-hole drilling. As the ore is broken from the bench on one face and the ore is cleaned from the lower sublevel, the stope is backfilled from the upper sublevels with detrital fill.

Overhand Cut & Fill (OCF) with stoping-like vertical raiseboring, involves two activities: stoping: sub-vertical drilling and backfill: 80% of the backfill is detrital fill from development/preparations and 20% is hydraulic fill. In this method, the ore is fragmented in horizontal strips starting at the bottom of the stope. When a complete horizontal strip has been mined, the stope is backfilled with 80 and 20% detrital material and hydraulic fill, respectively. This backfill serves as a work floor for overhand mining. In each ore cut, support work must be done to ensure the stability and safety of personnel and equipment, as this method requires that personnel enter the area.

1.3.9 Mineral Processing

Uchucchacua operates a conventional crushing-grinding-flotation concentration operation that processes polymetallic ores to produce mineral concentrates of varying quality. The processing plant consists of two parallel processing lines namely Circuito 1 with nominal capacity of 3,000 tonnes per day of fresh feed that in 2017-2019, the circuit operated at only 2,600 tonnes/day approximately, and Circuito 2 with nominal capacity is 1,200 tonnes/day that operated at approximately 1,000 tonnes/day.

The Circuit 1's final product includes Zn-Ag concentrate, Py-Ag concentrate, Pb-Ag concentrate, and unitary Pb-Ag concentrate. The Circuit 2's final product includes Zn concentrate, Py-Ag concentrate, Rio Seco concentrate. Final tailings from both circuits are delivered to a common conventional tailings storage facility. Dump truck transport the final concentrates off site to Rio Seco facilities for refining.

Uchucchacua's high manganese content concentrates are further processed at Rio Seco facilities. Rio Seco includes a leaching-flotation plant whose final product includes polymetallic concentrate, manganese sulfate, and multiple calcium-derived compounds resulting from the neutralization of solutions and gases. Final products are trucked off site to Callao Port and local clients.

1.3.10 Infrastructure

The in-situ and operating infrastructure at Uchucchacua includes the following:

- Mine Operations Support Facilities
    - Underground workshop
    - Two pumping system
    - Mine administration og 1,500 m².
    - Main warehouse
    - A laboratory of 578 m².
- A workshop building
- Truck fuel facility
- An explosive Storage
- Processing Plant Support Facilities
    - A laboratory of 578 m².
    - A warehouse of 1632 m²
- Man camp for 1278 company employees and contractors (Plomopampa housing area and Patón area).
- Power Supply and distribution:
    - Power is taken from national network.
    - Two Sub-station (Paragsha II and Uchucchacua)
    - Transmission line 138 KV-SS of 47.8 km.
    - Otuto hydroelectric plant
    - A thermal power plant, which is equipped with a CAT 3612 generator set of 2,400 nominal kW
    - A generator set Sulzer of 1,100 nominal kW.
    - Auxiliar lines
- Water supply by pumpins from lagoons
- Waste Water Treatment and Solid Water Disposal
- Tailing facility
- Four waste rock management facility (Colquicocha, Huantajalla Lvl 360, Uchucchacua and Huantajalla Lvl500)

1.3.11 Market Studies

Buenaventura's zinc concentrates from Uchucchacua has very low zinc content and high levels of manganese. This means the material is sold at a discount and is a good match for traders with a large portfolio who can use the concentrate for blending. Buenaventura has been able to sell this concentrate on the back of the large amount of diverse zinc concentrates extracted in Peru, which allows for a variety of combinations which are attractive to the market once blended.

Uchucchacua's lead concentrates all have different specifications:

“Unitarias”: low lead content, high silver content and low manganese content. Looking ahead, Buenaventura has secured sales for 68% and 13% of Uchucchacua’s “unitarias” concentrate production for 2022 and 2023, respectively.

“Cleaner”: low lead content, high silver content and high manganese content. Over 70% of this material is sent to Rio Seco plant, where it is processed to lower the manganese content and increase lead and silver content in the product. The remaining material is sold directly to market.

“Lixiviado” or leached material: material resulting from leaching a fraction of the “cleaner” concentrate. As mentioned before, this product has lower manganese content and higher lead and silver content than the “cleaner” concentrate. Going forward, Buenaventura has secured sales for 80% and 76% of Uchucchacua’s production of its “lixiviado” material for 2022 and 2023, respectively

1.3.12 Environmental Studies, Pemitting, and Plans, Negotiations, or Agreements with Local Individuals or Groups

Due to its age, the activities at Uchucchacua mine were subject to an Environmental Adjustment and Management Program (PAMA) as the primary environmental management instrument (1997), and subsequently several preventive environmental studies were approved for various areas of the mining activity, as well as modifications to these (either through EIA modifications, Supporting Technical Reports -STR-, or prior communications). Therefore, we can conclude that this set of environmental studies configures the scope of the "Environmental Certification" under which mining activities must be developed.

In addition to the PAMA, Uchucchacua MU has two EIAs (1997 and 1998) for tailings management facilities and plant capacity expansion, as well as three EIA Modifications (2006 and two in 2014), and obtained compliance for minor or environmentally non-significant STR variations (2013, 2014, 2014, 2017, and 2019, in addition to a partial approval of the STR in 2021) and two communications. Finally, it also has a Detailed Environmental Plan (2021).

A review of the descriptive scope of the documents identified above allows us to point out that the main activities and components for mining and beneficiation comprising the Uchucchacua MU comply with the legal requirement of being covered by an Environmental Certification. A similar appraisal is given regarding its ancillary components.

Mining operating permits issued by sectoral mining authorities: for mining and ancillary activities, for beneficiation and ancillary activities, for the use of water resources, for discharge into water resources, for drinking water treatment plants, for the protection of cultural heritage, fuel storage, powder magazines.

Uchucchacua has plans and programs related to:

Mine closure plans, including remediation and reclamation plans, and associated costs.

Social relations, commitments, and agreements with individuals and local groups.

Mine reclamation and closure.

Adequacy of plans (environmental, mine closure, local individuals and groups).

Commitments to Ensure Local Procurement and Hiring (local employment program, local goods and services acquisition program)

1.3.13 Capital and Operating Cost Estimates

SRK has estimated the capital and operating cost based on the review and analysis of:

- Historical operating costs from 2018 to 2020, including a detailed analysis of the cost database and compilation of costs for forecast estimation;
- Projected capital cost for the LoM of Uchucchacua, including sustaining CAPEX
- Closure cost estimation developed by SRK

The summary estimated cost is shown in the Table 1-5.

Table 1-5: Summary Estimated Cost

Item **	Units	Forecast Cost	Estimated cost * (Inc. 10% Conting)
Mining Uchucchacua			
Bench & Fill	US$ / t ore	54.79	60.27
Cut & Fill	US$ / t ore	62.51	68.76
Mining Yumpag			
Over Drift & Fill (ODF)	US$ / t ore	39.37	44.58
Bench & Fill (BF)	US$ / t ore	32.25	37.46
Overhand Sublevel Stoping (SARC) **	US$ / t ore	35.99	41.21
Plant Processing			
Circuit 1	US$ / t processed	27.76	30.54
Circuit 2	US$ / t processed	12.33	13.56
Circuit 1 (Yumpag)	US$ / t processed	27.86	30.65
G&A Mine Operations			
Uchucchacua	US$ / t processed	22.86	25.15
Yumpag	US$ / t processed	23.22	25.54
Sustaining CAPEX			
Processing	US$ / t processed	4.95	5.45
Off Site Cost (Corporate) ***	M US$ / year	18.83	18.83

Source: Buenaventura

* Some items, depending on the cost type, do not include a contingency. Contingency applied to mining cost of Yumpag is between 13% and 16%

** Estimation does not include selling expenses and some commercial costs stated by the contract with the trader. These costs are included directly in the Cashflow

*** Average forecast corporate cost (2024-2028) attributable to Uchucchacua mining unit

The capital cost estimated by Buenaventura totals 16.60 MUS$ for the LoM. No further details on concepts or infrastructure are added to the amount received from Buenaventura.

SRK estimated the closure cost (additional details can be found in Section 17) for all three stages of the closure process and has included a capital and operating cost estimation for a water treatment plant. A summary of total closure costs is shown in Table 1-6.

Table 1-6: Summary Closure Cost

Period	Progressive closure		Final Closure		Post Closure		Water treatment	
	Direct (M US$)	Indirect (M US$)	Direct (M US$)	Indirect (M US$)	Direct (M US$)	Indirect (M US$)	Direct (M US$)	Indirect (M US$)
2022-2028	15.73	2.71						
2029-2033			14.96	7.91				
2032-2051					0.44	0.18		
2029-2051							14.34	17.00

Source: Buenaventura

2 Introduction

2.1 Registrant for Whom the Technical Report Summary was Prepared

This Technical Report Summary was prepared in accordance with the Securities and Exchange Commission (SEC) S-K regulations (Title 17, Part 229, Items 601 and 1300 through 1305) for Compañía de Minas Buenaventura S.A.A, (Buenaventura) by SRK Consulting (Peru) S.A. (SRK) on the Uchucchacua Project. Buenaventura is 100% owner of Uchucchacua Project.

2.2 Terms of Reference and Purpose of the Report

The quality of information, conclusions, and estimates contained herein are consistent with the level of effort involved in SRK's services, based on: i) information available at the time of preparation and ii) the assumptions, conditions, and qualifications set forth in this report. This report is intended for use by Buenaventura subject to the terms and conditions of its contract with SRK and relevant securities legislation. The contract permits Buenaventura to file this report as a Technical Report Summary with American securities regulatory authorities pursuant to the SEC S-K regulations, more specifically Title 17, Subpart 229.600, item 601(b)(96) - Technical Report Summary and Title 17, Subpart 229.1300 - Disclosure by Registrants Engaged in Mining Operations. 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 Buenaventura.

The purpose of this Technical Report Summary is to report mineral resources, mineral reserves and exploration results.

The effective date of this report is March 15, 2022

2.3 Sources of Information

This report is based in part on internal Buenaventura technical reports, previous feasibility studies, maps, published government reports, company letters and memoranda, and public information as cited throughout this report and listed in the References Section **¡Error! No se encuentra el origen de la referencia.**.

Reliance upon information provided by the registrant is listed in the Section 25 when applicable.

2.4 Details of Inspection

¡Error! No se encuentra el origen de la referencia. summarizes the details of the personal inspections on the property by each qualified person or, if applicable, the reason why a personal inspection has not been completed.

Table 2-1: Site Visits

Expertise	Date(s) of Visit	Details of Inspection	Reason why a personal inspection has not been completed
Geology/ Resources	February-March, 2022	Meetings were held with the areas involved in the QAQC, Information Management, Sampling, Logging and Chemical Analysis processes, with the aim of minimizing potential observations in updating resources to SK-1300 standards. In addition, the review and verification of the current in-situ processes of the Uchucchacua and Yumpag Geology and Laboratory area was included.	
Metallurgy	February-March, 2022	All process areas from the delivery of ROM ore to the final product ready for shipment-Chemical metallurgical laboratory Precious metals smelter and refinery area	
Mining	January, 2021	Visit to the underground mine, including production and development areas. The visit to the production stops allowed to observe the application of the mining method and the sequence of activities of the mining cycle. Visual inspection of ground condition (and ground support used), water presence and condition of auxiliary services Meeting with planning and operations mine staff to review the current mine operations, short term and loving term plans	
Other areas			Site Visit not completed due to Covid-19 travel restrictions

Source: SRK

2.5 Report Version Update

The user of this document should ensure that this is the most recent Technical Report Summary for the property.

This Technical Report Summary is not an update of a previously filed Technical Report Summary.

3 Property Description

The Uchucchacua mining unit (100% owned by Compañía de Minas Buenaventura) began operations in 1975. It is an underground operation that produces silver, lead, and zinc. It is located in the central highlands of Peru and is part of the Oyon mining district, which has produced silver since colonial times. At the end of 2019, the Yumpag Project was incorporated into the unit.

3.1 Property Location

Excerpted from (BISA, 2018)

Uchucchacua is located in the district and province of Oyón, department of Lima. The Yumpag project is located 5 km NE of Uchucchacua and considered part of the mining unit.

The mine is 180 km in a straight-line distance from the city of Lima, approximately at a latitude of 10°37'26'' S, longitude of 76°41'20'' W, and an altitude of 4,450 masl

The area corresponds to the western flank of the Andes. Hydrographically, it is located in the Paton River sub-basin, a tributary of the Huaura River on the Pacific watershed, and in the Chaupihuaranga River sub-basin, a tributary of the Huallaga River on the Atlantic watershed.

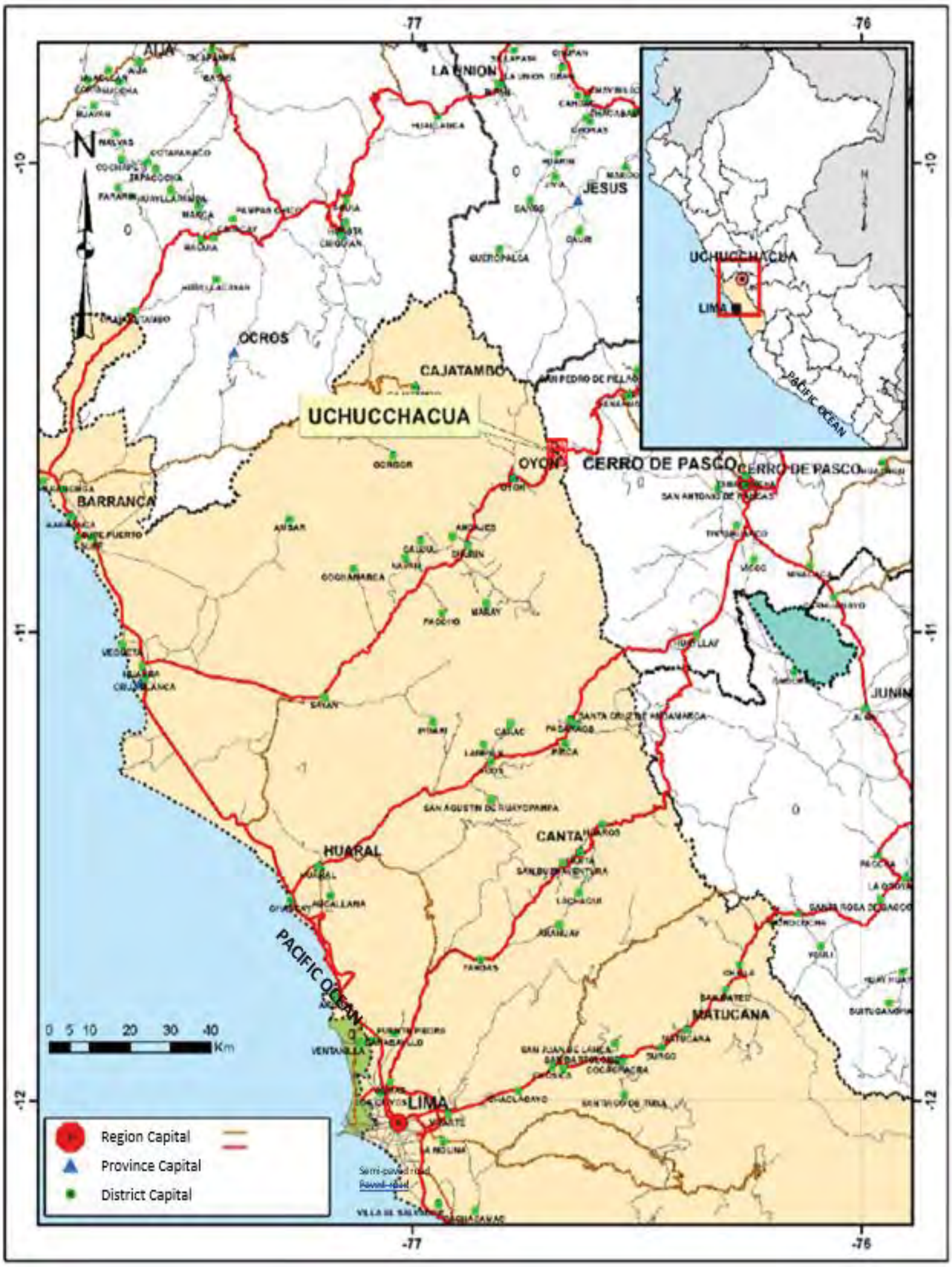


Figure 3-1: Uchucchacua Location Map

Source: (BISA, 2018)

3.2 Property Area

The Uchucchacua mining unit, which includes the Yumpag project, consists of veins and replacement bodies associated with structural systems, including the Uchucchacua, Socorro-Cachipampa, Rosa, and Sandra faults, among others. There are currently 5 individual mines in operation: Socorro, Carmen, Casualidad, Huantajalla, and Yumpag. The most important structure to date within this project is the Camila vein **(BISA, 2018).**

3.3 Mineral Title, Claim, Mineral Right, Lease or Option Disclosure

The Uchucchacua mining unit, including Yumpag, is comprised of 28 mining concessions. These 28 concessions represent the area of mines and exploration projects. Mining and exploration activities are carried out within these mining concessions, 46,000 hectares (Ha) approximately. The leases do not expire as long as statutory duties are paid in a timely manner.

SRK reports that all of the mineral resources and reserves presented in this report are within these concessions (Table 3-1 and Figure 3-2), which are 100% controlled by Buenaventura.

Table 3-1: Uchucchacua-Yumpag and Tenure Table

Claim ID	Claim Name	Owner	As Reported Type	Status	Date Granted	Expiry Date	Area (Ha)
010000120L	ACUMULACION UCHUCCHACUA	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	14/02/2020	Does not expiry as long as statutory duties are paid	20,900.30
010000220L	ACUMULACION YUMPAG	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	14/02/2020		7,146.69
010819395	CALIZA	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	09/08/1995		400.00
04013326X01	CHACUA 103	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	19/12/1985		449.39
010401818	CHACUA 106	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	23/10/2018		600.00
010401718	CHACUA 107	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	23/10/2018		200.00
010416518	CHACUA 108	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	5/11/2018		700.00
010207519	CHACUA 109	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	3/06/2019		1,000.00
010207619	CHACUA 110	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	3/06/2019		900.00
010207719	CHACUA 111	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	3/06/2019		600.00
010297316	CHACUA 2016	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	11/11/2016		1,000.00
010127117	CHACUA 2016-1	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	2/01/2017		200.00
010360197	CHACUA 32	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	03/10/1997		500.00
010034303	CHACUA 43	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	03/03/2003		700.00
010069912	CHACUA 56	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	06/01/2012		600.00
04013470X01	CHACUA N° 104	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	02/05/1989		299.77
04013434X01	LASUNA I	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	02/05/1988		978.53
010036303	MAJADA 15 B	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	03/03/2003		400.00
010036403	MAJADA 15A	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	03/03/2003		300.00
010036503	MAJADA 16C	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	03/03/2003		700.00
04013406X01	PISTAG	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	01/06/1987		758.20
010170217	YUM 01	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	30/01/2017		1,000.00
010170317	YUM 02	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	30/01/2017		1,000.00
010170417	YUM 03	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	30/01/2017		1,000.00
010170517	YUM 04	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	30/01/2017		1,000.00
010170617	YUM 05	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	30/01/2017		1,000.00
010170717	YUM 06	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	30/01/2017		1,000.00
010170817	YUM 07	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Mining Lease	Active	30/01/2017		700.00
						Total (ha)	**46,032.88**

Source: Buenaventura, 2021

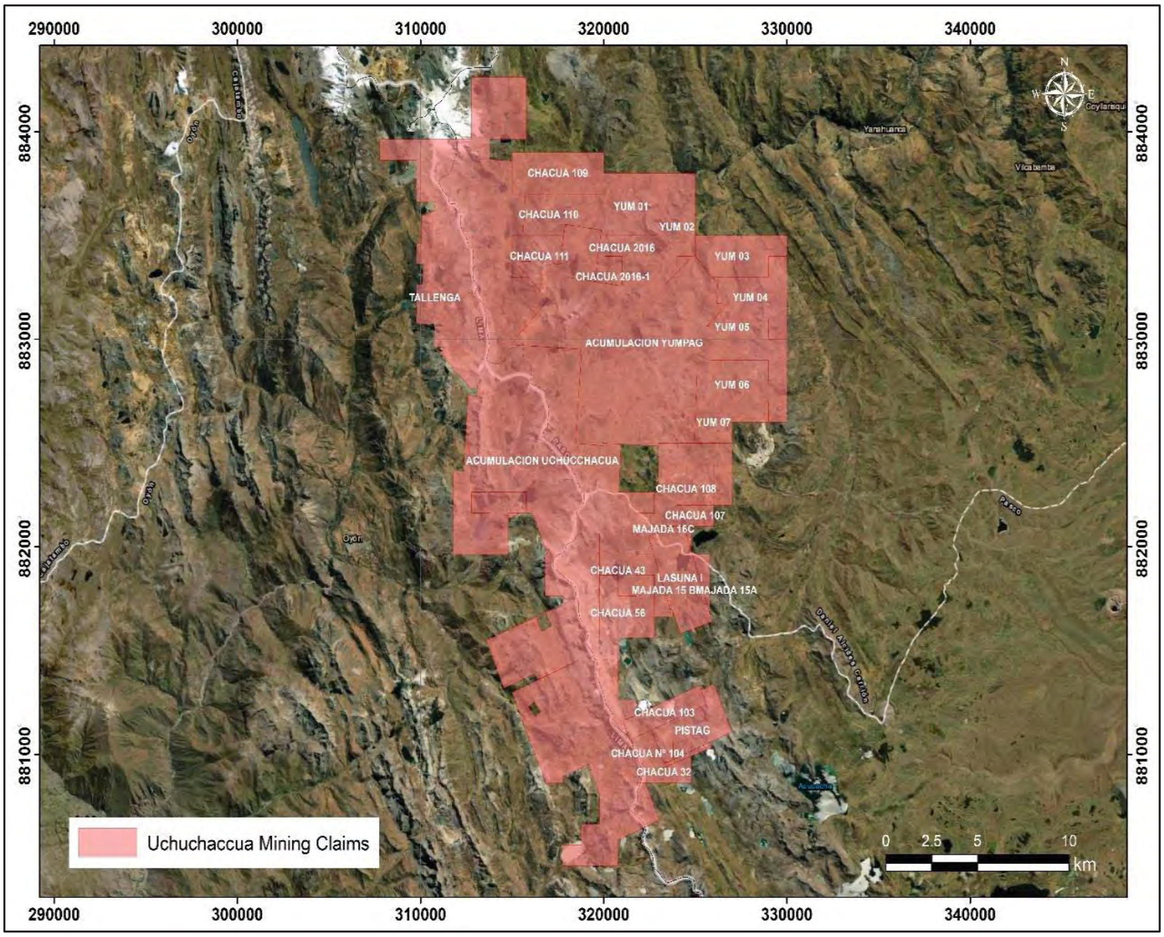


Figure 3-2: Uchucchacua-Yumpag mining claims (Buenaventura)

Source: (Buenaventura, 2021)

3.4 Mineral Rights Description and How They Were Obtained

Property and Title in Peru (INGEMMET, 2021)

Overview

The right to explore, extract, process and/or produce minerals in Peru is primarily regulated by mining laws and regulations enacted by the Peruvian Congress and the executive branch of government, under the 1992 Mining Law. The law regulates nine different mining activities: reconnaissance; prospecting; exploration; exploitation (mining); general labor; beneficiation; commercialization; mineral transport; and mineral storage outside a mining facility.

The Ministry of Energy and Mines (MINEM) is the authority that regulates mining activities. MINEM also grants mining concessions to local or foreign individuals or legal entities, through a specialized body called The Institute of Geology, Mining and Metallurgy (Ingemmet).

Other relevant regulatory authorities include the Ministry of Environment (MINAM), the National Environmental Certification Authority (SENACE), and the Supervisory Agency for Investment in Energy and Mining (Osinergmin). The Environmental Evaluation and Oversight Agency (OEFA) monitors environmental compliance.

Mineral Tenure

Mining concessions can be granted separately for metallic and non-metallic minerals. Concessions can range in size from a minimum of 100 ha to a maximum of 1,000 ha.

- A granted mining concession will remain valid providing the concession owner:
- Pays annual concession taxes or validity fees (derecho de vigencia), currently US$3/ha, are paid. Failure to pay the applicable license fees for two consecutive years will result in the cancellation of the mining concession
- Meets minimum expenditure commitments or production levels. The minima are divided into two classes:
  - Achieve "Minimum Annual Production" by the first semester of Year 11 counted from the year after the concession was granted or pay a penalty for non-production on a sliding scale, as defined by Legislative Decree N° 1320 which became effective on 1 January 2019. "Minimum Annual Production" is defined as one tax unit (UIT) per hectare per year, which is S/4,200 in 2019 (about US$1,220)
  - Alternatively, no penalty is payable if a "Minimum Annual Investment" is made of at least 10 times the amount of the penalty.
  - The penalty structure sets out that if a concession holder cannot reach the minimum annual production on the first semester of the 11th year from the year in which the concessions were granted, the concession holder will be required to pay a penalty equivalent to 2% of the applicable minimum production per year per hectare until the 15th year. If the concession holder cannot reach the minimum annual production on the first semester of the 16th year from the year in which the concessions were granted, the concession holder will be required to pay a penalty equivalent to 5% of the applicable minimum production per year per hectare until the 20th year. If the holder cannot reach the minimum annual production on the first semester of the 20th year from the year in which the concessions were granted, the holder will be required to pay a penalty equivalent to 10% of the applicable minimum production per year per hectare until the 30th year. Finally, if the holder cannot reach the minimum annual production during this period, the mining concessions will be automatically expired.

The new legislation means that title-holders of mining concessions which were granted before December 2008 will be obligated to pay the penalty from 2019 if the title-holder did reach either the Minimum Annual Production or make the Minimum Annual Investment in 2018.

Mining concessions will lapse automatically if any of the following events take place:

- The annual fee is not paid for two consecutive years.
- The applicable penalty is not paid for two consecutive years.
- The Minimum Annual Production Target is not met within 30 years following the year after the concession was granted.

Beneficiation concessions follow the same rules as for mining concessions. A fee must be paid that reflects the nominal capacity of the processing plant or level of production. Failure to pay such processing fees or fines for two years would result in the loss of the beneficiation concession.

Permits

In order to start mineral exploration activities, a company is required to comply with the following requirements and obtain a resolution of approval from MINEM, as defined by Supreme Decree No. 020-2012-EM of 6 June 2012:

- Resolution of approval of the Environmental Impact Declaration
- Work program
- A statement from the concession holder indicating that it is owner of the surface land, or if not, that it has authorization from the owners of the surface land to perform exploration activities
- Water License, Permission or Authorization to use water
- Mining concession titles
- A certificate of non-existence of archeological remains (CIRA) whereby the Ministry of Culture certifies that there are no monuments or remains within a project area. However, even with a CIRA, exploration companies can only undertake earth movement under the direct supervision of an onsite archeologist.

Other Considerations

Producing mining companies must submit, and receive approval for, an environmental impact study that includes a social relations plan, certification that there are no archaeological remains in the area, and a draft mine closure plan. Closure plans must be accompanied by payment of a monetary guarantee.

In May 2012, Peru's Government approved the Consulta Previa Law (prior consultation) and its regulations approved by Supreme Decree Nº 001-2012-MC. This requires prior consultation with any indigenous communities as determined by the Ministry of Culture, before any infrastructure or projects, in particular mining and energy projects, are developed in their areas.

Mining companies also have to separately obtain water rights from the National Water Authority and surface lands rights from individual landowners.

3.5 Encumbrances

SRK has no knowledge of any material encumbrances that may affect the current resource or reserve as presented in this report. For more details on infrastructure modifications related to an expansion or development of the current mineral resource or reserve, please refer to Section 15 of this report.

3.6 Other Significant Factors and Risks

SRK has no knowledge of any other significant factors or risks that may affect access, title, or the right or ability to perform work on the mineral property.

3.7 Royalties or Similar Interest

- Beneficiary: Pucarana S.A.C

  Status: Without Production
  Type of contract: Assignment (Apuñe and Pucarana)
  Royalty: 3.0% NSR Production
  Terms: 2045
  Comments: Project without activity.

4 Accessibility, Climate, Local Resources, Infrastructure and Physiography

4.1 Topography, Elevation and Vegetation

The Uchucchacua mining unit is located on the western flank of the Andes at 4,450 masl. It has a glacial morphology with flat to undulating surfaces and gentle to steep slopes, as well as steep mountain peaks. The following geomorphological units were identified in the project area: valley bottom highland plains, gently sloping fluvioglacial valleys, moderately sloping hillsides, steeply sloping hillsides, steep mountain slopes, and steeply sloping mountain peaks.

According to the National Map of Vegetation Cover made by Peruvian Environmental Ministry (MINAM), the project area is located in wetlands, high Andean relict forests, shrub thickets, high Andean scrubland, and high Andean area with sparse to no vegetation. A total of 391 plant species were recorded during biological monitoring between 2015 to 2018, with Magnoliopsida being the dominant group. Asteraceae and Poaceae families were the most representative flowering plants and grasses (MINAM, 2019).

4.2 Means of Access

The property can be accessed from Lima, Peru via the following two options (BISA, 2018):

- First, via the road Lima - Sayán (141 km), then, road: Sayán - Churín (62 km), Churín - Oyón (53 km) and Oyón - Uchucchacua (10 km); approximately a total of 322 km.
- Second, via the road Lima - La Oroya - Cerro de Pasco (320 km) and Cerro de Pasco - Uchucchacua (70 km); approximately a total of 390 km.

4.3 Climate and Length of Operating Season

A meteorological characterization of the area has been obtained based on information from thirteen stations near the project, of which ten (10) are from National Service of Meteorology and Hydrology of Peru (SENAMHI), two (2) from Electroandes, and one (1) from Buenaventura. The average annual precipitation at Uchucchacua station is 1,020.4 mm and varies between 0 mm (June 2009 and August 2010) and 241.6 mm (March 2017). The mean monthly temperature varies between 6.8°C (November 2015) and 3.1°C (July 2018), with an annual average of 4.5°C. Relative humidity reaches maximum values in January (81%) and May (80.9%), and minimum values in July (66.1%). Patón basin climate is classified as humid, mesothermal, with moderate water scarcity during summer (MINAM, 2019).

4.4 Infrastructure Availability and Sources

4.4.1 Water

The Uchucchacua mining unit uses water from surface tributaries (fresh water) for its operations and facilities. The site currently utilizes less water than authorized by volume. Water sources and consumption for 2020 are shown in **¡Error! No se encuentra el origen de la referencia.** 4-1 (Buenaventura, 2021):

Table 4-1: Water sources consumption and in Uchucchacua

No.	Name	Resolution No.	Authorized volume (m^3/year)	Volume used 2020 (m^3/year)
1	Colquicocha Lagoon	A.R. No. 035-93-UAD.LS/AAH/ATDRH	1,261,440	461,294.10
2	Cutacocha Lagoon	A.R. No. 152/2005-GRL.DRA/ATDRH	315,360	89,503.76
3	Caballococha Lagoon	D.R No. 049-88-AG-DG	567,648	270,633.02
4	Jachacancha Creek	A.R. 0083/2003-AG.DRA.LC/ATDRH	15,105,744	5,473,046.33
5	Patón Lagoon	A.R. No. 034-93-UAD.LC/AAH/ATDRH	53,611,200	17,485,968.8

Source: (Buenaventura, 2021)

4.4.2 Electricity

Power is provided by a 138 kV transmission line operated by CONENHUA (Consorcio Energético de Huancavelica S.A., a wholly owned subsidiary of Buenaventura). It comprises 2 transformers: 18-22MW Mine and 12MW concentrator plant. Power consumption in the camps is approximately 0.8MW (Buenaventura, 2021).

4.4.3 Personnel

The mine and processing facilities are located about 25 km north of the community of Oyón. The community of Uchucchacua is the closest community to the site. Most of the personnel working at the project typically live within an hour’s drive of the project. Skilled labor is available in the region and Buenaventura has an established work force with skilled labor.

As of December 31, 2020, the number of personnel working on the project, including in-house and contract personnel, totaled 2,131 people (Buenaventura, 2021).

4.4.4 Supplies

All supplies are provided by suppliers selected by the company. Suppliers are both local and from other regions of the country.

5 History

Excerpted from (Buenaventura, 2021)

Uchucchacua is a silver deposit in the central highlands. It was discovered during the Spanish viceroyalty. Evidence of this are the many Spanish workings in the areas of Nazareno, Mercedes, Huantajalla and Casualidad. Mr. Juan Minaya continued exploitation in this century, and later the mine was transferred to Jungbluth, who continued small scale works and even mined ore in Uchucpaton and Otuto, where there are vestiges of old processing “mills”.

At the beginning of 1960, Cia. de Minas Buenaventura started prospecting-exploration in the area under difficult initial conditions, since there was no Oyón-Chacua road, which was built in 1965 and later extended to Yanahuanca. From 1969 to 1973, Buenaventura installed a pilot plant that initially treated ores from the Socorro and Carmen mines. Satisfactory results led to the installation of an industrial plant in 1975, which currently has a treatment capacity of 4,200 metric tons per day. Currently, the Socorro, Carmen and Casualidad mines are operating fully while operations at Huantajalla are partial.

5.1 Background

In the Uchucchacua unit, geological exploration work and studies have led to the discovery of important veins and ore bodies in the Socorro, Carmen, Huantajalla and Casualidad mines. One of *the main veins is Gina Socorro located in Socorro mine, whose horizontal and vertical extension is approximately 1 Km.*

Geological mapping, geophysical, petrographic, and mineralogical studies have contributed to a better understanding of the deposit, both structurally and mineralogically, as is the case of the alabandite ore, which is treated at the Rio Seco plant located in Huaral.

Among the geological mapping works at regional level, the most relevant were those carried out by Romaní (1982 - 1998) and Bussell and Baxter (1984 - 1986). In addition to these studies, SRK and BISA have carried out recent work that has helped to build the 3D geological model. A summary of the critical technical studies is provided in Figure 5-1.

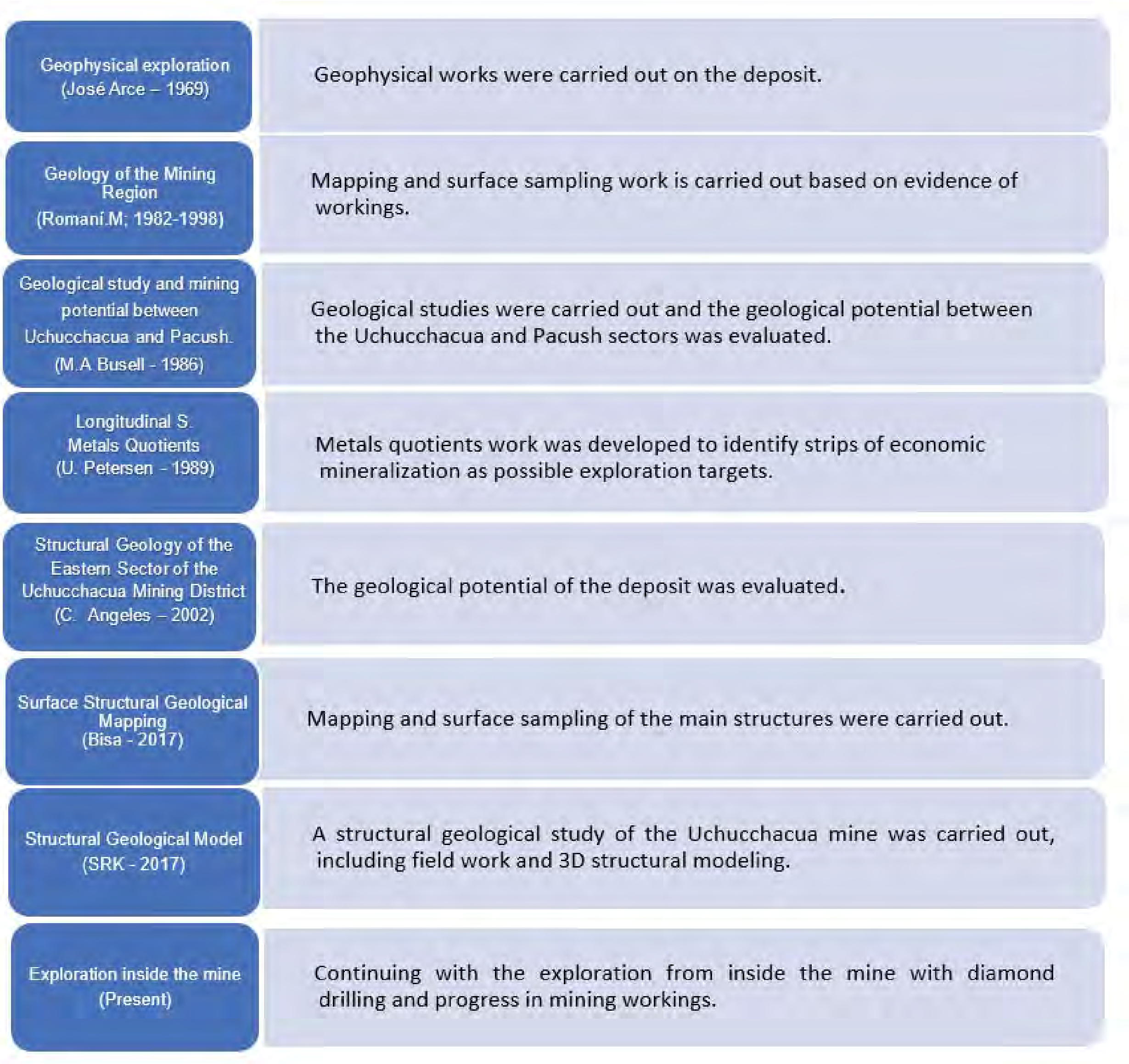


Figure 5-1: Main activities throughout the development of the Uchucchacua deposit.

Source: (Buenaventura, 2021)

6 Geological Setting, Mineralization, and Deposit

6.1 Regional, Local and Property Geology

Excerpted from (BISA, 2018)

The Uchucchacua mining district is located in the central Andes of Peru within metallogenic belt XXI corresponding to Pb-Zn-Cu (Ag) Skarn type deposits and polymetallic deposits related to Miocene intrusives (Carlotto et al., 2009), in the NE part of the Oyón quadrangle (22r) of INGEMMET.

It is located in a morphostructure called the Marañón Thrust and Fold Belt, which affects Mesozoic units and Cretaceous calcareous units.

The Mesozoic is represented by the pre-albian clastic formations, essentially detritic, Oyón, Chimú, Santa, Carhuaz, Farrat and the upper Cretaceous series. These series are very thick and represented by the Pariahuanca, Chulec, Pariatambo, Jumasha and Celendín formations, and are composed of clayey, clastic and carbonate sediments. They outcrop as small discontinuous sedimentary strips oriented NW to NE between the areas of Patón, Cachipampa, and Uchucchacua and Pozo Rico mines.

On top of these, there units are Miocene-Pliocene volcanic rocks made up of pyroclastic, andesitic and dacitic lavas and breccias corresponding to the Calipuy Volcanics, located north of Uchucchacua and southwest of Cachipampa, which cover the area extensively and are in unconformable contact with Mesozoic sedimentary units and Tertiary intrusives.

Finally, hypabyssal, andesitic and dacitic igneous bodies from the Oligocene-Miocene (Lower Tertiary) have been identified and intrude Mesozoic rocks.

Structurally, Andean tectonics gave rise to the development of large plutonic, volcanic and mineralization events in the region, with faulting and folding of the entire Mesozoic sequence, mainly N-NW oriented. . A regional geological cross-section is provided at **¡Error! No se encuentra el origen de la referencia.**

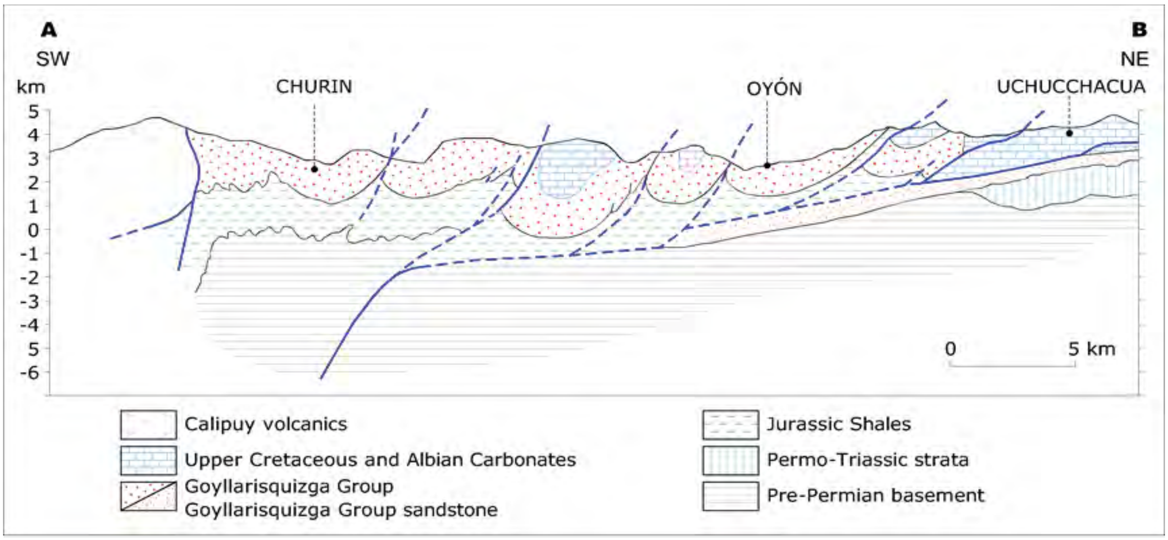


Figure 6-1: Regional geological section

Source: modified from Mégard et al. 1984 (Bussell, et al., 1990)

Bussell, et al., 1990, describes the following:

Gravimetric modeling studies suggest that these Terciary intrusions extend upward from a deeper mass of granite (Bussel and Wilson, 1985) and igneous rock samples from Churin and Raura have yielded ages of 13 Ma (Cobbing et al., 1981) and 10 Ma (Noble, 1980). This stock chain is closely associated with the polymetallic belt in northern Peru, where mineralization has closely followed intrusion. In Raura, for example, mineralization is found between 10 and 7.8 Ma (Noble, 1980). Therefore, these deposits fit into the group of middle to upper Miocene metasomatic veins, with copper, lead, zinc and silver mineralization, recognized by Petersen and Vidal (1983) as one of the three main metallogenic epochs in Peru.

Three magmatic events affect the central region of the Andes, where Uchucchacua mine is located.

The most recent magmatic event occurred in the Miocene (14.5 to 5 Ma) and is associated with the emplacement of several epithermal deposits embedded in sedimentary rocks.

The second event occurred in the Oligocene, and emplaced volcanic, sulvolcanic and volcaniclastic rocks of andesitic to dacitic composition. Bissig et al. (2016) consider that this magmatic event is not associated with the mineralization of Uchucchacua mine.

The oldest event occurred from the Eocene to late Oligocene (40-29.3 Ma) and resulted in the emplacement of dacitic domes and granodioritic intrusions; in the extrusion of dacitic to andesitic lavas; as well as in the emplacement of skarn-type mineralization at Milpo and Atacocha (SRK, 2017).

A regional geolgic map is provided as **¡Error! No se encuentra el origen de la referencia.**. Subsequent sections describe the local stratigraphy of the Uchucchacua area. A stratigraphic column is proved as **¡Error! No se encuentra el origen de la referencia.**.

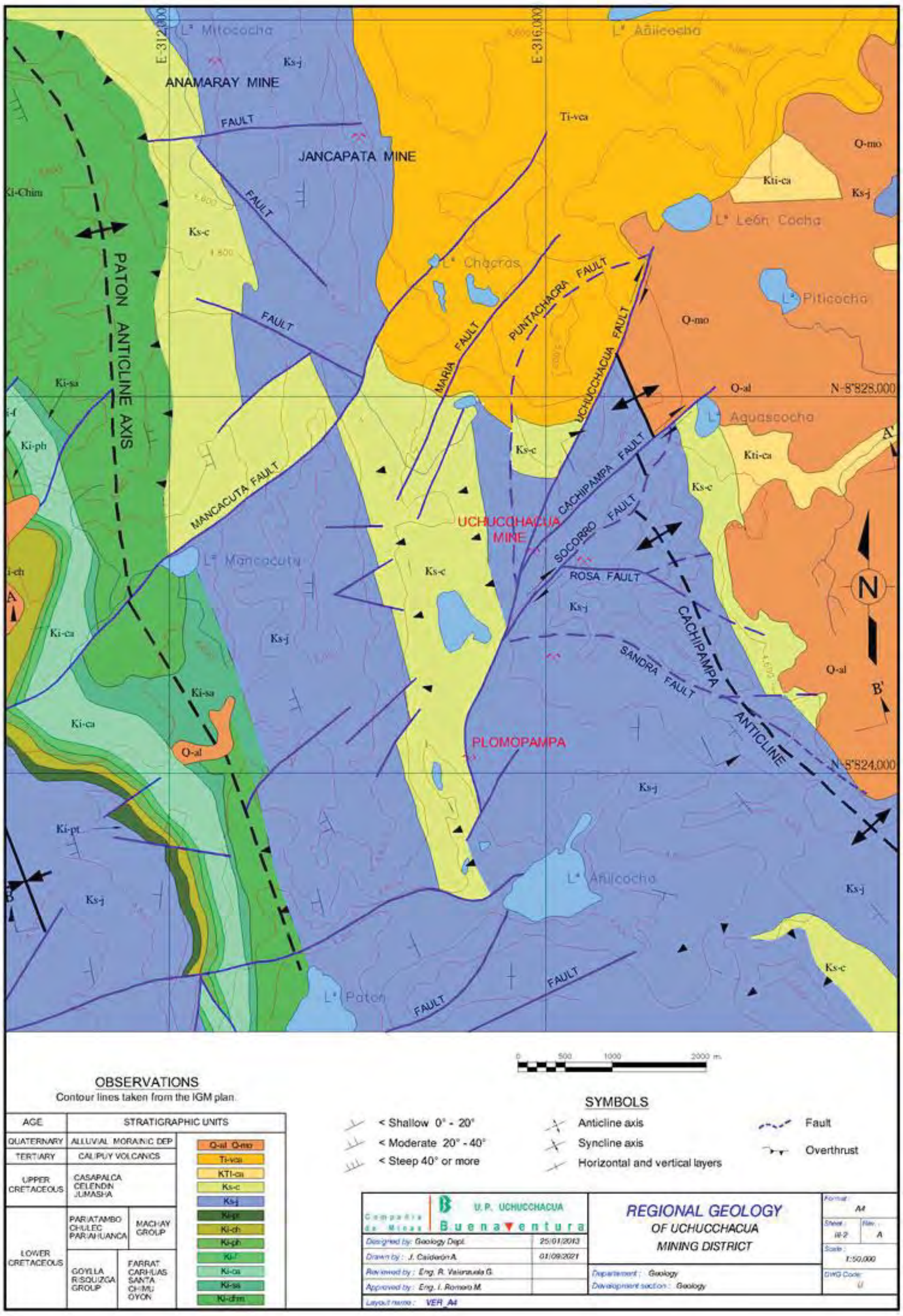


Figure 6-2: Regional Geology Setting.

Source: Modified from Swanson et.al. (1988) (Buenaventura, 2021)

The regional geology is described as follows (Buenaventura, 2021):

6.1.1 Goyllarisquizga Group

The Goyllarisquizga group was classically divided into five formations which are:

Oyón, Chimú, Santa, Carhuaz and Farrat.

Oyón Formation (JsKi-o)

From the Berrasian (Lower Neocomian). It outcrops 2.5 km SW of the Patón lagoon and underlies the Chimú Formation conformably. This formation is composed of gray and white quartz sandstones intercalated with dark gray to black silty clays and coal strata (good quality anthracite). The tectonic role of this formation is important for the structural evolution of the area.

Chimú Formation (Ki-chi)

From Upper Berrasian - Lower Valanginian. This unit outcrops 2.4 km SW of Patón lagoon next to the Oyón formation with a thickness of approximately 500 meters. It conformably overlies the Oyón Formation of the Berrasian and underlies the Santa Formation of the Valanginian. Lithologically it is composed, towards the base, of white quartz sandstones intercalated with gray to black silty clays and thin coal strata; towards the upper part it is mainly composed of medium to coarse grained white quartz sandstones, presenting in some cases cross-bedding of strata of up to 5 meters approximately.

Santa Formation (Ki-sa)

From the Upper Valanginian. Outcrops 3 km west of Colquicocha lagoon. The lower part is composed of white and pink quartz sandstones with calcareous cement, intercalated with strata and lenses of yellowish sandy limestones and gray silty clays. The upper part is composed of gray and reddish ferruginous limestones, sometimes with chert, intercalated with dark gray silty clays.

Carhuaz Formation (Ki-ca)

From the Upper Valanginian to the Lower Aptian. It outcrops 1 km west of Patón lagoon forming the axial zone of the Patón anticline with an approximate thickness of 600 meters. It consists of formed sequences that are composed towards the base by gray, green and red silty clays intercalated with gray sandstones, and in the upper part, by gray and brown quartz sandstones intercalated with silty clays.

Farrat Formation (Ki-f)

From the Upper Aptian. Upper unit of the Goyllarisquizga Group, occurs about 0.5 km and 1 km west of the Patón lagoon on both flanks of Patón anticline. It is mainly composed of white quartz sandstones. Some coarse-grained sandstone strata show conglomerate channels with subrounded to rounded quartz clasts, quartzite and volcanics. It conformably overlies the Carhuaz Formation and underlies the Pariahuanca Formation.

6.1.2 Machay Group

Pariahuanca Formation (Ki-ph)

Lower Albian. Outcrops 0.5 km west and northwest of the Patón lagoon on both flanks of Patón anticline. It consists of thin strata of gray, yellowish and reddish ferruginous limestones interbedded with gray silty clays. It conformably overlies the Farrat Formation and underlies the Chulec Formation.

Chulec Formation (Ki-ch)

From the Lower - Middle Albian. It outcrops 0.5 km west and northwest of Patón lagoon next to the Pariahuanca Formation on both flanks of Patón anticline with a thickness of approximately 200 meters. Lithologically, it is composed of gray to light gray limestones in thick strata with nodular structures.

Pariatambo Formation (Ki-p)

From the Middle Albian. Outcrops 0.5 km west and northwest of Patón lagoon next to the Pariahuanca and Chulec formations. It appears as a sequence of increasing strata, where the lower part corresponds to a sequence of black silty clays intercalated with black fetid limestones and in the upper part there are limestones in thick strata with a continuous and progressive evolution.

6.1.3 Jumasha Formation

From the Albian-Turonian. It is the largest calcareous unit in central Peru and consists of light gray limestones in weathered surface and blue in fresh fracture. It is present in almost the entire Uchuchacua deposit as a host unit to the mineralization. This formation presents three well differentiated sequences:

Lower Jumasha (Ks-ji), is composed in the lower part of black silty clays, intercalated with thin strata of gray limestones, which towards the upper part change to limestones in thin to medium gray strata that are somewhat nodular.

Middle Jumasha (Ks-jm), is composed of gray limestones in thick strata, averaging up to 8 meters thick.

Upper Jumasha (Ks-js), is composed of limestones in thin tabular strata intercalated with thin strata of gray silty clays.

The total thickness of this formation is approximately 1500 to 1600 meters, estimated in the north of Patón lagoon, where there is an upper contact with the Celendín Formation and a lower contact with the Pariatambo Formation. Because of its thickness, the Jumasha Formation is considered the most important Cretaceous unit.

6.1.4 Celendín Formation (Ks-c)

Comprised between the Coniacian and Santonian. This unit outcrops to the west of Uchucchacua fault and on the eastern flank of Cachipampa anticline. Lithologically, it consists of bluish-gray marls that weather to a creamy yellow color. The transition zone with Jumasha Formation is marked by a finely stratified series of the same color and lithology as Jumasha with intercalations of marls. It lies conformably with the Jumasha Formation and is unconformably covered by the Casapalca Formation, showing a thickness of approximately 220 meters.

6.1.5 Casapalca Formation (Kt-c)

This formation occurs mainly to the east of the Cachipampa anticline covering the Celendín Formation with a slight unconformity and, in some cases, is found directly on top of the Jumasha Formation. Based on structural relations in the Cachipampa pampa, about 1000 meters of thickness is a reasonable average, as it is impossible to determine its true thickness because the top cannot be observed. Lithologically, it consists of red and green sandstones and marls with some conglomerate beds and occasional lenticular horizons of gray limestones. It is strongly folded together with the underlying Cretaceous rocks and covered by volcanic rocks equivalent to the Calipuy; it is presumed that the age of Casapalca Formation must be post-Santonian-Campanian and is in fact older than that of the Calipuy Volcanic; this takes into account that the time span between Casapalca and Calipuy Formations must have been long, since the main folding of the Cretaceous units and erosional activities, as the case may be, took place during that time.

6.1.6 Intrusive Rocks (T-i/an/da)

In the study area, intrusive rocks occur as small stocks, dikes and sills. Petrology and geochemistry of major elements confirm that this magmatism of dacitic - andesitic composition belongs to the calc-alkaline line (Romaní, 1983). The different ages determined for these rocks show us the multiple stages of magmatism that took place in this part of central Peru.

In Uchucchacua, there are stocks of dacitic intrusives, mainly in the area of Casualidad mine; one is associated with the Sandra vein and the second is clearly cut and displaced about 400 m by the Socorro fault with a dextral movement. This intrusive was dated at 25.3 Ma (Upper Oligocene) by D. Noble in 1980. The mineralization generated by this intrusive is a poorly developed Pb-Zn skarn.

The 10 Ma magmatism responsible for the Ag-Mn-Zn mineralization at regional scale (including Raura and Iscaycruz mines), occurs at Uchucchacua as small dikes and sills. A sample of dacitic dike from Anamaray hill was dated at 9.32 Ma by Romaní in 1982.

6.1.7 Volcanic Rocks

Atalaya Volcanics (T-va)

This unit outcrops to the north of Uchucchacua mine, with a thickness of almost 500 m; it is formed by andesitic and dacitic flows, as well as pyroclastic flows of intermediate composition. Two samples belonging to this volcanic series were dated at 5.56 and 5.23 Ma, respectively, by Maurice Romani in 1982, thus determining a lower Pliocene age. The Quechua 3 tectonic phase deforms these rocks, so they show slight folding.

6.1.8 Quaternary

The Quaternary geomorphological feature in the study area is basically related to the geological action of glaciers; thus, the deposition of rocky materials transported by glaciers is produced when glacier ice melts (glacial deposits) and the finer materials are deposited by meltwater discharged by glaciers when they flow in areas of low slope (fluvioglacial deposits).

Glacial Deposits (Q-g)

Unstratified deposits transported by glacier ice are known as moraines and occur mainly as frontal or lateral moraines. They are composed of rock fragments of all sizes, ranging from blocks to tiny fragments. This material is chaotically distributed, not classified or stratified, meaning that its components are not ordered by size and shape and do not present strata. They are distributed in the lower part of hills.

Fluvioglacial Deposits (Q-f)

These deposits are sand and gravel deposits dragged from the glacier front by meltwater coming from the outwash of glacial drifts and are generally found filling the lower parts and depressions of the glacial valley, forming fluvioglacial plains. Their main characteristic is that particles are sorted and show a field-recognizable stratification.

Colluvial Deposits (Q-c)

These are deposits generally formed at the base of slopes, transported by gravity, consisting of poorly sorted material, angular clasts with a clayey matrix, unstratified, unconsolidated, very porous, permeable and often in movement (very slow).

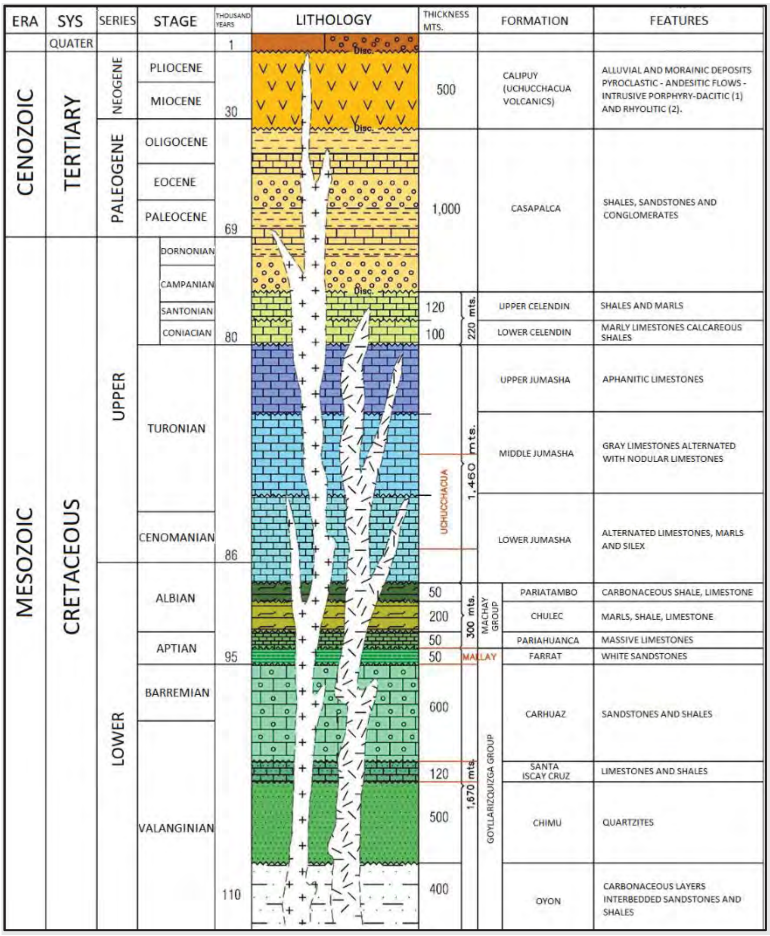


Figure 6-3: Regional Geology Setting.

Source: (Buenaventura, 2021)

6.2 Local Geology

Excerpted from (BISA, 2018)

Local geology consists of sedimentary rocks of the Upper Cretaceous carbonate sequence. At the base limestones of the Jumasha and Celendín formations exist that; these sedimentary rocks have been strongly folded and faulted. On top of these units and in erosional unconformity, the red layers of Casapalca formation were deposited, and then finally covered by Calipuy group volcanic rocks and Tertiary intrusives.

The lithostratigraphic controls are horizons with coarse and very coarse grained limestones (packstone, grainstone and rudstone), facies with alkalies, microfossils and abundant calcareous fossils (Ooids, gastropods and/or foraminifera); calcite veinlets are closely related to MnO mineralization and sulfides of Pb, Fe, among others.

The structural controls in the Mining District are NW-SE and NE-SW trending. The NW-SE controls are related to Andean faults that have formed during a complex deformation. The NE-SW trending controls form a transfer zone that extends to the Yumpag Project. The main structure of this set of faults is Cachipampa fault.

The structural architecture of Uchucchacua can be summarized in five (5) fault systems: Tinquicocha-Cutacocha fault, Cachipampa fault, Uchucchacua fault, Socorro fault, Sandra-Marion fault; other faults of minor importance or whose activity has not been defined are Caballo Cocha, Puntachacra and Añilcocha.

Bussel et al. (1990) described the geology of Uchucchacua Mine as follow:

The Lower Member of Jumasha Formation consists of fine-grained limestones (mudstone and wackestone) and occasional coarse-grained limestones (rudstone, grainstone and packstone). The Lower Member is characterized by the presence of abundant bivalves (fossils). The middle member of Jumasha Formation outcrops in the Huantajalla zone, in the structural corridor defined by Cachipampa and Socorro faults, and south of the Socorro Fault, while the upper member of Jumasha Formation is the main lithology in the central, central-eastern, and central-northern parts of the map shown in Figure 6-6. A recessive limestone unit called the Marcador is considered, which develops characteristic weathering surfaces, such as the contact between Middle and Upper members of the Jumasha Formation. The Marker Sequence (SM) comprises the same facies of the Middle Member of Jumasha Formation, and with higher concentration of marls.

Celendín Formation (Upper Cretaceous) outcrops to the west of Uchucchacua fault and on the eastern flank of Cachipampa anticline, lithologically consists of bluish-gray marls intercalated with thin strata of gray siltstone; thin strata of wackestone limestone have been identified.

Casapalca Formation occurs mainly east of the Cachipampa anticline covering with a slight unconformity the Celendín Formation and, in some cases, it is found directly above the Jumasha Formation. Lithologically, it consists of red and green sandstones and marls with some beds of conglomerates and occasional lenticular horizons of gray limestones.

Calipuy Volcanics, outcropping to the north of Uchucchacua mine, consists of andesitic and dacitic flows, as well as pyroclastic flows of intermediate composition.

The Quaternary in the study area is basically formed by colluvial, alluvial and morainic deposits.

Geological cross-sections and a local geology map are provided as **¡Error! No se encuentra el origen de la referencia.** and **¡Error! No se encuentra el origen de la referencia.**, respectively.

The Quaternary in the study area is basically formed by colluvial, alluvial and morainic deposits.

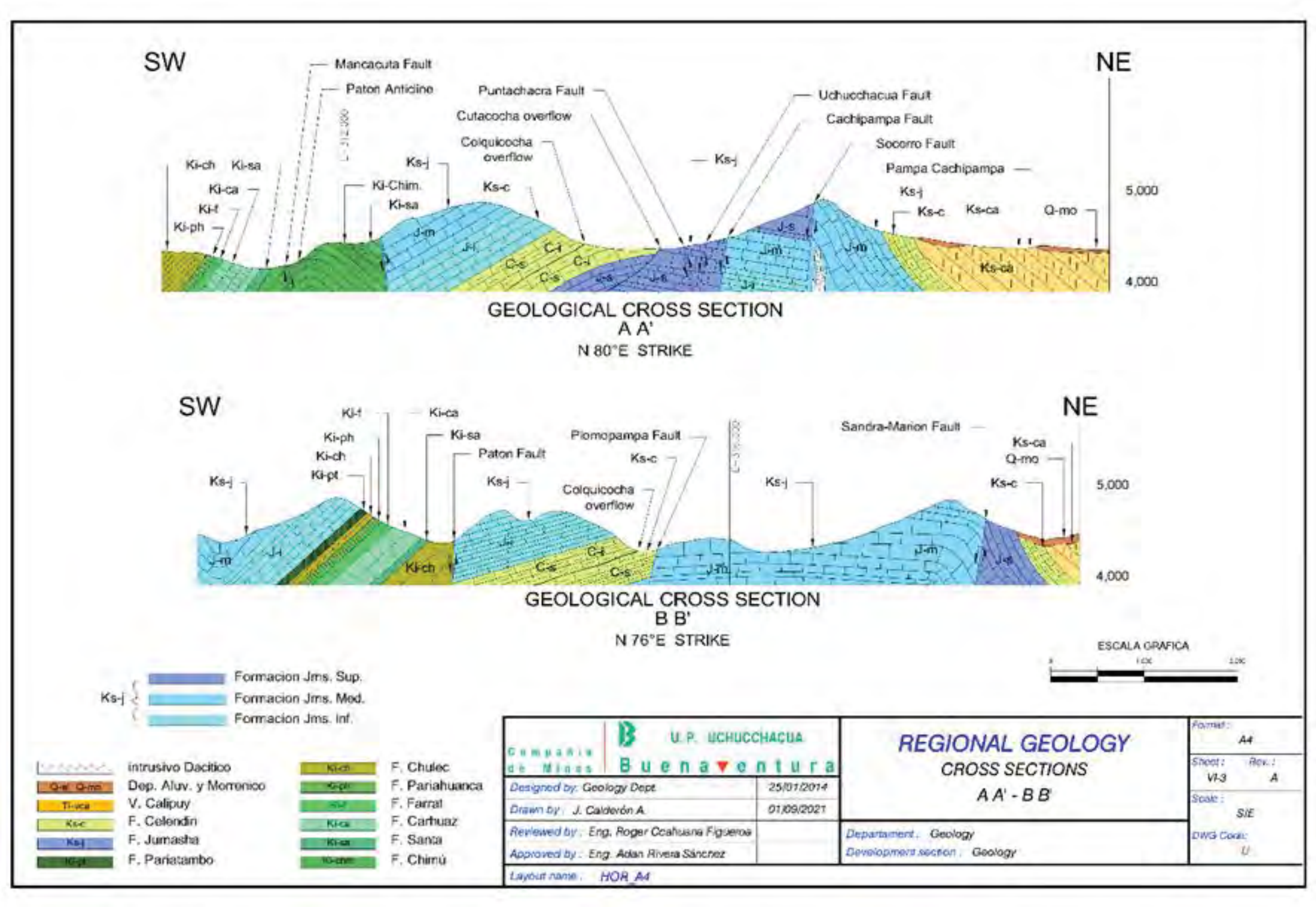


Figure 6-4: Map of the geological sections of Uchucchacua Unit and surroundings.

Source: (Buenaventura, 2021)

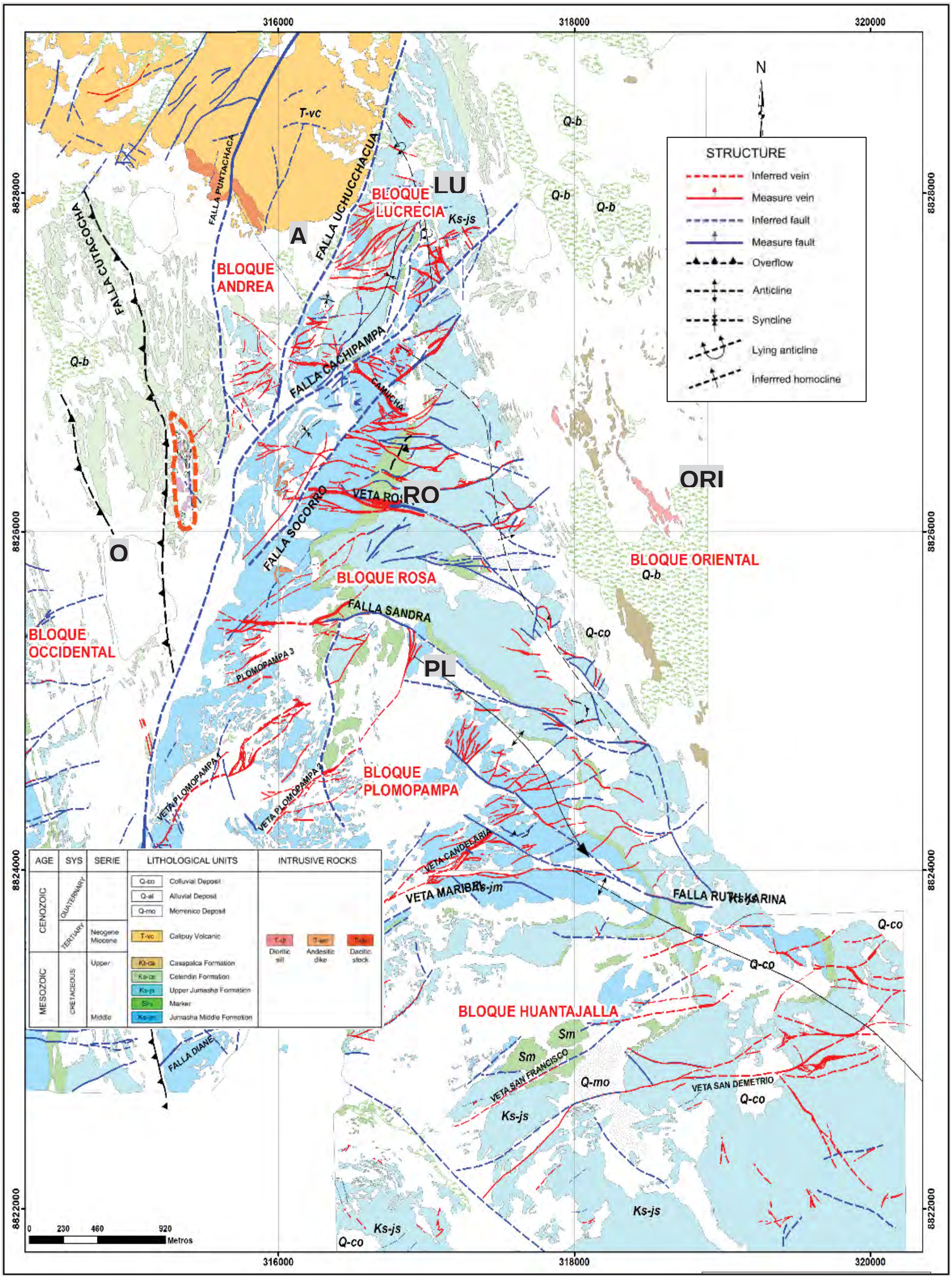


Figure 6-5: Local Geological Map (Uchucchacua Mine).

Source: (BISA, 2018)

6.3 Structural Geology

Excerpted from BISA, 2018

The polymetallic mineralization of Uchucchacua mining district is located in a morphostructure known as the Marañon Thrust and Fold Belt (Megard, 1984) that affects the Mesozoic units of the western Peruvian basin (Chicama Formation, Goyllarisquizga Group and Cretaceous calcareous units), extending from southern Huancavelica to the north of Cajamarca. Chonta fault is the main structural control that forms the eastern boundary of the western Peruvian basin. Chonta fault activity and folding of Mesozoic units occurred in different stages from the Upper Cretaceous to the Miocene (Scherrenberg, 2008, Rodriguez, 2008). A geology map with the main structural elements is provided as **¡Error! No se encuentra el origen de la referencia.**.

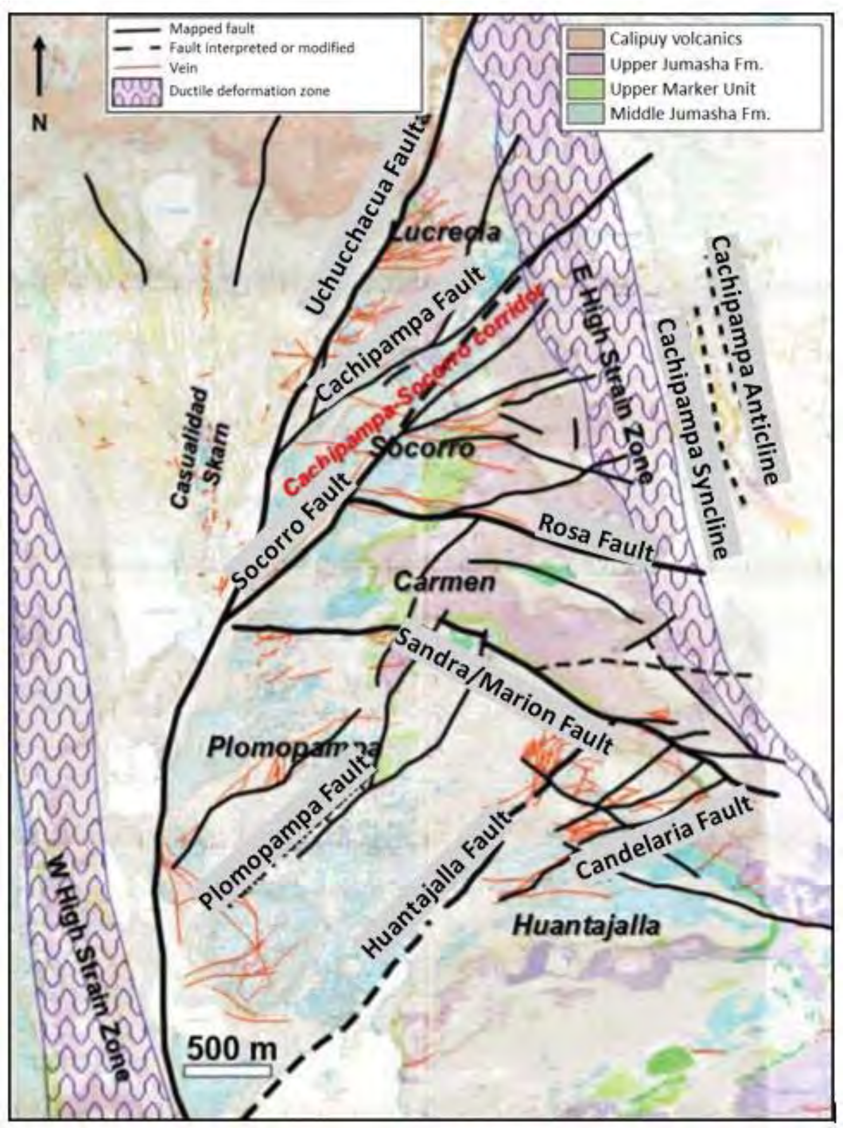


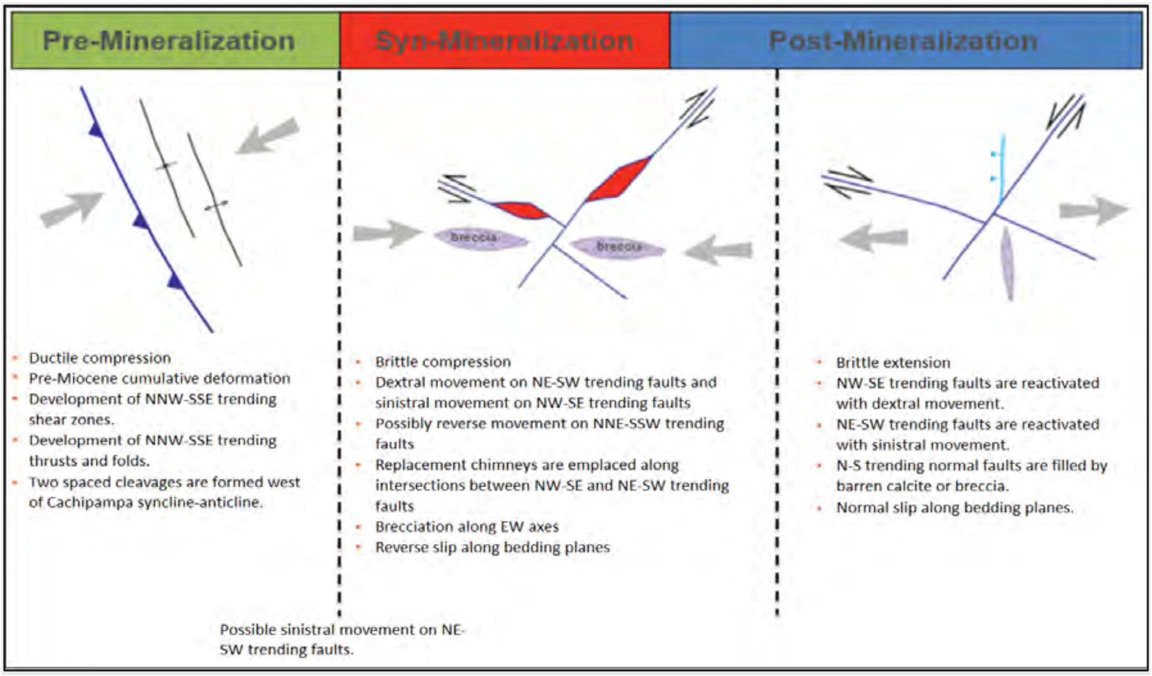
Figure 6-6: Geology of Uchucchacua Mine mapped at 1:2 000 scale by BISA (2017), highlighting the main structural elements mapped and interpreted.

Source: (SRK, 2017)

Deformation events

SRK interprets that three deformation events affected the Uchucchacua Mine sector Table 6-1. Additional pre-deformation deformations are recognized locally.

Table 6-1: Summary of deformation events interpreted in relation to the mineralizing event at Uchucchacua Mine.



Source: (SRK, 2017)

The main structural elements of Uchucchacua Mine that have been mapped or interpreted by SRK are the following (SRK, 2017):

NE-SW Trending Faults

The Cachipampa-Socorro structural corridor is interpreted to have been the main conduit for hydrothermal fluids during the mineralizing event, as well as the main magmatic conduit that guided the emplacement of subvolcanic intrusions.

Cachipampa Fault has been mapped by INGEMET up to 6 km NE of the mapping area detailed by BISA. The SW projection of the regionally mapped Cachipampa Fault partially coincides with Cachipampa Fault and Socorro Fault as mapped at Uchucchacua mine.

Gina Socorro Fault represents the highest grade section within the Cachipampa-Socorro structural corridor. The Gina-Socorro Fault is currently interpreted as a connector between Cachipampa and Socorro faults, but Gina-Socorro has not been identified at surface (**¡Error! No se encuentra el origen de la referencia.**).

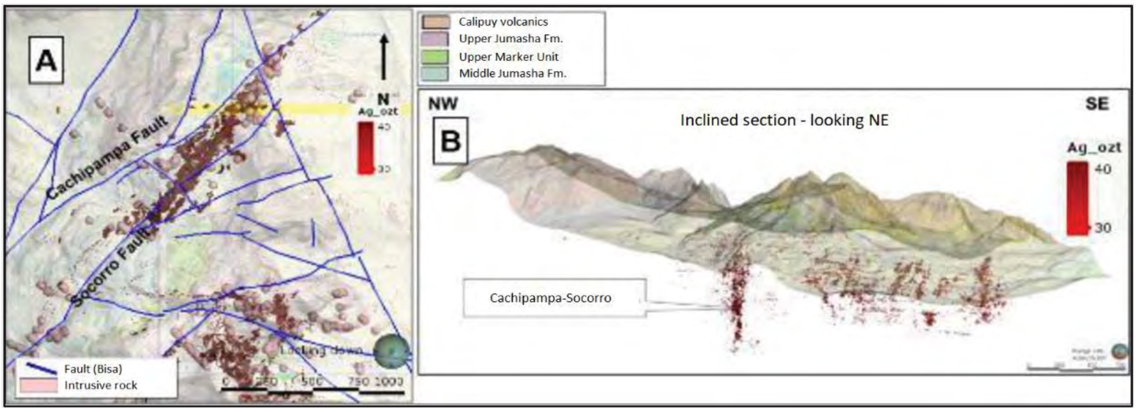


Figure 6-7: A) Geology of Uchucchacua Mine mapped at 1:2 000 scale by BISA (2017); B) NW-SE tilted section perpendicular to Cachipampa-Socorro structural corridor, and Ag>25 oz/t.

Source: (SRK, 2017)

NW-SE Trending Faults

EW to NW-SE oriented high-angle faults and veins are common, while low-angle faults and veins occur rarely in outcrops above the Uchucchacua Mine. NW-SE trending mineralized veins and faults such as 3A and 4A veins in the Huantajalla zone are not well represented in surface outcrops. SRK interprets the Rosa fault, EW trending, as part of the NW-SE trending fault set.

Shear zones

The zone interpreted as the East Shear Zone coincides with the regional topographic peak, and is characterized by a spaced and well-defined NNW-SSE oriented cleavage. This zone is 150 to 530 meters wide and lies west of the Cachipampa syncline-anticline pair. Stereographic projections of bedding plane poles and foliation plane poles in the shear zone reflect the same asymmetric fold pattern, suggesting that the foliation represents older ductile shear than the Cachipampa syncline-anticline. The shear zones plausibly have increased permeability due to cleavage.

Low-Angle Faults

NW-SE trending low-angle faults are interpreted to represent slip planes parallel to the bedding. Buenaventura mine geologists have interpreted reverse displacement of approximately 30 m along a low-angle fault. SRK observed evidence of reverse and normal displacement along the same low-angle fault in a surface outcrop in Huantajalla zone.

The major fault architecture is depicted in **¡Error! No se encuentra el origen de la referencia.**.

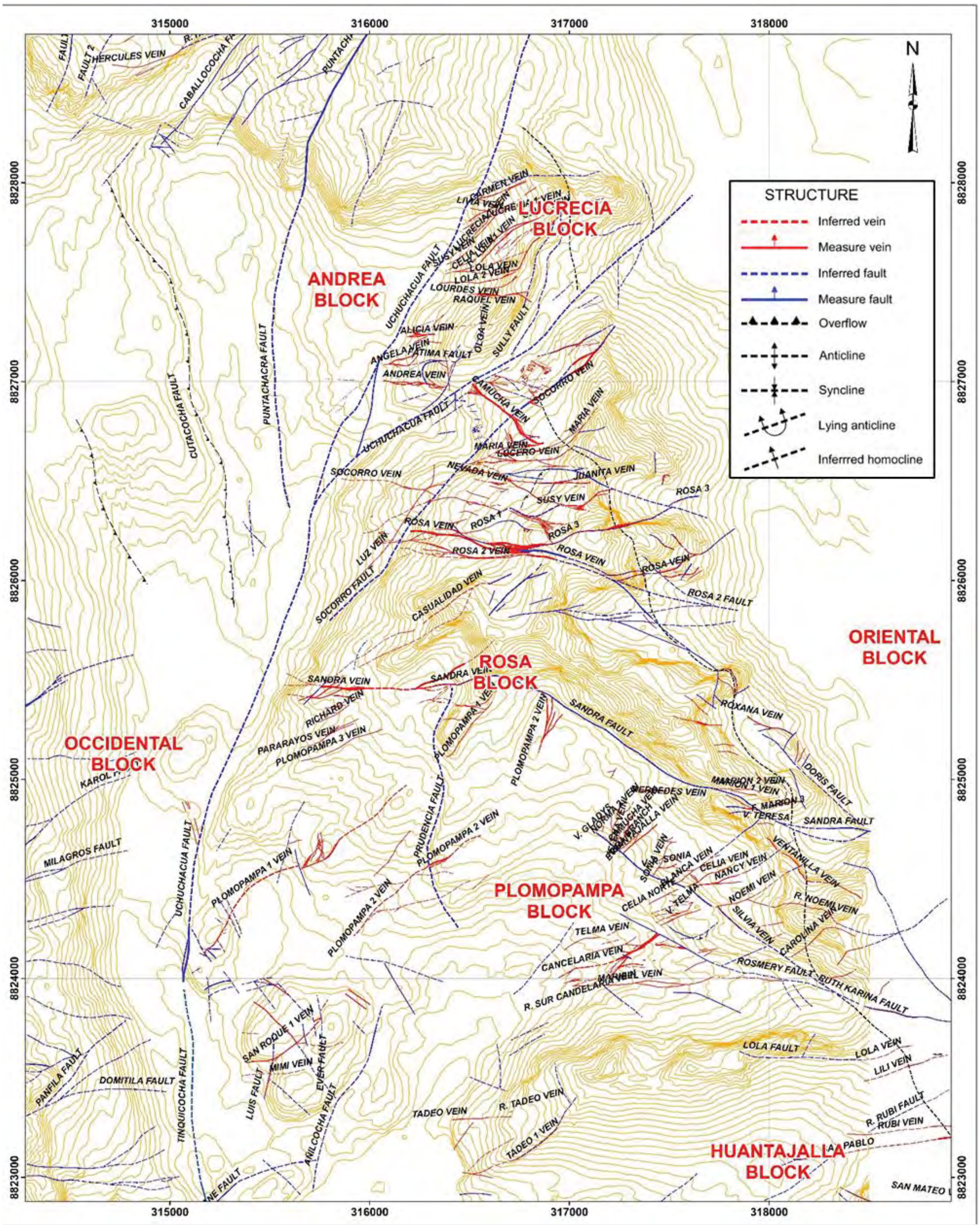


Figure 6-8: Uchucchacua major fault architecture.

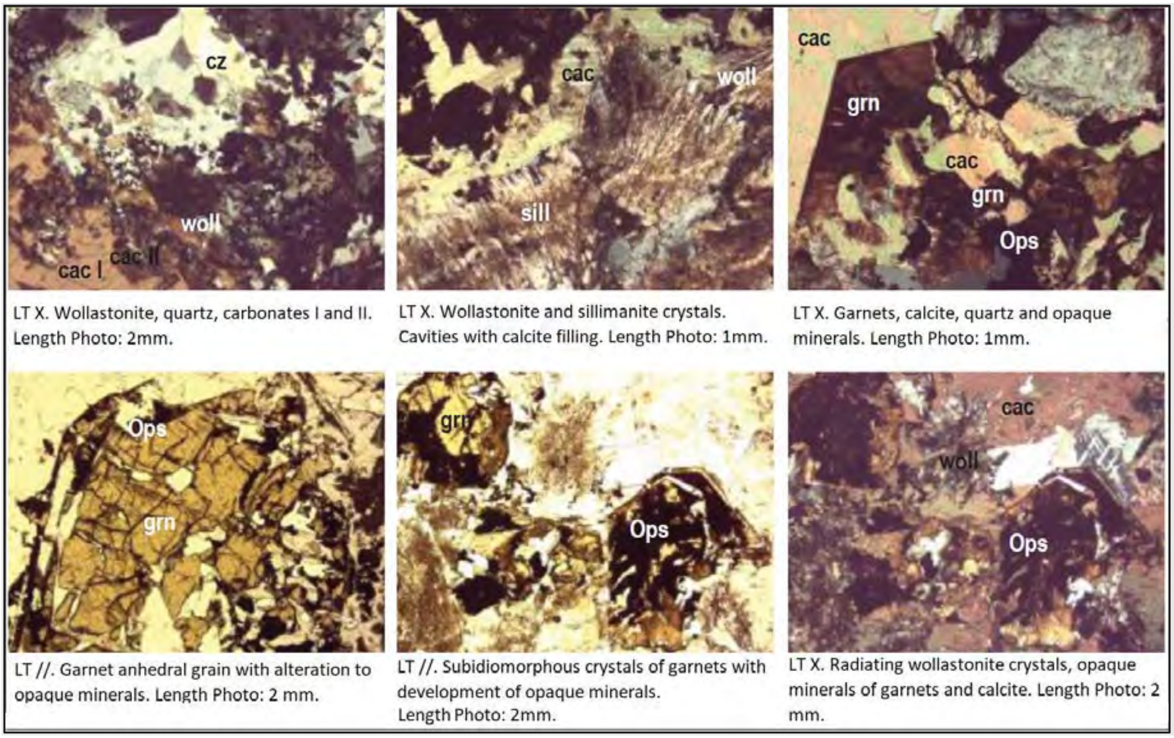
Source: (BISA, 2018)

6.4 Mineralization

Excerpted from BISA, 2018

Uchucchacua is a polymetallic deposit associated with replacement bodies and veins. Its mineralization (Ag, Zn, Pb, Fe and Mn) is located in a sequence of carbonate rocks of the Upper Cretaceous Jumasha Formation.

The mineralization processes at Uchucchacua have been complex and multiple, therefore its mineralogy is unusually varied. Among the main mineral groups are: Oxides, Silicates, Carbonates, Sulfides and Sulfosalts. Among the main ore minerals, we have: Galena, Proustite, Argentite, Pyrargyrite, Native Silver, Sphalerite, Marmatite, Jamesonite, Polybasite, Boulangerite, Chalcopyrite, Covellite, Jalpaite, Stromeyerite, Golfieldite. Gangue minerals include Pyrite, Alabandite, Rhodochrosite, Calcite, Pyrrhotite, Fluorite, Psilomelane, Pyrolusite, Johansonite, Bustamite, Arsenopyrite, Marcasite, Magnetite, Stibnite, Quartz, Orpiment, Realg*ar, Benavidesite, Tephroite and Gypsum. Thin sections of mineralization are shown in* ***¡Error! No se encuentra el origen de la referencia.***.



LT X. Wollastonite, quartz, carbonates I and II. Length Photo: 2mm.

LT X. Wollastonite and sillimanite crystals. Cavities with calcite filling. Length Photo: 1mm.

LT X. Garnets, calcite, quartz and opaque minerals. Length Photo: 1mm.

LT //. Garnet anhedral grain with alteration to opaque minerals. Length Photo: 2 mm.

LT //. Subidiomorphous crystals of garnets with development of opaque minerals. Length Photo: 2mm.

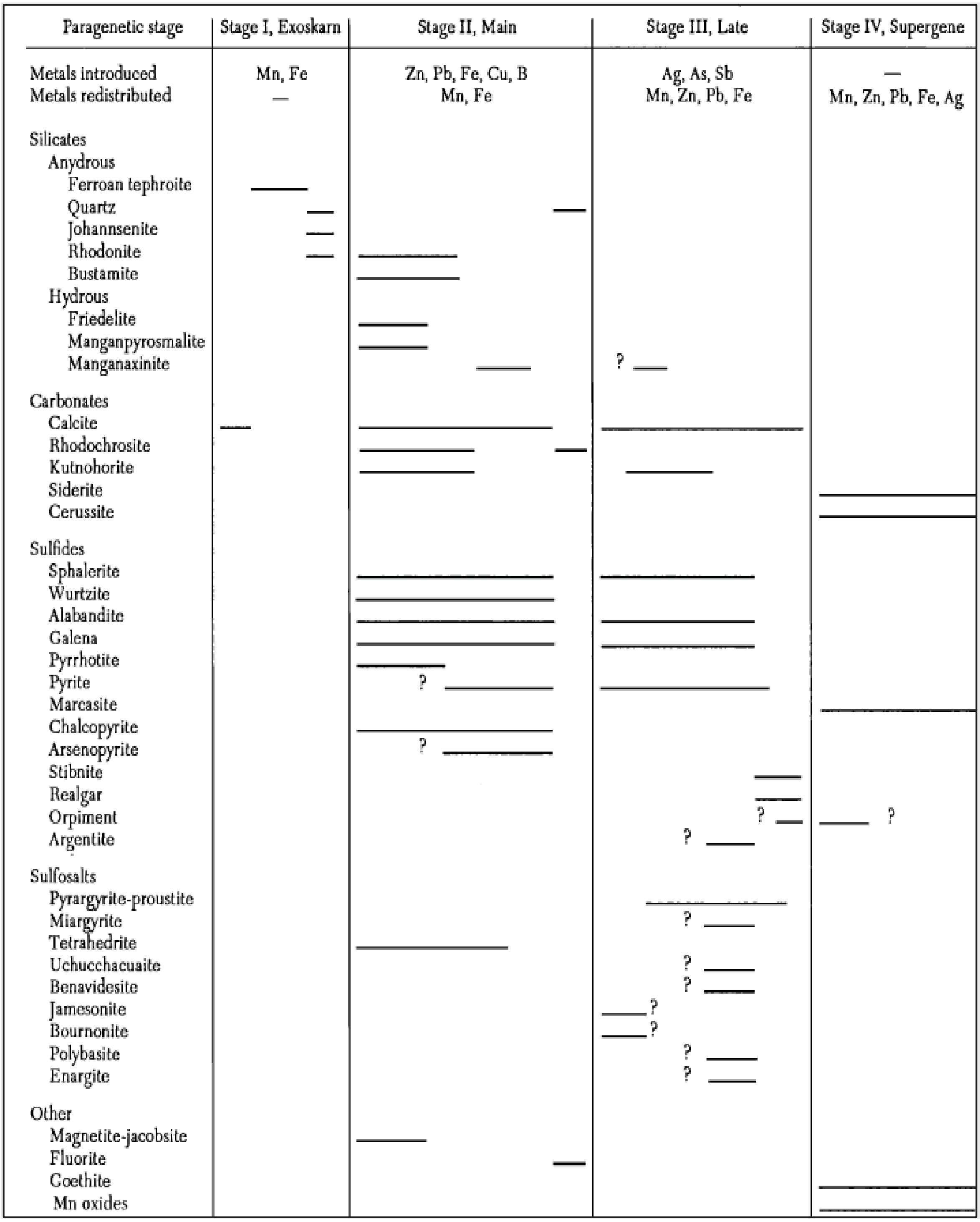
LT X. Radiating wollastonite crystals, opaque minerals of garnets and calcite. Length Photo: 2 mm.

Figure 6-9: Thin sections of mineralization at Uchucchacua.

Source: (BISA, 2018)

A paragenetic sequence for the mineralization at Uchucchacua is portrayed in **¡Error! No se encuentra el origen de la referencia.**.

Table 6-2: Paragenetic sequence for the Uchucchacua vein and replacement deposit (except endoskarn minerals).



Source: (Bussell, et al., 1990)

The style of mineralization, in general, is given by fracture filling and metasomatic replacement. Figure 6-10 shows the setting of mineralized structures and the zoning existing in the mine.

It is important to mention that the silver mineralization with base metals is mainly embedded in rocks of the Jumasha Formation middle member, and occurs in different styles:

- Socorro Zone: mineralization mainly in the form of veins.
- Carmen Zone: veins and bodies in the form of replacement chimneys and mantles.
- Huantajalla Zone: veins and replacement chimneys
- Plomopampa zone: veins
- Lucrecia Zone: replacement bodies and veins

6.5 Hydrothermal alteration

Excerpted from Buenaventura, 2021

The alteration halo surrounding the mineralized bodies by replacement and vein filling is restricted to a few centimeters and in some cases cannot be distinguished. For this reason, it is necessary to observe the veining of hydrothermal calcite, which, due to its intensity and composition determined by fluorescence, is one of the most important guides in the exploration of this type of deposits.

Fluorescence, in the case of hydrothermal calcite, is caused by the interaction of ultraviolet light with the different elements contained in the calcite structure, and this depends on its relative distance to the mineralized body or vein.

If we start in a point of fresh limestone with presence of non-fluorescent (NF) calcite, as we get closer to a vein or mineralized body (zone of higher temperature), calcite veins show a white (W) fluorescence due to the presence of beryllium, from there it changes to a yellow (Y) fluorescence because of the phosphorus, then to a light green (LG) fluorescence due to the presence of magnesium, and finally to an orange-red (OR) fluorescence caused by the presence of manganese.

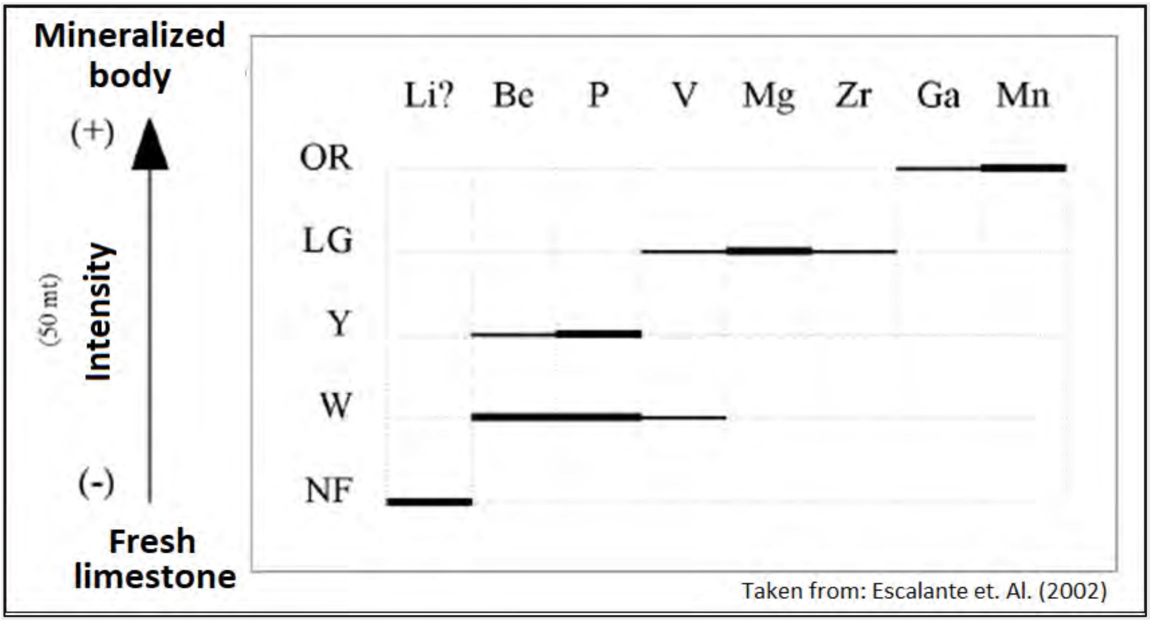


Figure 6-10: Calcite fluorescence.

Source: Escalante et, al. (2002)

SRK performed (SRK, 2017) an infrared light spectrometry analysis of all outcrop samples collected by BISA and SRK. The results show that the alteration of calcite to Fe carbonate (siderite or ankerite) is controlled by NE-SW and NW-SE trending structures.

The sampling has not been representative of Lucrecia, Socorro, Carmen, and Plomopampa zones, however, the structural control of alteration to Fe carbonates is recognized along the Camucha Vein and Cachipampa Fault. Apparent discontinuity in these zones is probably the result of the sampling pattern.

Ankerite is abundant in the northern sector of Casualidad Skarn Zone. It is unclear whether this abundance of ankerite is due to hotter fluids related to the emplacement of quartz-feldspar-biotite porphyritic (QFBP) dikes or whether the ankerite is lithologically controlled by the Celendín Formation.

In Huantajalla Zone, the siderite is strongly controlled by Candelaria and Plomopampa faults.

The depth of localized infrared light absorption at approximately 2200 nm serves as a proxy for the abundance of sericite-clay type alteration minerals.

Areas of deep absorption at 2200 nm are observed in Casualidad Skarn zone, along the Sandra vein, above Huantajalla chimney, above the eastern Hunatajalla dendritic system, and along the strands of Noemi vein. Intermediate absorption zones at 2200 nm occur along and within the Cachipampa-Socorro structural corridor and in Lucrecia Zone. Visible hydrothermal alteration features around the dacitic intrusive of Casualidad mine and Carmen mine occur as a development of coarse-grained marble with little or no Garnets, Pyroxenes (Johansonite), Pyroxenoids (Bustamite) and moderate to weak Silicification, with occasional supergene alteration.

6.6 Deposit Types

Excerpted from Buenaventura, 2021

Uchucchacua is a polymetallic epithermal deposit of veins (fracture filling) and metasomatic replacement, emplaced in carbonate rocks of the Jumasha Formation. Mineralization is complex, occurring in multiple stages or pulses, controlled by well-defined vein structures, replacement bodies or shoots and skarn (Figure 6-11).

Carbonate replacement deposits (CRD) related to intrusives are an important global resource for base metal production; these deposits present a variety of manifestations ranging from Pb-Zn-Cu skarns, to polymetallic replacement bodies in carbonate rocks with Pb-Zn-Ag, to distal skarns with Pb-Zn-Ag-Mn.

In Peru, these deposits are generally associated with Miocene calc-alkaline intrusions resulting from the subduction of the oceanic plate under the continental plate. They show a zoning pattern characterized by Cu±Au±Ag in the higher temperature core grading towards Pb-Zn-Ag and Mn zones in the distal low-temperature epithermal parts of the hydrothermal system. Uchucchacua is an excellent example of the latter manifestation.

Although the deposits at Uchucchacua have many features in common with other skarn-associated Zn-Pb deposits, they possess a combination of important distinguishing features (Bussell et al. 1990):

1. Minerals have unusually high Ag values.
2. The mineral assemblages are enriched in Mn, which can be considered to indicate Mn enrichment in the late stage of the Pb-Zn skarn series. The main mineralization took place at lower temperatures compared to other similar deposits and developed at low temperatures towards the end of a skarn hydrothermal system.
3. The fluid was polygenetic with a significant contribution of brines mixed with hot meteoric and (probably) magmatic waters.
4. It is uncommon to find a closed systematic association of the mineralization in contact with the intrusive. Mineralization develops by fissure filling and limestone replacement along fractured rock zones.

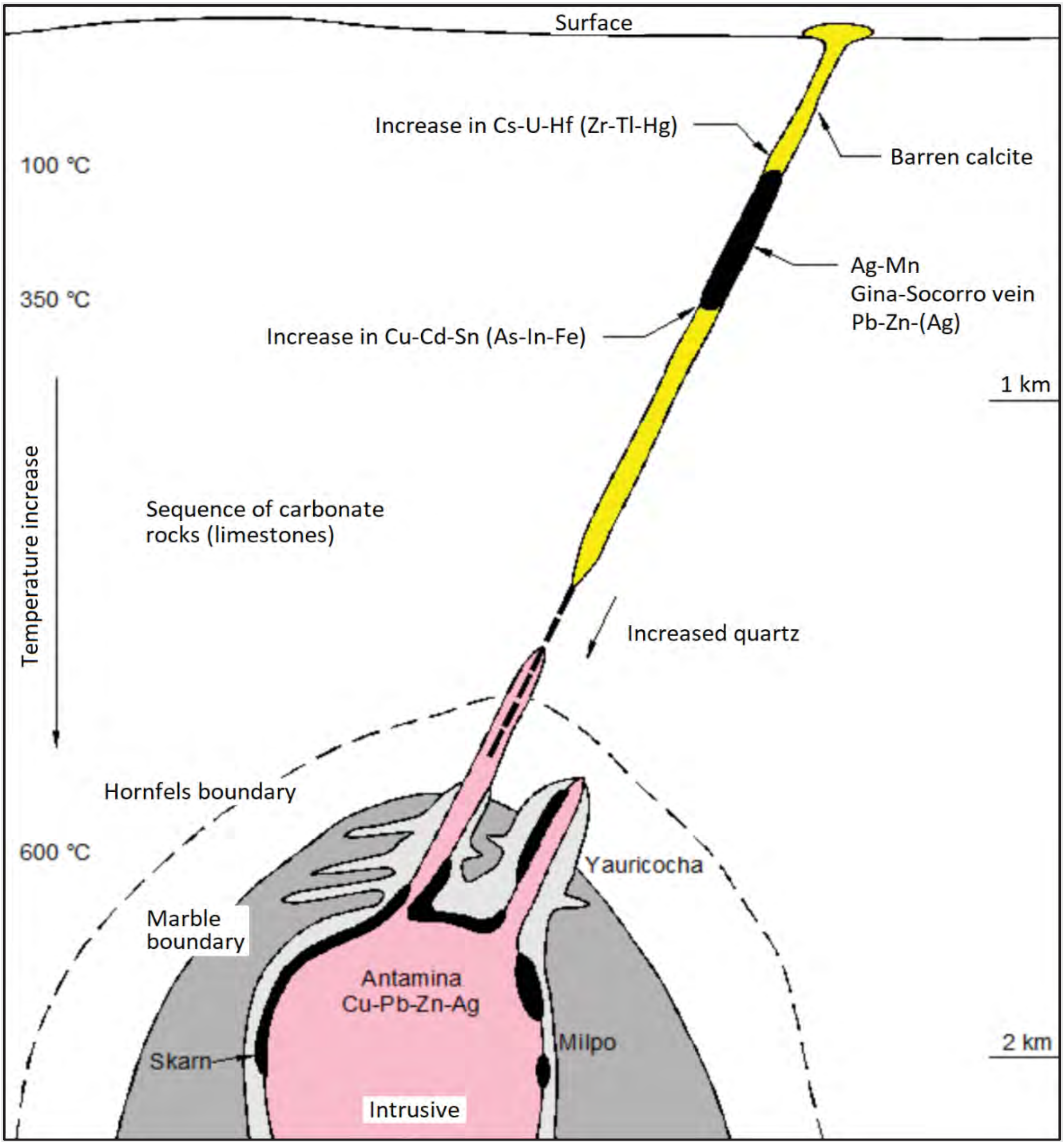


Figure 6-11: Diagram showing the type of deposit at Uchucchacua mine.

Source: (Buenaventura, 2021)

7 Exploration

The district of Uchucchacua covers more than 40,000 ha of mining concession, where District and Regional Exploration activities have been developed since the 70s presenting zones with potential mineralization of porphyry Cu (Mo) - Cu(Au) type, polymetallic skarn, CRD-Ag and Veins-Ag.

The district hosts the Uchucchacua Mining Unit; this deposit is one of the main silver deposits in Peru, with a historical production of 25MTM @ 15.5 oz/t Ag, equivalent to 300M oz Ag fines recovered (from 1975 to 2020) in 45 years of mining operation. It is characterized by the presence of bonanza veins and bodies with high Ag content and subordinate values of Pb, Zn and Cu.

7.1 Exploration Work (Other Than Drilling)

7.1.1 Geological Mapping

Explorations carried out over the last 6 years near Uchucchacua Mine have led to the discovery of the Yumpag deposit, located 5km NE of the Uchucchacua (**¡Error! No se encuentra el origen de la referencia.**), where a 1:2000 scale mapping, sampling, 59,400m of diamond drilling, and a 2.4km ramp development were carried out (Buenaventura, 2021).

7.1.2 Petrology, Mineralogy, and Research Studies

Some studies carried out in Uchucchacua are:

- Mineralogical study reports prepared by BISA in 2003, 2007, 2009, 2011;
- Mineralogical and petrographic analysis carried out by BISA in 2006, 2008 and 2009. Mineralogical studies, by X-ray diffraction (XRD), chemical analysis by X-ray fluorescence (XRF), carried out by BISA in 2007 and 2008.
- Mineralogical and petrographic study, scanning electron microscopy studies, XRD mineralogical analysis and XRF chemical analysis by BISA in 2009, 2012, 2013, 2014.
- Mineralogical study with scanning electron microscopy study in 2010 and 2011. Study of fluid inclusions 2012 and 2013.

7.1.3 Significant Results and Interpretation

SRK notes that the property is not at an early stage of exploration, and that results and interpretation from exploration data is generally supported in more detail by extensive drilling and by active mining exposure of the orebody in multiple underground works.

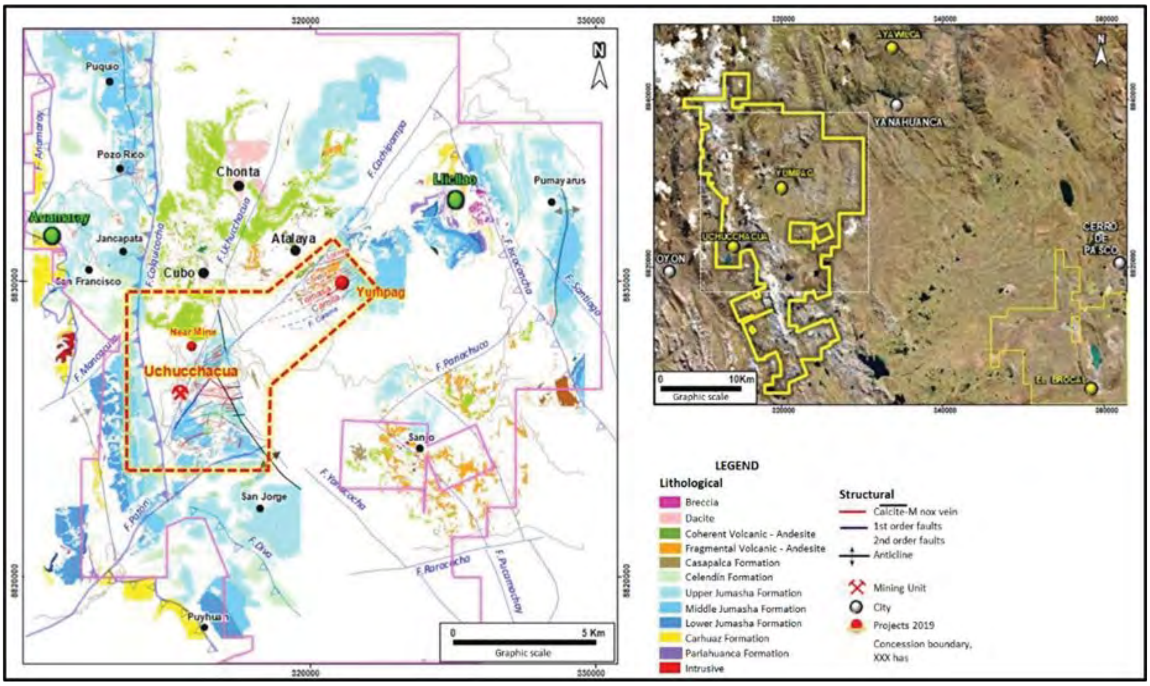


Figure 7-1: Location of the Uchucchacua Mining District, and Yumpag Prospect.

Source: (Buenaventura, 2021)

7.2 Exploration Target Areas

7.2.1 Yumpag Project

Excerpted from Buenaventura, 2021

At Uchucchacua, at the confluence of Colquicocha and Cachipampa faults (**¡Error! No se encuentra el origen de la referencia.**)at the end of the Oligocene, at the beginning of the Quechua 1 tectonic phase, different dacitic porphyry stocks have been emplaced generating Pb-Zn-(Cu) skarns whose zircon U/Pb ages range from 26.68 ± 0.34Ma (Luz stock) to 25.08 ± 0.21Ma (Oeste stock), which confirm a U/Pb age obtained by Bissig et al (2008) of 25.28 ± 0.44Ma (Sandra dike). This is almost contemporaneous with the emplacement at Yumpag of the 27.97± 1.1Ma barren microdiorite laccolith channeled by the Cachipampa fault, which is the main structure of the mining district from a mineralization point of view. It is a large trans-Andean, crustal fault, N40 strike, and is the control of mineralization at both Uchucchacua and Yumpag.

In Yumpag, it is associated with multiple R-type N60 tension structures of dextral strike and other R1-type E-W structures, more sinistral, which allowed the emplacement of veins and mineralized bodies, Camila is the most important as it hosts the mineralization recognized thus far. However, there are structures on the surface, such as Natalia, Lili, Tomasa, Elena, Sara, Condor, Luzmila-Zarela, which shows signs of having channeled mineralizing fluids, and as such, will constitute the main drilling targets for future campaigns (**¡Error! No se encuentra el origen de la referencia.**).

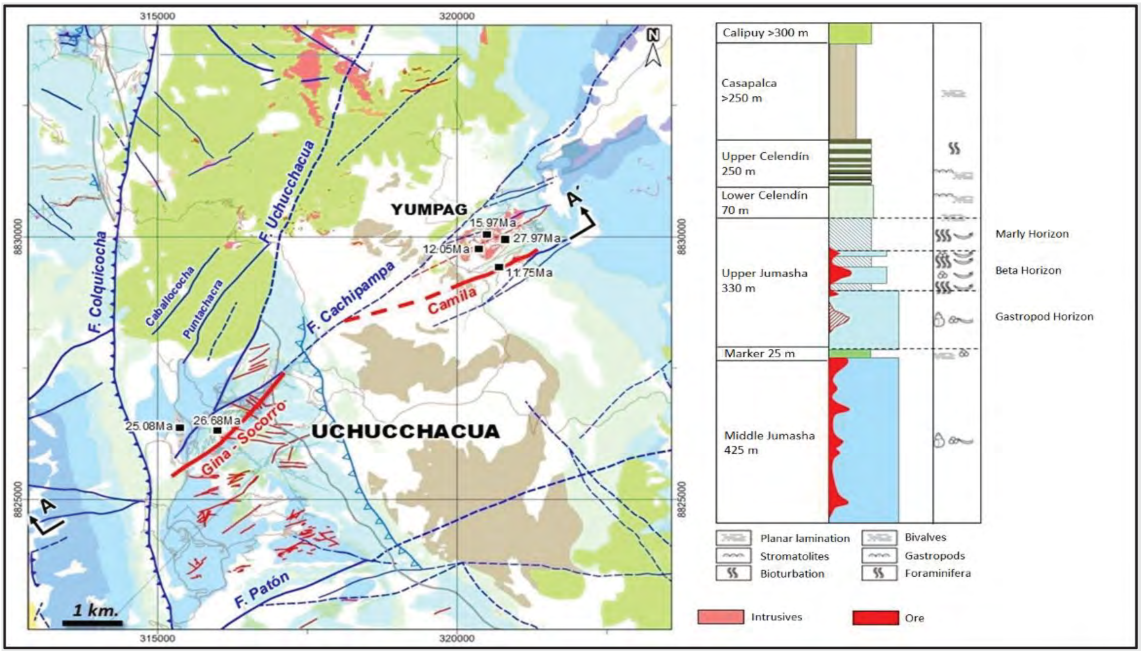


Figure 7-2: Location of the main structures (Camila) in Yumpag Target

Source: (Buenaventura, 2021)

At Uchucchacua, most of the mineralization is located in limestones of the Middle Jumasha, so it was considered the host of mineralization in the District. However, at Yumpag, the Camilla Body mineralization is located in an Upper Jumasha horizon, breaking this paradigm. The development of stratigraphic columns (sequence stratigraphy) and microscopic calcareous facies studies has defined the prospective Beta horizon, which hosts 90% of Camila mineralization; it is characterized by intercalations of clean mudstone-wackestone limestones with foraminifera and shell fragments and massive black marly, nodular marly limestones, bioclastic packstone. The gastropods Horizon has also been identified, which hosts the ore of Tomasa structure and part of Camila and is characterized by limestones of nodular aspect with the presence of foraminifera and thick centimetric gastropods.

At Yumpag, the Camilla Body's mineralization rises along trans-Andean trending subvertical faults, developing in the βeta and Gastropod horizons of the upper Jumasha, and characterized by a distal halo with high Ag-Mn values to the northeast grading into a hot core with Zn-Pb-(Cu) to the southwest as the structure advances southwest in plunge direction; the source is not yet known, but is presumed to lie beneath the Casapalca cover in the highland plain between Uchucchacua and Yumpag. (**¡Error! No se encuentra el origen de la referencia.** and **¡Error! No se encuentra el origen de la referencia.**)

In the Yumpag deposit, the Camila Body is the main structure identified so far.

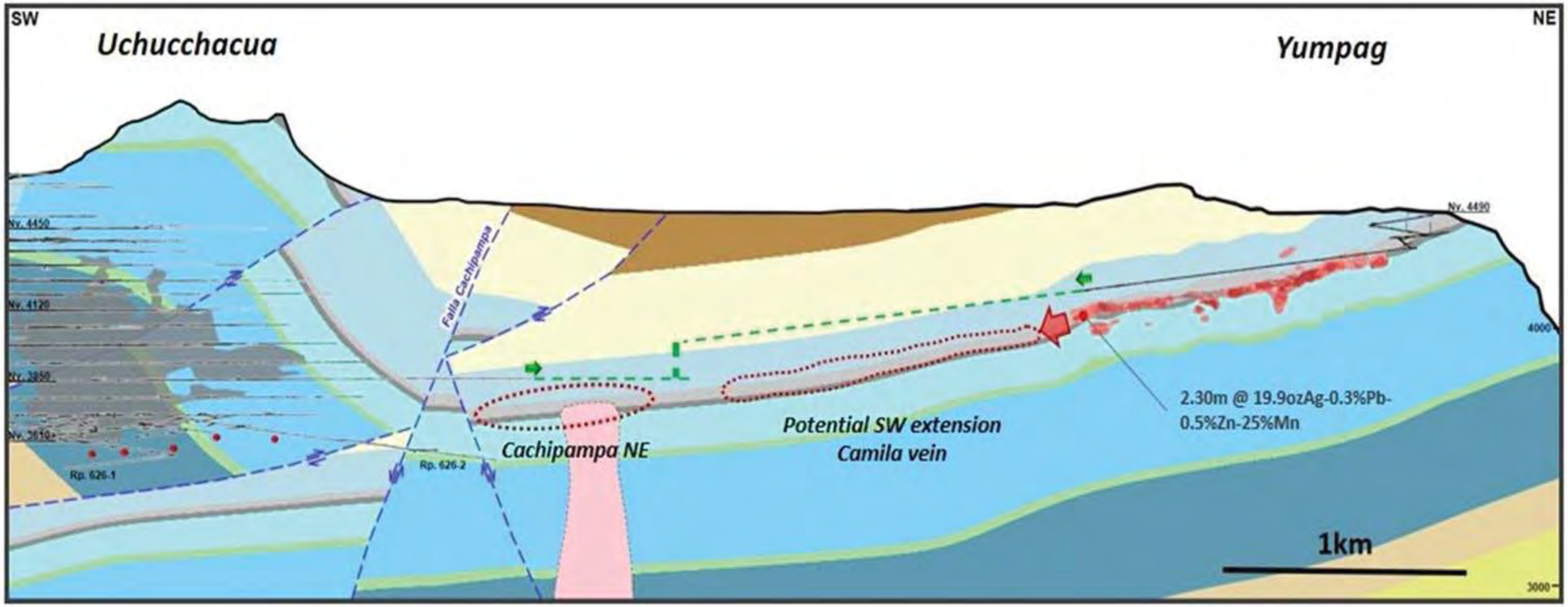


Figure 7-3: Uchucchacua – Yumpag geological section

Source: (Buenaventura, 2021)

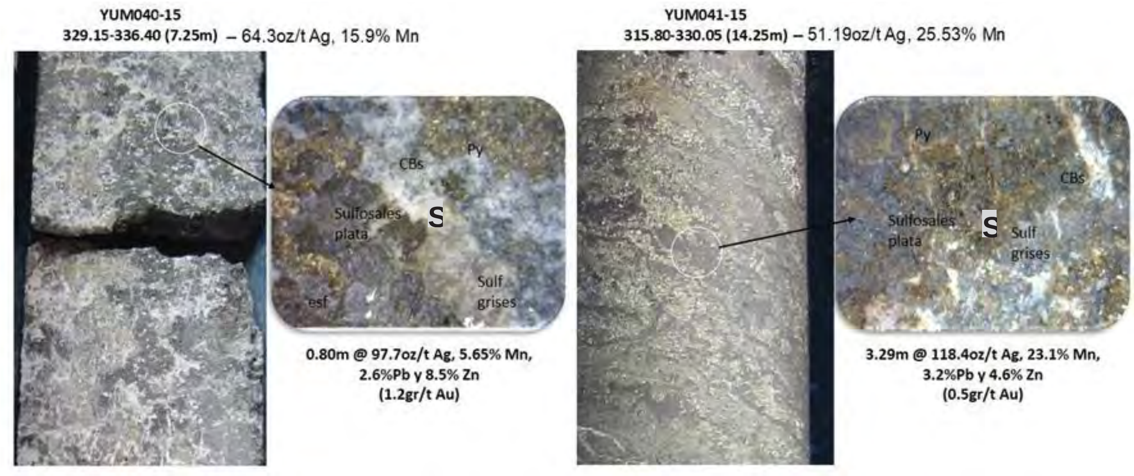


Figure 7-4: Mineralization in Camila structure (Yumpag)

Source: (Buenaventura, 2021)

7.3 Exploration Drilling

Over the last few decades, exploration using diamond drilling has been carried out at Uchucchacua to follow the continuity of the main mineralized structures; drilling has also been conducted in the surrounding area to locate new targets (**¡Error! No se encuentra el origen de la referencia.**). In summary, exploration activities have been carried out at Uchucchacua with 5,946 drill holes for a total of 833,754.10 meters drilled.

In the case of Yumpag, 59,400m of diamond drilling has been carried out.

Table 7-1: Summary of Drilling campaigns in Uchucchacua-Yumpag since 1997

Year	Tipo 1	Operator	Number of Drillholes	Metres Drilled (m)
1997	DDH	Buenaventura	44	4,599.01
1998	DDH	Buenaventura	46	4,240.37
1999	DDH	Buenaventura	81	11,062.75
2000	DDH	Buenaventura	137	16,999.56
2001	DDH	Buenaventura	171	18,444.42
2002	DDH	Buenaventura	185	22,649.27
2003	DDH	Buenaventura	232	19,569.79
2005	DDH	Buenaventura	7	389.85
2006	DDH	Buenaventura	136	17,023.48
2007	DDH	Buenaventura	209	25,701.20
2008	DDH	Buenaventura	369	46,511.34
2009	DDH	Buenaventura	325	47,708.94
2010	DDH	Buenaventura	364	47,013.85
2011	DDH	Buenaventura	360	46,647.61
2012	DDH	Buenaventura	321	51,613.80
2013	DDH	Buenaventura	310	42,977.15
2014	DDH	Buenaventura	287	44,927.61
2015	DDH	Buenaventura	271	42,804.00

Year	Tipo 1	Operator	Number of Drillholes	Metres Drilled (m)
2016	DDH	Buenaventura	349	53,394.75
2017	DDH	Buenaventura	470	71,108.31
2018	DDH	Buenaventura	481	95,438.13
2019	DDH	Buenaventura	446	57,217.45
2020	DDH	Buenaventura	228	30,145.76
2021	DDH	Buenaventura	117	15,565.70
Total			5,946	833,754.10

Source: Buenaventura

7.3.1 Drilling Surveys

Buenaventura’s survey department is responsible for surveying the collar locations using a total station or a differential GPS instrument. Upon completion, a monument is used to mark the collar location.

7.3.2 Sampling Methods and Sample Quality

Core size is either NQ or HQ.Prior to splitting; samples are selected for density measurements, Terraspec (Pima), point load testing and petrography.

Core samples are cut or split into two equal parts using diamond saws or splitters. One half of the core is sent for analysis and the other half is retained in the core box.

7.3.3 Downhole Surveying

Buenaventura downhole surveys holes using a Reflex (magnetic) survey instrument or a gyroscope, which may also be used to validate the Reflex measurements.

SRK observed that the measurements were conducted every 70-90 m. Vertical drillholes (90°) with depths of less than 50 m are not downhole surveyed.

7.3.4 Geological Logging

All the cores were logged with the supervision of the Uchucchacua Geologists. All the information is collected through GVMapper software, with a customized library of lithology, alteration and mineralization codes. This data is then imported to AcQuire.

7.3.5 Diamond Drilling Sampling

Core samples are collected in trays and marked to indicate the drill hole ID and core blocks are inserted to mark the depths of the start and end of each run.

The drill core recovery is appropriate, generally over 95%. A symmetrical line is drawn along the core for the cutting.

The drillhole intervals are marked and sampled by Uchucchacua’s Geologist. The samples have variable length (minimum: 0.3 m and maximum: 1.5 m). The sampling procedure of Buenaventura considers the following:

- Each core section is marked by small wooden blocks.
- The recovery is measured in each section.

- A sampling card is completed for each sample. The sampling cards have two parts: one part is used when sending the sample to the laboratory, and the other segment remains in the core box.
- A unique sample value is assigned to each sample. This allows its identification throughout the sampling process, assay and validation processes (in case of duplicates).
- A photographic record of each drillhole section is kept.
- The collection of the geological information is conducted in a detailed logging form.
- The core is cut by using an electric saw.
- Samples are divided in two halves: one of them is sent to the laboratory for assay, and the other one is stored in the box.
- Blank, standard and duplicate samples are inserted systematically.
- Samples are packed in sacks (with the corresponding coding) and sent to the laboratory. All the samples arrive at the laboratory with a list that has been generated by the geology department, which describes the sample quantity and the assay type.
- Pulps are returned to the laboratory and stored by the Geology team.

SRK is of the opinion that the core recovery and sampling are appropriate for resource estimation purposes.

7.3.6 Drilling Type and Extent

Drilling throughout the project is mainly diamond drilling and has variable azimuth and inclinations.

7.3.7 Drilling, Sampling, or Recovery Factors

The drill core recovery is appropriate, generally over 95%. SRK is not aware of any material factor of the drilling that might affect the results.

7.3.8 Drilling Results and Interpretation

SRK used the available geological and drill hole data to review geological models.

The procedures used by the Uchucchacua team for drilling, logging, drillhole sampling, and information gathering are appropriate and follow the best practices of the international codes.

8 Sample Preparation, Analysis and Security

The procedures for sampling, sample preparation, analysis and quality control for mining channels and diamond drilling samples are described in this section.

8.1 Uchucchacua Mine

8.1.1 Sample Preparation Methods and Quality Control Measures

Sampling

Sampling is performed under the supervision of the ore control and/or field geologist. The core is removed from the core barrel at the drill rig and placed into core boxes and transported to the logging facility at the end of each drilling shift.

Drillhole sampling is performed at the core storage facility located in the mining unit. Prior to sampling, the core is cut lengthwise into two halves by an automatic core saw, following the cutting line that has been marked by the geologist. The cut core is placed back in the core box. Next, the core boxes are placed on the sampling tables in an orderly fashion. Sampling is done at intervals no less than 0.3m. Each sample ticket has three tags, and the sample interval and QA/QC codes are noted on the ticket. Two sample tags and one half of the sawn core sample are placed in a polyethylene bag, and the other tag is stapled to the outside of the polyethylene bag. The other half of the sample remains in the core box. After completing the sampling of each drill hole, samples are placed in large sacks for their transportation to the internal laboratory or sent to the external laboratory.

The channel sampling is performed in the mine with the following steps: The sampling area is washed, and the channels are located by measuring their distance from a reference point and then marking their location with red paint. Then, the individual channel samples are delimited and marked. The channel samples have a minimum thickness of 0.1m and minimum sample length of 0.3m and are collected with a sledgehammer and chisel. Subsequently, the fragments are placed in the sampling bag and the sample is tagged, bagged, and sealed. Finally, the samples are placed in sacks and transferred to the sample preparation internal laboratory.

For density sampling, representative samples based on geology and mineralization units are selected.

Density core samples have a length of 15 to 20 cm and are taken at 5 m intervals along the drillhole regardless of whether it is a mineralized zone. The samples are wrapped in plastic film and then tagged. The geologist creates a database with all tagged samples collected and this information is sent to the geology database manager and subsequently recorded on the density sample form. The technician in charge of density measurement, photographs the sample outside the core box and then it is sent to the internal or external laboratory for density determination. Once the results are obtained, the samples are saved in their respective locations, the results are uploaded to the database and the reports are stored.

In mining channels density sampling, the geologist determines the sampling plan, including the tentative location and sampling frequency. The sampling personnel collect the samples from the mineralized structure or gangue, the samples must be representative, intact and compact and have 15 to 20 cm of length. The sample is wrapped in a plastic film and placed in a sampling bag where is tagged indicating the level and location. Later, these samples are placed in a wooden container to keep them intact and tidy. The responsible geologist will create a database of the collected samples and send the information to the geology database administrator. The samples are sent to the internal or external laboratory for density determination.

Sample Preparation

Uchucchacua Internal Laboratory performs the following sample preparation processes (Figure): First, the tagged samples are received and placed in trays. The samples are dried in the drying oven at a temperature between 60°C - 100°C. Subsequently, samples are transported to the crusher, which was previously cleaned by crushing a barren material such as quartz. The sample is crushed until 90% passing -10 mesh (2 mm). Then, the samples are homogenized by using the Jones riffle splitter, and are reduced through successive divisions until obtaining a sample of approximately 400 g. Later, the pulverizing equipment and discs are cleaned using barren quartz sand and compressed air. Samples are pulverized until 95% passing -140 mesh (106 µm). Finally, the pulverized sample is divided into two subsamples of 200 g each, one of them is sent for chemical analysis and the other will be stored as pulp to be returned to the geology department for storage.

The Certimin Laboratory (current external laboratory) performs the following sample preparation processes: The supervisor receives, orders and check the samples (quantity, state of containers, codes) according to the analysis request. After that a batch code is created, and the data described in the service request is entered. Later, the samples are weighed and registered in the LIMS (Laboratory Information Management System) and/or in a weighing format. Then, the samples are dried at a temperature of 100°C +/- 10°C, 60°C +/- 10°C, or according to the client's request. Subsequently, the samples have a primary crushing to better than 90% passing a 1/4" mesh (6.3 mm). After that, the samples have a secondary crushing to better than 90% passing # -10 mesh (2 mm). Then, the samples are split using a riffle splitter to obtain a sample weight of 200 to 300 g. (The rest of the sample is stored as reject). Later, the samples are pulverized until 85% passing -200 mesh (75 µm). Finally, the laboratory reviews the results of the internal quality control in the sample preparation and if the results are satisfactory, the pulp is retained for the respective chemical analysis.

Density samples preparation includes the following processes: First, the electronic balance is calibrated, then the weight of the initial sample is taken. The samples are placed in the drying oven at a temperature of 105°C. The samples are weighed every 30 minutes until a constant weight is obtained (thus obtaining the drying time). Buenaventura uses the wax-coated water immersion method (paraffin method) to determine density in the geological units. In argillic areas with crumbly material or in highly fractured areas, the density will be determined using the pycnometer.

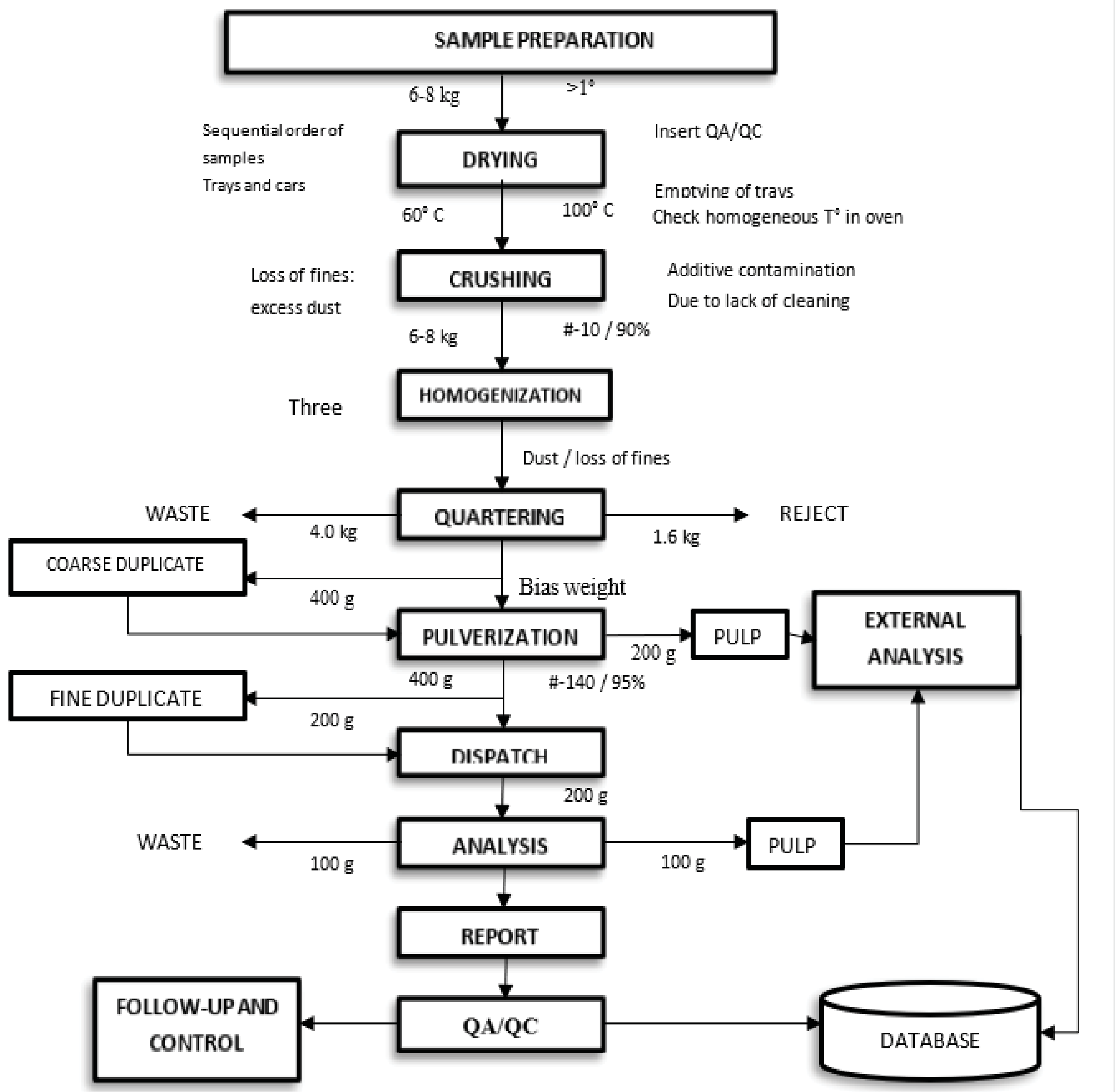


Figure 8-1: Sample Preparation Diagram

Source: Buenaventura - Sampling Manual, 2020

8.1.1.1 Chain of Custody

The chain of custody is supervised by mine geologists and consists of the following procedure: Samples are grouped in consecutive order and placed into sacks, then they are transported to the Internal Laboratory, where the dispatch order is provided (which includes the analysis method to be used, sample quantity, etc.) and the receipt of samples is entered in the database.

In case of deliveries outside the mining unit, constant communication with the shipper is required to monitor the sample transfer, and custody personnel will be available in the transport unit. After the delivery of the samples to the external laboratory, the sample submission and the chain of custody forms will be provided, and these documents shall be signed by the person responsible for receiving the samples. The results are issued by the laboratory through digital reports and are received by the database administrator of the mining unit, who will validate that information.

8.1.2 Sample Preparation, Assaying and Analytical Procedures

The samples from Uchucchacua have been analyzed at the onsite Uchucchacua Internal Laboratory (UCHLAB), and at the external laboratories CERTIMIN and ALS, as summarized in the Table 8-1:

Table 8-1: Distribution of samples analyzed according to laboratory and period:

Laboratory	Sample Type	1963-2006	2007-2012	2013-2016	2017	2018	2019	2020	2021	Total Samples
UCHLAB	Mine Channel	45,573	58,053	52,352	24,296	19,388	6,102	1,708	1,341	208,813
	Core	13,947	58,863	30,625	9,502	17,839	18,058	7,361	2,942	159,137
ALS	Drillholes	-	-	-	-	-	-	442	-	442
CERTIMIN	Drillholes	-	-	-	-	-	-	505	1,179	1,684
									Total	370,076

Source: SRK, 2021

Uchucchacua Internal Laboratory is located in the Uchucchacua Mining Unit (Lima, Oyón province), and has ISO 9001:2015, ISO 14001:2015, and ISO 45001:2018 certifications.

Samples sent to the External Laboratory ALS (Peru) are chemically analyzed at the main headquarters located in Lima (ALS Lima). This laboratory is internationally recognized and has ISO/IEC 17025:2017 certification.

The samples sent to the External Laboratory CERTIMIN (Peru) are chemically analyzed at the main headquarters located in Lima. This laboratory is recognized and has ISO 9001:2015, ISO 14001:2015, and ISO 45001:2015 certifications.

Both laboratories (ALS, Certimin) were and are independent of Buenaventura.

8.1.3 Sample Analysis

The Uchucchacua's Internal Laboratory performs the following sample analysis processes:

- Samples are received and weighed.
- For total gold analysis (FAAAS), samples are melted, cupellated, and then subjected to gravimetric analysis.
- For samples tested for multiple elements, wet digestion of samples and instrumental analysis are performed: Ag (AASR) / Pb (AASR) / Zn (AASR) / Fe (AASR) / Mn (AASR).
- If the results obtained comply with laboratory quality control standards, the assay certificate is prepared and issued.

The analytical procedures followed by the current laboratories are shown in Table 8-2 and Table 8-3.

Table 8-2: Analytical methods used in the Internal Laboratory of Uchucchacua

Element	Method	Lower limit	Upper limit	Method description
Au	FAAAS	0.016 ppm	20 ppm	Fire Assay - Atomic Absorption Spectroscopy finish
Ag	AASR	0.02 oz/t	1,000 oz/t	Atomic Absorption Spectroscopy - Aqua regia digestion
Pb		0.008%	100%	
Zn		0.002%	100%	
Fe		0.02%	100%	
Mn		0.009%	100%	

Source: SRK, 2021

Table 8-3: Analytical methods used in the External Laboratory CERTIMIN

Element	Method	Lower limit	Upper limit	Method description
Au	IC-EF-01	0.005 ppm	10 ppm	Fire Assay - Atomic Absorption Spectroscopy finish
Ag	IC-VH-88	0.1 ppm	100 ppm	Multielemental Analysis – ICP-OES, ICP-MS – Four Acid Digestion
Pb		0.5 ppm	10,000 ppm	
Zn		0.5 ppm	10,000 ppm	
Fe		0.01%	15%	
Mn		2 ppm	10,000 ppm	
Ag	IC-VH-15	10 ppm	1,000 ppm	Multielemental Analysis AAS - Aqua regia digestion
Mn		0.01%	50%	
Pb		0.01%	30%	
Zn		0.01%	30%	
Ag	IC-EF-15	100 ppm	10,000 ppm	Fire Assay - Gravimetric finish

Source: SRK, 2021

8.1.4 Quality Control Procedures/Quality Assurance

Quality Assurance and Quality Control (QA/QC) procedures included the insertion of blank control samples, duplicates and standard reference materials to monitor sampling, sample preparation and analytical processes.

Insertion Rate

No control samples were utilized in early drilling and channel sampling, representing about 46% of the total sample population. Buenaventura initiated a QAQC program inserting control samples in drillholes (2013-2021) and channels (2007-2021). In these subsequent programs, the controls sample insertion program performed on channel and drill hole samples present an overall insertion rate of 24.8 % and 16.1 %.

The Table 8-4 summarizes the insertion rate by sample type, period and laboratories.

Table 8-4: Uchucchacua control sample insertion ratio.

Period	Sample Type	Laboratory	# Primary samples	Blanks		Duplicates		Standard		# Control Samples	Insertion Rate (%)
				#	(%)	#	(%)	#	(%)		
1963-2006	Channel	UCHLAB*	45,536	No control samples were inserted							
1997-2012	Drill hole	UCHLAB*	70,812								
Total			116,348								
2007-2021	Channel	UCHLAB*	163,277	14,331	8.8%	18,669	11.4%	7,558	4.6%	40,558	24.8%
Sub Total Channels			163,277	14,331	8.8%	18,669	11.4%	7,558	4.6%	40,558	24.8%
2013-2021	Drill hole	UCHLAB*	88,319	4,262	4.8%	5,637	6.4%	4,428	5.0%	14,327	16.2%
2020**	Drill hole	ALS	442	17	3.8%	16	3.6%	18	4.1%	51	11.5%
2020-2021	Drill hole	CERTIMIN	1,684	77	4.6%	65	3.9%	85	5.0%	227	13.5%
Sub Total Drillholes			90,445	4,356	4.8%	5,718	6.3%	4,531	5.0%	14,605	16.1%

(*) UCHLAB: Uchucchacua Internal Laboratory

(**) In 2020, control samples have not been inserted in the drill hole samples as in previous years. Buenaventura states that this was due to circumstantial issues related to the pandemic during that year.

Source: SRK, 2021

8.1.5 Evaluation of Control Samples

To evaluate control samples (QC), SRK has applied the following criteria:

1. To evaluate contamination (blank samples), SRK considers the presence of blank samples with assay results exceeding 10 times the lower limit of detection (10 x LLD). The limit acceptable by SRK is 90% of samples under 10 x LLD;
2. To evaluate accuracy (standards), SRK uses the limit conventionally accepted by the industry which is, all standard control samples outside the range of Best Value (BV) ± 3 Standard Deviation (SD), or adjacent samples between the limits of BV+3SD and BV+2SD, or between BV-3SD and BV-2SD, are considered as samples outside the acceptance limits. For SRK, 90% of samples must be within the acceptance limits; and
3. To evaluate precision (duplicates), SRK compares and applies the HARD index (half of the relative absolute difference) to each original-duplicate sample pair. SRK considers acceptable the precision evaluation, as follows:
   a) For twin samples, the acceptable HARD value is < 30%.
   b) For coarse duplicate samples the acceptable HARD value is < 20%.
   c) For duplicate pulp or check assay samples the acceptable HARD value is < 10%.

The observations found during the QC analysis are summarized in the Table 8-5.

Table 8-5: Observations found in the QC analysis

Laboratory	Period	Sample Type	QC Type	Findings
UCH LAB	2008-2021	Drillholes	Blank	Blank results for Pb are within the acceptance limits for SRK. Ag, Zn, Fe and Mn results for blanks UCBLK01 and UCBLKF01 (prior to 2017) and are not at acceptable limits for SRK.
	2009-2021		Standard	Pb accuracy is within acceptable limits. Ag and Zn accuracy are poor. The results obtained in the following standards have low percentage of acceptance: UCH-04 (Ag, Zn), UCH-05 (Zn), UCH-06 (Ag, Zn), UCH-09 (Zn), UCHA-03 (Ag), and are not at acceptable limits for SRK. The bias is acceptable, with a slight negative trend in the bias for Pb and Zn.
	2007-2021		Duplicate	Results for Mn and Fe shows a good precision. But in Pb and Zn the precision is poor for fine and coarse duplicates, and in field duplicates the results are acceptable. Ag precision is poor for fine duplicates, but in coarse and field duplicates the results are within acceptable limits.
	2008-2021	Mine channels	Blank	Only blank results for Pb are within acceptable limits. Ag, Zn, Fe and Mn results for blanks UCBLK01 and UCBLKF01 (prior to 2017) are not at acceptable limits for SRK.
	2009-2021		Standard	Pb accuracy is within acceptable limits. Ag and Zn accuracy are poor. The results obtained in the following standards have low percentage of

Laboratory	Period	Sample Type	QC Type	Findings
				acceptance: UCH-04 (Ag, Zn), UCH-05 (Ag, Zn), UCH-06 (Ag, Zn), UCH-09 (Zn), UCHA-03 (Ag), and are not at acceptable limits for SRK. The bias is acceptable, with a slight negative trend in the bias for Pb and Zn.
	2007-2021		Duplicate	Precision of the sampling, sampling preparation, and chemical analysis is good, within acceptable limits.
ALS	2020	Drillholes	Blank	There is no evidence of cross-contamination.
			Standard	Ag and Pb standards results are acceptable. Zn results are very close to the acceptance limit for SRK.
			Duplicate	Results for fine, coarse, and field duplicates are within SRK's acceptable limits, except for the Mn in coarse and field duplicates, which is close to SRK's acceptance limit.
CERTIMIN	2021	Drillholes	Blank	There is no evidence of cross-contamination.
			Standard	Ag and Pb standards results are acceptable. Zn results are close to the acceptance limit set by SRK.
			Duplicate	Fine and coarse duplicate results are within the acceptable limit. Except for Pb in field duplicates, whose results are close to the limit acceptable by SRK, except by the results obtained at the standard UCH-05 (Zn) that is not at acceptable limits.

Source: SRK, 2021

8.1.6 Opinion on Adequacy

SRK has conducted a comprehensive review of the available QA/QC data as part of the sample preparation, analysis, and security review. SRK believes that the QA/QC protocols are consistent with the best practices accepted in the industry.

In SRK's opinion, sample preparation, chemical analysis, quality control, and security procedures partially provide unreliable data to support the estimation of mineral resources and reserves, especially for samples analyzed at the Uchucchacua Internal Laboratory. Additionally, areas of the resource with only historical sampling may lack any QA/QC or check sampling. Therefore, SRK has considered the QAQC analysis results as a risk in the classification of mineral resources and a more conservative classification of mineral resources will be made, accordingly as discussed in Section 11.6 of this report.

The insertion of control samples to validate contamination, precision, and accuracy of the database has been regularly performed in drillholes since 2013 and in channels since 2007. SRK has noted that the insertion rate of control samples in channels and drillholes is adequate according to Buenaventura's protocol.

Based on SRK criteria for QA/QC review, the followings observations are provided:

There are no evident signs of cross-contamination in Ag, Pb, Zn, Fe and Mn blank results at ALS and Certimin external laboratories. At Uchucchacua Internal Laboratory, acceptable results were obtained only in blank samples for Pb and biased results were observed in drill hole and channel blank samples for Ag, Zn, Mn, and especially Fe (Period: 2009-2016).

Regarding precision analysis, duplicates in general have yielded good results for Ag, Pb, Zn, Fe, and Mn, with the best results obtained at ALS and Certimin External Laboratories. Precision at Uchucchacua Internal Laboratory for Ag, Fe and Mn is acceptable, but in Pb and Zn the precision in fine and coarse duplicates from drill hole samples is poor.

In general, the accuracy of Ag, Pb, and Zn analyses at ALS and CERTIMIN Laboratories are acceptable. At Uchucchacua Internal Laboratory, Ag and Zn standard results are not at acceptable limits. SRK believes the QAQC results will have an impact on mineral resource confidence classifications for samples from the Internal Laboratory.

SRK recommends to carefully monitor the behavior of analytical results obtained for control samples in order to inform the internal/external laboratory of problems detected, if any, for immediate correction.

8.2 Yumpag Mine

8.2.1 Sample Preparation Methods and Quality Control Measures

Sampling

Sampling is performed under the supervision of the exploration geologist. The core is removed from the core barrel at the drill rig and placed into core boxes and are transported to the logging facility at the end of each drilling shift.

Drillhole sampling is performed at the core storage facility located in the mining unit. Prior to sampling, the core is cut lengthwise into two halves by an automatic core saw, following the cutting line that has been marked by the geologist. The cut core is placed back in the core box. Next, the core boxes are placed on the sampling tables in an orderly fashion. Sampling is done at intervals no less than 0.3m. Each sample ticket has three tags, and the sample interval and QA/QC codes are noted on the ticket. Two sample tags and one half of the sawn core sample are placed in a polyethylene bag, and the other tag is stapled to the outside of the polyethylene bag. The other half of the sample remains in the core box. After completing the sampling of each drill hole, samples are placed in large sacks for their transportation to the internal laboratory or sent to the external laboratory.

For density sampling, representative samples based on geology and mineralization units are selected.

Density core samples have a length of 15 to 20 cm and are taken at 5 m intervals along the drillhole regardless of whether it is a mineralized zone. The samples are wrapped in plastic film and then tagged. The geologist creates a database with all tagged samples collected and this information is sent to the geology database manager and subsequently recorded on the density sample form. The technician in charge of density measurement, photographs the sample outside the core box and then it is sent to the internal or external laboratory for density determination. Once the results are obtained, the samples are saved in their respective locations, the results are uploaded to the database and the reports are stored.

Sample Preparation

The Certimin Laboratory (current external laboratory) performs the following sample preparation processes: The supervisor receives, orders and check the samples (quantity, state of containers, codes) according to the analysis request. After that a batch code is created, and the data described in the service request is entered. Later, the samples are weighed and registered in the LIMS (Laboratory Information Management System) and/or in a weighing format. Then, the samples are dried at a temperature of 100°C +/- 10°C, 60°C +/- 10°C, or according to the client's request. Subsequently, the samples have a primary crushing to better than 90% passing a 1/4" mesh (6.3 mm). After that, the samples have a secondary crushing to better than 90% passing # -10 mesh (2 mm). Then, the samples are split using a riffle splitter to obtain a sample weight of 200 to 300 g. (The rest of the sample is stored as reject). Later, the samples are pulverized until 85% passing -200 mesh (75 µm). Finally, the laboratory reviews the results of the internal quality control in the sample preparation and if the results are satisfactory, the pulp is retained for the respective chemical analysis.

Density samples preparation includes the following processes: First, the electronic balance is calibrated, then the weight of the initial sample is taken. The samples are placed in the drying oven at a temperature of 105°C. The samples are weighed every 30 minutes until a constant weight is obtained (thus obtaining the drying time). Buenaventura uses the wax-coated water immersion method (paraffin method) to determine density in the geological units. In argillic areas with crumbly material or in highly fractured areas, the density will be determined using the pycnometer.

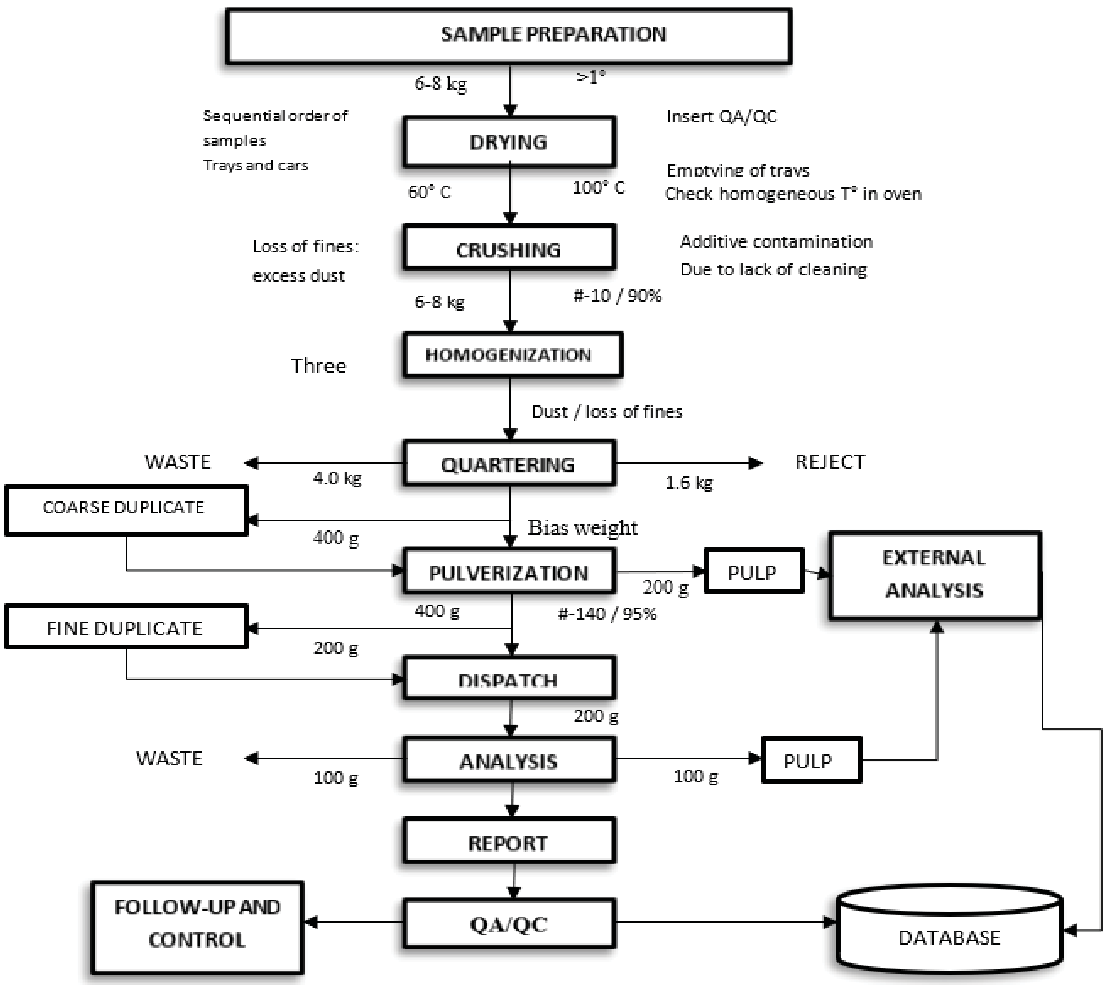


Figure 8-2: Sample Preparation Diagram

Source: CERTIMIN

Chain of Custody

The chain of custody is supervised by mine geologists and consists of the following procedure: Samples are grouped in consecutive order and placed into sacks, then they are transported to the Internal Laboratory, where the dispatch order is provided (which includes the analysis method to be used, sample quantity, etc.) and the receipt of samples is entered in the database.

In case of deliveries outside the mining unit, constant communication with the shipper is required to monitor the sample transfer, and custody personnel will be available in the transport unit. After the delivery of the samples to the external laboratory, the sample submission and the chain of custody forms will be provided, and these documents shall be signed by the person responsible for receiving the samples. The results are issued by the laboratory through digital reports and are received by the database administrator of the mining unit, who will validate that information.

1.1.1 Sample Preparation, Assaying and Analytical Procedures

Samples from the Yumpag project have been analyzed at ALS and CERTIMIN External Laboratories, as shown in the Table 8-6.

Table 8-6: Distribution of samples analyzed according to laboratory and period:

Laboratory	Sample Type	2009 – 2016	2017	2018	2019	2020	2021	Total Samples
ALS	Drill hole	1,143	17	2,974	4,490	136	0	8,760
CERTIMIN	Drill hole	2,134	1,222	304	0	600	2,519	6,779
							Total	15,539

Source: SRK, 2021

Samples sent to the external laboratory ALS (Peru) are chemically analyzed at the main headquarters located in Lima (ALS Lima). This laboratory is internationally recognized and has ISO/IEC 17025:2017 certification.

The samples sent to the external laboratory CERTIMIN (Peru) are chemically analyzed at the main headquarters located in Lima. This laboratory is recognized and certified to ISO 9001:2015, ISO 14001:2015, and ISO 45001:2015.

Both laboratories (ALS, Certimin) were and are independent of Buenaventura.

1.1.1.1 Sample Analysis

The ALS External Laboratory performs the following sample analysis processes:

- Sample envelopes are received, and samples are weighed.
- For the total gold analysis (Au-AA24), samples are melted, cupellated, and then subjected to Atomic Absorption Spectroscopy.
- For samples tested for multiple elements, samples are digested using aqua regia, then diluted in deionized water, and analyzed by ICP-AES.
- If the results obtained comply with quality control, the assay certificate is prepared and issued.

The analytical procedures followed by the external laboratories are shown in Table 8-7 and Table 8-8.

Table 8-7: Analytical methods used at ALS External Laboratory

Element	Method	Lower limit	Upper limit	Method description
Au	Au-AA24	0.005 ppm	10 ppm	Fire Assay - Atomic Absorption Spectroscopy finish
Ag	ME-MS41	0.01 ppm	100 ppm	Multielemental Analysis ICP-AES – Four Acid digestion
Cu		0.2 ppm	10,000 ppm	
Pb		0.2 ppm	10,000 ppm	
Zn		2 ppm	10,000 ppm	
Ag	ME-OG46	1 ppm	1500 ppm	Ore Grade Elements ICP-AES – Four Acid digestion
Pb		0.00%	20%	
Zn		0.00%	30%	

Source: SRK, 2021

Table 8-8: Analytical methods used at Certimin External Laboratory

Element	Method	Lower limit	Upper limit	Method description
Au	IC-EF-01	0.005 ppm	10 ppm	Fire Assay - Atomic Absorption Spectroscopy finish
Ag	IC-VH-17	0.2 ppm	100 ppm	Multielemental Analysis ICP-OES – Four Acid digestion
Cu		0.5 ppm	10000 ppm	
Pb		2 ppm	10000 ppm	
Zn		0.5 ppm	10000 ppm	
Fe		0.0001	0.5	
Mn		2 ppm	10000 ppm	
Ag	IC-VH-134	1 ppm	1000 ppm	Multielemental Analysis ICP-OES – Four Acid digestion
Mn		0.01%	60%	
Pb		0.001%	20%	
Zn		0.001%	30%	

Source: SRK, 2021

8.2.2 Quality Control Procedures/Quality Assurance

Quality Assurance and Quality Control (QAQC) procedures included the insertion of blank control samples, duplicates and standard reference materials to monitor sampling, sample preparation and analytical processes.

Insertion Rate

No control samples were inserted in early campaigns of drilling, representing about 3.7% of the total sample population. For the ALS laboratory, there was no sample insertion during 2009, 2010, and 2012.

Buenaventura initiated a QAQC program by inserting control samples in drill holes (2011-2021). The control sample insertion program performed on drill hole samples shows an overall insertion rate of 18.6%.

The Table 8-9 summarizes the insertion rate by sample type, period and laboratories.

Table 8-9: Yumpag control samples insertion rate.

Period	Sample Type	Laboratory	# Primary samples	Blanks # (%)		Duplicates # (%)		Standard # (%)		# Control Samples	Insertion Rate (%)
2009-2010, 2012	Drill hole	ALS	554	No control samples were inserted							
Sub Total			554								
2011	Drill hole	ALS	181	4	2.2%	3	1.7%	0	0.0%	7	3.9%
2014	Drill hole	ALS	343	19	5.5%	17	5.0%	0	0.0%	36	10.5%
2014-2018	Drill hole	CERTIMIN	3,660	301	8.2%	320	8.7%	84	2.3%	705	19.3%
2018-2020	Drill hole	ALS	7,682	445	5.8%	736	9.6%	231	3.0%	1412	18.4%
2020-2021	Drill hole	CERTIMIN	3,119	233	7.5%	297	9.5%	91	2.9%	621	19.9%
Sub Total Drillholes			14,985	1,002	6.7%	1373	9.2%	406	2.7%	2781	18.6%

Source: SRK, 2021

Evaluation of Control Samples

To evaluate control samples (QC), SRK has applied the following criteria:

1. To evaluate contamination (blank samples), SRK considers the presence of blank samples with assay results exceeding 10 times the lower limit of detection (10 x LLD). The limit acceptable by SRK is 90% of samples under 10 x LLD;
2. To evaluate accuracy (standards), SRK uses the limit conventionally accepted by the industry which is, all standard control samples outside the range of Best Value (BV) ± 3 Standard Deviation (SD), or adjacent samples between the limits of BV+3SD and BV+2SD, or between BV-3SD and BV-2SD, are considered as samples outside the acceptable limits. For SRK, 90% of samples must be within the acceptance limits; and
3. To evaluate precision (duplicates), SRK compares and applies the HARD index (half of the relative absolute difference) to each original-duplicate sample pair. SRK considers the acceptable the precision evaluation, as follows:
   a) For twin samples, the acceptable HARD value is < 30%.
   b) For coarse duplicate samples the acceptable HARD value is < 20%.
   c) For duplicate pulp or check assay samples the acceptable HARD value is < 10%.

The observations found during the QC analysis are summarized in the Table 8-10:

Table 8-10: Observations found in the QAQC analysis.

Laboratory	Period	Sample Type	QC Type	Finding	
ALS	2011-2020		Drill hole	Blank	There is no evidence of cross-contamination.
				Standard	Au and Pb accuracy is acceptable. But in Ag and Zn the standards results are close to acceptable limits. The results obtained in the standards UCH-04 and UCH-05 have 78%-85% of acceptance, not at acceptable limits.

Laboratory	Period	Sample Type	QC Type	Finding
			Duplicate	Precision is good in the sampling, preparation and analysis of samples. The results obtained are within the limit acceptable by SRK.
CERTIMIN	2014-2021	Drill hole	Blank	There is no evidence of contamination in Au, Ag and Pb. Blank control samples result for Zn have been acceptable except for the blank BLKYUM15-G01 (301 samples), with low number of samples approved, out of acceptable limits.
			Standard	Accuracy is within the limit acceptable by SRK. Only the results obtained in the standard MLL-01 (Ag) is not at acceptable limits. Bias is within acceptable limits for SRK.
			Duplicate	Results for Au, Zn, Fe and Mn shows a good precision. But in Ag and Pb the precision is poor for coarse and field duplicates.

Source: SRK, 2021

1.1.2 Opinion on Adequacy

SRK has conducted a comprehensive review of the available QA/QC data as part of the sample preparation, analysis, and security review. SRK believes that the QA/QC protocols are consistent with the best practices accepted in the industry.

In SRK's opinion, sample preparation, chemical analysis, quality control, and security procedures are sufficient to provide reliable data to support the estimation of Mineral Resources and Mineral Reserves.

The insertion of control samples to validate contamination, precision, and accuracy of the database has been regularly complied with since 2014. SRK has observed that the standard insertion rate in drill holes should be increased according to Buenaventura protocol.

Based on SRK criteria for QA/QC review, the following observations are provided:

There are no evident signs of contamination for Au, Ag, Pb, Fe, and Mn; however, Zn showed some issues of contamination in the 2014 - 2018 period corresponding to Certimin external laboratory.

In the analysis of duplicates, precision has shown good results for samples analyzed at ALS Laboratory. At Certimin external laboratory's duplicate results for Au, Zn, Fe, and Mn are acceptable, while coarse duplicate results for Ag and Pb are not at acceptable limits.

The accuracy of Au, Ag, Pb, and Zn analyses are acceptable at the Certimin Laboratory. At ALS Laboratory, standard results for Au and Pb are acceptable, and for Ag and Zn are close to acceptable limits.

SRK believes potential bias in this data has limited impact on mineral resource confidence classifications.

SRK recommends increasing the insertion rate of standard samples in drill holes to ensure a correct accuracy analysis sorted into high, medium and low grade. SRK recommends carefully monitoring the behavior of analytical results obtained in quality control samples to inform the external laboratory of problems detected, if any, for immediate correction.

9 Data Verification

9.1 Uchucchacua Mine

Buenaventura uses a systematic database program (acQuire) to store data and ensure data integrity. Buenaventura provided the collar, survey, assay, sample, density, lithology, alteration, and geotechnical data in editable formats (csv, xls) to SRK for verification procedures.

SRK's data verification consists of:

- Reception of information provided by Buenaventura.
- Organizing information into a database in Microsoft Access
- Data modeling (relationships among tables)
- Construction of Samples Tracking Table (dispatch information)
- Compilation of laboratory assay reports and link with the samples database.
- Creation of occurrence table in the Assay cross validation.
- The following is validated for logging information:
    - Overlapping intervals
    - Negative intervals
    - Intervals larger than the total depth ("Td") of the drill hole.
    - Data does not extend to the Td of the drill hole.
    - Incomplete collar coordinates
    - Downhole Survey depths greater than the drill hole.
    - Drillholes lacking downhole surveys
    - Collar without Survey
    - No downhole data
    - Survey data deviates greater than 20 degrees (azimuth) or 10 degrees (inclination)

9.1.1 Internal data validation

Buenaventura uses a systematic database program (acQuire) that ensures data integrity and reduces data entry errors through requirements and procedures to record data using SIGEO (BNV internal database software) and GVMapper. A visual validation is conducted by Buenaventura's geologist prior to data entry. However, Buenaventura does not have a documented procedure of the database internal verification. SRK suggests developing a procedure that contains the rules for appropriate data entry; identification of inconsistencies or errors;and corrective actions.

9.1.2 External data validation

SRK performed an external validation in early 2021, which consisted of reviewing drill hole locations, downhole surveys, and comparing grades with the original assay certificates from their internal and external laboratories. SRK uses data check routines to validate overlapping intervals, negative (inverted) intervals, drill holes lacking important information such as lithology, recovery or sampling, and lengths in logging or assays that are greater than the total depth of the drill hole.

9.1.3 Data Verification Procedures

SRK has reviewed the data provided by Buenaventura and consists of 5,973 drill holes (161,263 samples) and 93,136 mining channels (208,813 samples) totaling 99,109 collars and 370,076 samples (**¡Error! No se encuentra el origen de la referencia.**).

Table 9-1: Summary of drilling information provided by Buenaventura.

Sample Type	No. of Collars	Total length (m)	Samples
Mining channels	**93,136**	**178,419.7**	**208,813**
Diamond drilling	**5,973**	**837,429.5**	**161,263**
Total	**99,109**	**1,015,849.2**	**370,076**

Source: SRK, 2021

9.1.3.1 Database Validation

SRK validated the main tables of the database. The procedures applied in the database validation and the observations found are summarized in the Table 9-2:

Table 9-2: Database validation summary

Tables	Comments
Collar	SRK plotted the drillholes and channels to check their spatial location and it was verified that there are no drillholes and channels located very far away from the zone of influence of the mine.
Survey	SRK verified that there are no collars with inverted inclination or significant variations in azimuth and inclination: Five drillholes were found with azimuth deviation greater than 20° and 21 drillholes with inclination deviation greater than 10°.
Samples	SRK verified that the samples do not overlap in sections and that there are no samples with intervals greater than the total collar depth. All data is adequate, no observations were found.
Density	A total of 1,543 density samples were analyzed in SGS and ALS external laboratories using the paraffin method. Certificates were provided for 73 % of the total samples. All provided data is adequate.
Lithology	SRK reviewed that there are not overlapping intervals, negative intervals or intervals greater than the total drill hole depth, the data is adequate. It was found 1,388 drill holes with no lithology information; these drill holes correspond to historical information and date from 1997-2003 and 2005-2009.
Recovery and RQD	SRK checked to see if there are missing intervals of RQD information, overlapping intervals, intervals with RQD information greater or less than the drillhole length: SRK found 1 interval greater than the drillhole depth and 2,191 drillholes do not have recovery information mostly for the years 1997-2000, 2001-2010 and 2011.

Source: SRK, 2021

9.1.3.2 Assay Validation

In order to perform the assay cross validation, SRK linked the database with a compilation of the assay certificates from the laboratories (ALS, CERTIMIN and Uchucchacua) in CSV format. The observations found are summarized in the Table 9-3.

Table 9-3: Observations found in the Assay Cross Validation

Laboratory	Total Samples	% Total Database	Assay Cross Validation	
			Verification (Database vs. Certificate Grades)	Comments
ALS	442	0.12%	SRK verified 94.57% of samples.	No observations found.
CERTIMIN	1,684	0.46%	SRK verified 96.79% of samples.	No observations found.

Laboratory	Total Samples	% Total Database	Assay Cross Validation	
			Verification (Database vs. Certificate Grades)	Comments
UCHUCCHACUA	367,950	99.43%	SRK verified 73.63% of samples.	Database values did not match the Laboratory Certificate for 242 samples.
Total	370,076	100.00%		

Source: SRK, 2021

In the cross-validation of the assay information, SRK found that certain values in the Database do not match the Laboratory assay certificates; however, the number of these samples is insignificant 242 (0.065% of the total samples) and have no impact on the Mineral Resource Estimation. SRK did not receive laboratory certificates for 96,878 samples (Period: 1963-2013).

9.1.4 Limitations

SRK performed the cross-validation of 94.57% of ALS Laboratory assay results, 96.79% of Certimin Laboratory assay results, and 73.63% of Uchucchacua Internal Laboratory assay results because the original assay certificates were not available at the time of the cutoff date of the delivery of information by Buenaventura and/or because certificates were not available in an appropriate format to perform the cross-validation (.CSV).

9.1.5 Opinions and recommendations on database quality

In SRK's opinion, the database is consistent and acceptable for Mineral Resource Estimation.

SRK observed that the database has an insignificant quantity of findings or minor inconsistencies, mainly related to historical information obtained from data migration. Although a complete reconciliation of the certificate information to the digital database could not be completed, SRK notes that most of the current resource is supported by contemporary information that could be compared to original certificate information. The incidence of error for the data that could be compared was limited and deemed immaterial to the disclosure of mineral resources.

SRK recommends performing an internal database validation procedure for the Buenaventura Database Management System (SIGEO), making a checklist of the data export process and issuingissuance of Internal Laboratory analytical certificates for future estimations. Additionally, SRK recommends improving the internal data management system for data auditing purposes to ensure the availability of sufficient information for data traceability.

9.2 Yumpag Mine

Buenaventura uses a systematic database program (acQuire) to store data and ensure data integrity. Buenaventura provided the collar, survey, assay, sample, density, lithology, alteration, geotechnical data in editable formats (csv, xls) to SRK for verification procedures.

SRK's data verification consists of:

- Reception of information provided by Buenaventura.
- Organizing information into a database in Microsoft Access
- Data modeling (relationships among tables)
- Construction of Samples Tracking Table (dispatch information)

- Compilation of laboratory assay reports and link with the samples database.
- Creation of occurrence table in the Assay cross validation.
- The following is validated for logging information:
  - Overlapping intervals
  - Negative intervals
  - Intervals greater than the total depth ("Td") of the drill hole.
  - Data does not extend to the Td of the drill hole.
  - Incomplete collar coordinates
  - Downhole survey depths greater than the Td of the drill hole.
  - Drillholes lacking downhole Surveys
  - Collar without Survey
  - No downhole data
  - The downhole survey data deviates are greater than 20 degrees (azimuth) or 10 degrees (inclination)

9.2.1 Internal data validation

Buenaventura uses a systematic database program (acQuire) that ensures data integrity and reduces data entry errors through requirements and procedures to record data using SIGEO (BNV internal database software) and GVMapper. A visual validation is conducted by Buenaventura's geologist prior to data entry. However, Buenaventura does not have a documented procedure of the database internal verification. SRK suggests developing a procedure that contains the rules of an appropriate data entry, the identification of inconsistencies or errors and their corrective actions.

9.2.2 External data validation

External validation was performed by SRK in early 2021, which consisted of reviewing drill hole locations, downhole surveys, and comparing grades with the original assay certificates from their external laboratories. SRK uses data check routines for the validation of overlapping intervals, negative intervals, drill holes lacking important information such as lithology, recovery or sampling, and lengths in logging or assays that are greater than the total depth of the drill hole.

9.2.3 Data Verification Procedures

SRK has reviewed the information provided by Buenaventura, which consists of 257 drill holes (15,539 samples). (Table 9-4)

Table 9-4: Summary of drilling information provided by Buenaventura.

Sample Type	No. of Collars	Total length (m)	Samples
Diamond drilling	257	91,792.66	15,539
Total	257	91,792.66	15,539

Source: SRK, 2021

9.2.4 Database Validation

SRK validated the main tables of the database. The procedures applied in the database validation and the observations found are summarized in the Table 9-5.

Table 9-5: Database validation summary

Tables	Comments

Collar	SRK plotted the drillholes to check their spatial location and it was verified that there are no drillholes very far from the zone of influence of the mining project. All data is adequate, no observations were found.
Survey	SRK verified that there are no collars with inverted inclination or significant variations in azimuth and inclination: Two drillholes were found with azimuth deviation greater than 20° and two drillholes with inclination deviation greater than 10°.
Samples	SRK verified that the samples do not overlap in sections and also if there are samples with intervals greater than the total collar depth.
Density	A total of 268 density samples were analyzed in Certimin and ALS laboratories using the paraffin method. Certificates were provided for 100% of samples. All data is adequate, no observations were found.
Lithology	SRK reviewed that all drill holes have lithology information and verified that there are no overlapping intervals, negative intervals, intervals greater than the total drillhole depth. All data is adequate, no observations were found.
Recovery and RQD	SRK checked to see if there are missing intervals of RQD information, overlapping intervals, intervals with RQD information greater or less than the drillhole length, the data is adequate. Six drillholes were found to have no recovery information from 2014 year.

Source: SRK, 2021

9.2.3.2 Assay Validation

In order to perform the assay cross validation, SRK linked the database with a compilation of assay certificates from the laboratories (ALS and CERTIMIN) in CSV. A summary of the observations found is shown in the Table 9-6:

Table 9-6: Observations found in the Assay Cross Validation

Laboratory	# Samples	% Total Database	Assay Cross Validation	
			Verification (Database vs. Certificate Grades)	Comments
ALS	8,760	56.4%	SRK verified 100 % of samples.	No observations found.
Certimin	6,779	43.6%	SRK verified 100 % of samples.	No observations found.
Total	15,539	100.0%		

Source: SRK, 2021

SRK found no inconsistencies in the cross-validation of the assay information.

SRK received laboratory certificates for 100% of samples.

9.2.5 Limitations

There were no limitations. SRK performed the cross-validation of 100% of assay results from CERTIMIN and ALS Laboratories.

9.2.6 Opinions and recommendations on database quality

In SRK's opinion, the database is consistent and acceptable for Mineral Resource Estimation.

SRK recommends performing an internal database validation procedure for the Buenaventura Database Management System (SIGEO), making a checklist of the data export process, and the issuance of Internal Laboratory analytical certificates for future estimations. Also, SRK recommends improving the internal data management system for data auditing purposes to ensure the availability of sufficient information for data traceability.

10 Mineral Processing and Metallurgical Testing

Ore is sourced from multiple vein systems of Uchucchacua namely Carmen, Casualidad, Huantajalla, Cancha Superficie, Socorro Alto, Socorro Bajo. Typically, the mining operation uses dump trucks and in a minor proportion rail cars to deliver is ore to multiple stockpiles located in the vicinity of the primary crusher feed hopper. The stockpiles are sampled, assayed before being selectively feed to the process using front-end loaders.

Manganese mineral (Alabandite) is pervasive in Uchucchacua's ore and is largely deported to final concentrates. In order to improve the value of its production, manganese is removed by acid leaching at Rio Seco, a satellite a processing facility located in Huaral.

Uchucchacua operates a conventional concentration operation that processes polymetallic ores to produce mineral concentrates of varying quality. The processing plant consists of two parallel processing lines namely Circuito 1 (C1) and Circuito 2 (C2), see Figure 10-1.

Dump trucks transport the final concentrates from Uchucchacua to Rio Seco, and also from Rio Seco to Callao Port.

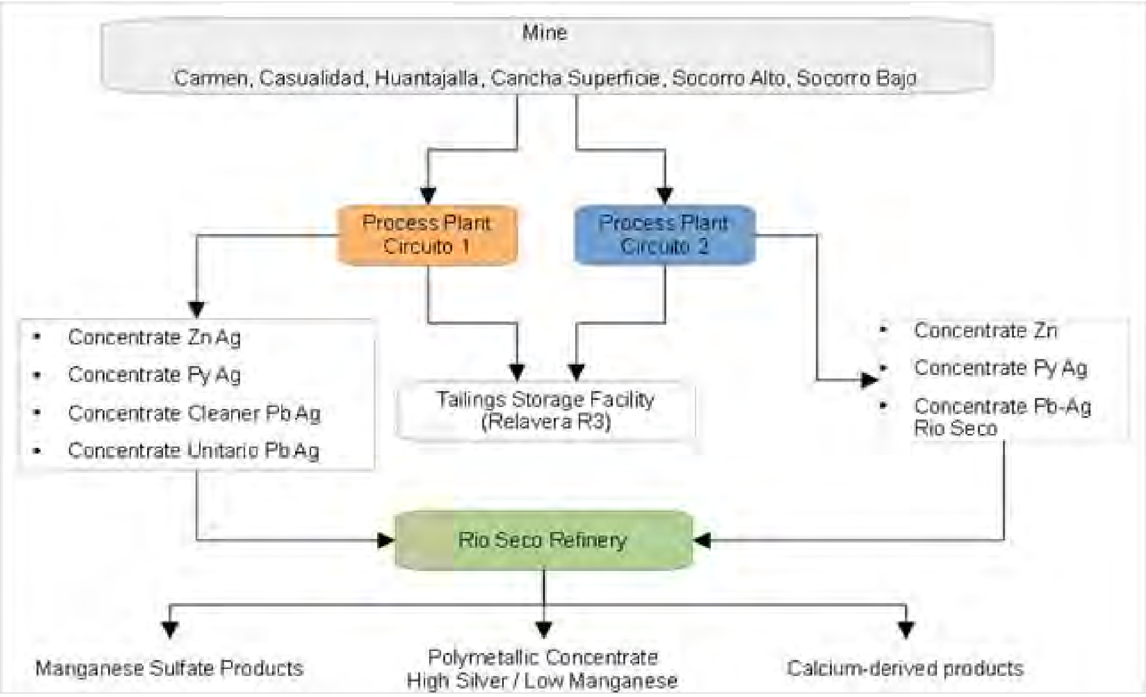


Figure 10-1: Uchucchacua General Simplified Block Flow Diagram

Source: BVN

10.1 Uchucchacua Processing Performance

Uchucchacua's throughput and concentrate production are shown in Figure 10-2 and Table 10-1. Overall, in 2017- 2020 period 4,521,233 tonnes were processed, assaying 11.84 ounces per tonne silver, 1.39% lead, 1.99% zinc, 5.99% manganese and 6.39% iron. The overall concentrate production reached 594,833 tonnes of concentrate, which is equivalent to 13.2% mass pull. The Individual years' figures are as follows:

- In 2017 the mill feed totaled 1,339,886 tonnes, assaying 14.64 oz/tonne silver, 1.33% lead, 1.78% zinc, 7.06% manganese, and 5.65% iron. The overall concentrate mass pull was

12.5% equivalent to 167,120 tonnes. The overall metal recoveries were 88.13% silver, 91.51% lead, 66.55% zinc, 33.43% manganese, and 30.93% iron.

- In 2018 the mill feed totaled 1,347,751 tonnes, assaying 12.48 oz/tonne silver, 1.51% lead, 2.17% zinc, 6.10% manganese, and 6.71% iron. The overall concentrate mass pull was 13.6% or 183,437 tonnes. The overall metal recoveries were 87.19% silver, 92.71% lead, 81.26% zinc, 36.59% manganese, and 26.31% iron.
- In 2019 the mill feed totaled 1,335,018 tonnes, assaying 9.01 oz/tonne silver, 1.47% lead, 2.20% zinc, 4.77% manganese, and 7.20% iron. The overall concentrate mass pull was 12.3% or 164,590 tonnes. The overall metal recoveries were 87.38% silver, 93.00% lead, 79.29% zinc, 35.09% manganese, and 24.21% iron.
- In 2020 the mill feed totaled 498,578 tonnes, assaying 10.20 oz/tonne silver, 1.01% lead, 1.55% zinc, 6.03% manganese, and 5.35% iron. The overall concentrate mass pull was 16.3% or 79,686 tonnes. The overall metal recoveries were 97% silver, 94.71% lead, 81.10% zinc, 33.92% manganese, and 34.83% iron

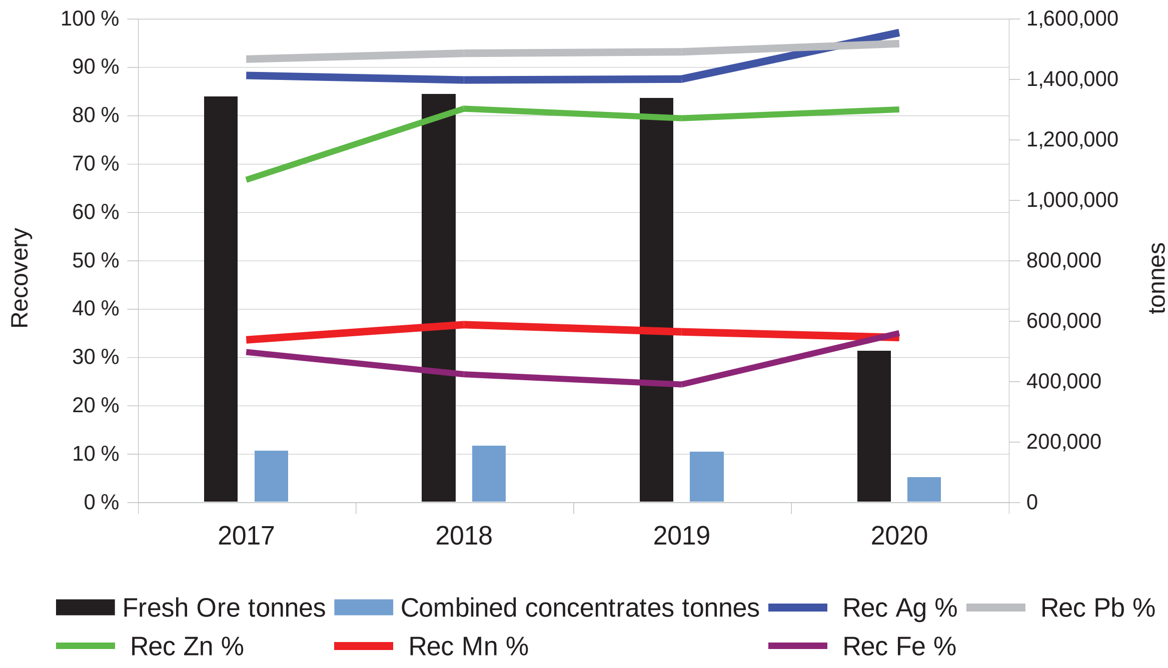


Figure 10-2: Uchucchacua Annual Process Plant Performance

Source: BVN

Table 10-1: Uchucchacua Annual Processing Performance

Stream	Parameter	2017	2018	2019	2020	Total
Fresh Ore	tonne	1,339,886	1,347,751	1,335,018	498,578	4,521,233
	Ag oz/t	14.64	12.48	9.01	10.2	11.84
	Ag oz	19,618,910	16,814,323	12,026,480	5,084,441	53,544,154
	Pb %	1.33 %	1.51 %	1.47 %	1.01 %	1.39 %
	Pb tonne	17,872	20,309	19,561	5,024	62,766
	Zn %	1.78 %	2.17 %	2.20 %	1.55 %	1.99 %
	Zn tonne	23,827	29,281	29,359	7,705	90,172
	Mn %	7.06 %	6.10 %	4.77 %	6.03 %	5.99 %
	Mn tonne	94,639	82,222	63,705	30,066	270,633
	Fe %	5.65 %	6.71 %	7.20 %	5.35 %	6.39 %

Stream	Parameter	2017	2018	2019	2020	Total
	Fe tonne	75,725	90,427	96,060	26,680	288,893
Combined concentrates	concentrate tonnes	167,120	183,437	164,590	79,686	594,833
	Mass pull	12.50%	13.60%	12.30%	16.00%	13.20%
	Ag oz/t	103.5	79.9	63.9	61.9	79.7
	Pb %	9.80%	10.30%	11.10%	6.00%	9.80%
	Zn %	9.50%	13.00%	14.10%	7.80%	11.60%
	Mn %	18.90%	16.40%	13.60%	12.80%	15.80%
	Fe %	14.00%	13.00%	14.10%	11.70%	13.40%
	Ag oz	17,290,040	14,659,751	10,509,216	4,931,828	47,390,836
	Pb tonne	16,354	18,829	18,193	4,758	58,134
	Zn tonne	15,857	23,792	23,279	6,249	69,177
	Mn tonne	31,642	30,085	22,354	10,200	94,281
	Fe tonne	23,418	23,790	23,254	9,293	79,755
	Rec Ag %	88.13%	87.19%	87.38%	97.00%	88.51%
	Rec Pb %	91.51%	92.71%	93.00%	94.71%	92.62%
	Rec Zn %	66.55%	81.26%	79.29%	81.10%	76.72%
	Rec Mn %	33.43%	36.59%	35.09%	33.92%	34.84%
	Rec Fe %	30.92%	26.31%	24.21%	34.83%	27.61%

Source: BVN

10.2 Rio Seco Metallurgical Processing Facilities

Rio Seco processes high manganese concentrates produced by Uchucchacua. Manganese is acid-leached to produce a polymetallic concentrate with elevated silver content and low manganese. By-products from the main process include manganese sulfate and multiple calcium-derived compounds, which are generated during the neutralization of solutions and gases. Rio Seco's main ancillary facility includes an acid plant to generate sulfuric acid for the leaching stage. See flowsheet in Figure 10-3.

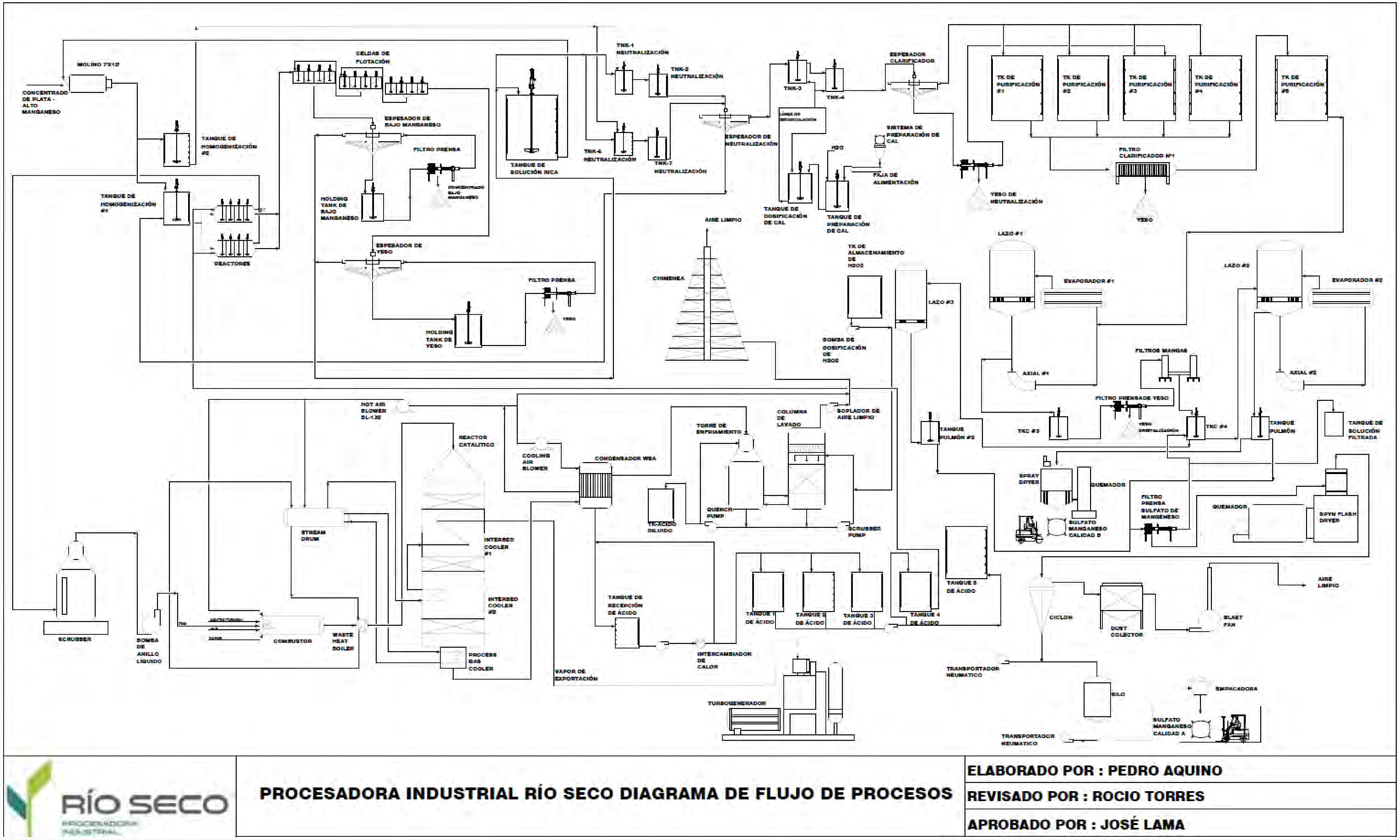


Figure 10-3: Rio Seco Flowsheet

Source: BVN

Production figures for Rio Seco are presented in Table 10-2 and Figure 10-4 as follows:

- The total concentrate production was 65,148 tonnes of concentrate, assaying 148 ounces of silver, 17.6% lead, 3.7% manganese, 2% arsenic, 4.0% zinc, 21.7% iron, and 0.6% antimony. Concentrate was trucked off site with 10.8% moisture.
- Concentrate tonnage production profile shows a consistent downward trend. In 2017 tonnage production reached 17,778 tonnes and dropped to 6,290 tonnes in 2021.
- Concentrate moisture has been consistent at approximately 10% w/w.
- Silver grade also shows a downward trend that consistent with its feed grade. In 2017 grades reached 204 oz/tonne and then consistently dropped to reach approximately 10 oz/tonne in 2020 and 2021.
- Manganese grade shows a consistent downward trend, beginning at 6.0% in 2017 and falling to 1.4 in 2021. Throughput is one of the possible drivers of lower manganese grade in the final concentrate.
- Zinc was not reported in 2017-2018. In 2019-2021, zinc grade averaged 4.0%.
- Arsenic was not reported in 2017-2018. In 2019-2021, the arsenic grade averaged 2.0%.
- Additional assays available for the 2019-2021 period included Fe, Ca, and Sb whose respective averages are 21.7%, 1.7%, and 0.6%.

Table 10-2: Rio Seco Annual Processing Performance

Year	Concentrate, tone's	Moisture %	Ag x10oz/tonne	Pb	Mn	Fe%	Ca%	As%	Sb%	Zn%
2017	17,778	11.0	20.4	16.6	6.0					
2018	19,035	11.1	16.3	22.1	3.2					
2019	12,561	10.9	10.4	18.2	3.0	20.7	1.7	1.8	0.6	3.7
2020	9,485	10.4	9.7	12.5	2.8	21.6	2.1	2.1	0.5	4.3
2021	6,290	9.9	10.9	13.0	1.4	23.9	1.1	2.3	0.7	4.1
Total	65,148	10.8	14.8	17.6	3.7	21.7	1.7	2.0	0.6	4.0

Source: BVN

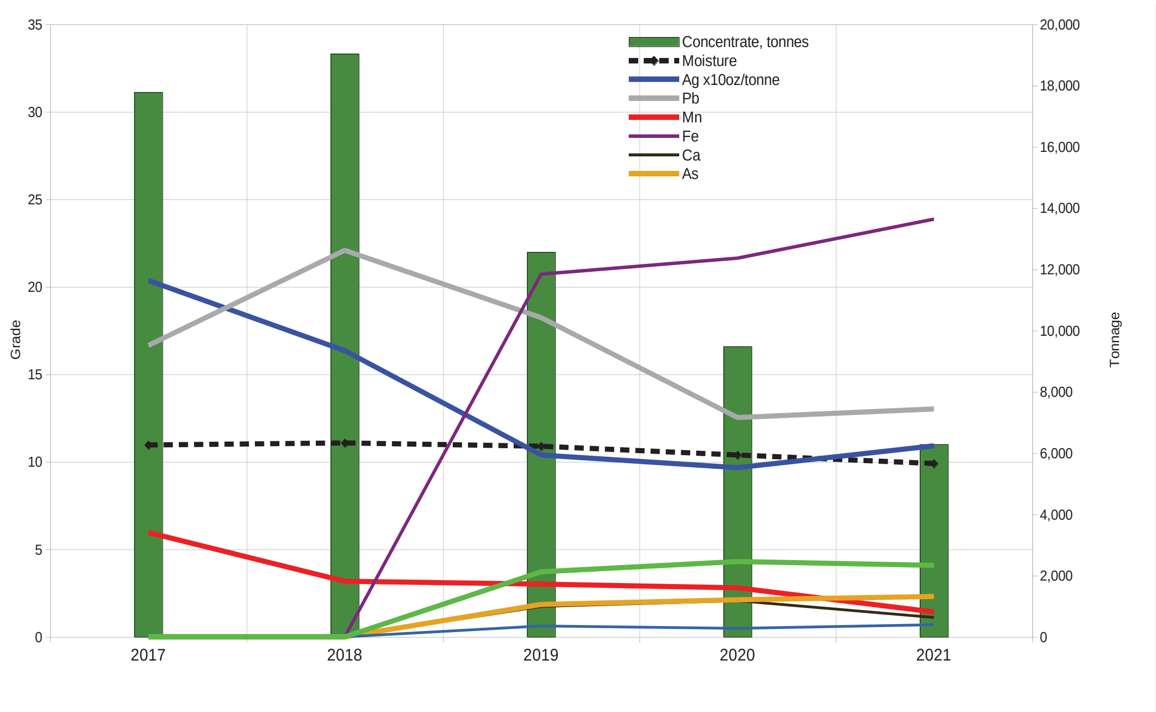


Figure 10-4: Rio Seco, Processing Plant Performance

Source: BVN

10.3 Metallurgical Testing

10.3.1 Metallurgical Testing – Uchucchacua, 2021 Samples

In 2021, a total of six composites samples were obtained from current vein systems. Samples were subjected to metallurgical testing at a commercial laboratory in Lima, Peru. The testing included kinetics flotation and locked-cycle testing; see Figure 10-05 to Figure 10-08. Note the following observations:

- All samples responded well to flotation testing
- Results show high-level associations of credit metals in the ore
- Manganese appears associated with lead, zinc, and arsenic.
- Gold appears associated with silver, arsenic, manganese, zinc

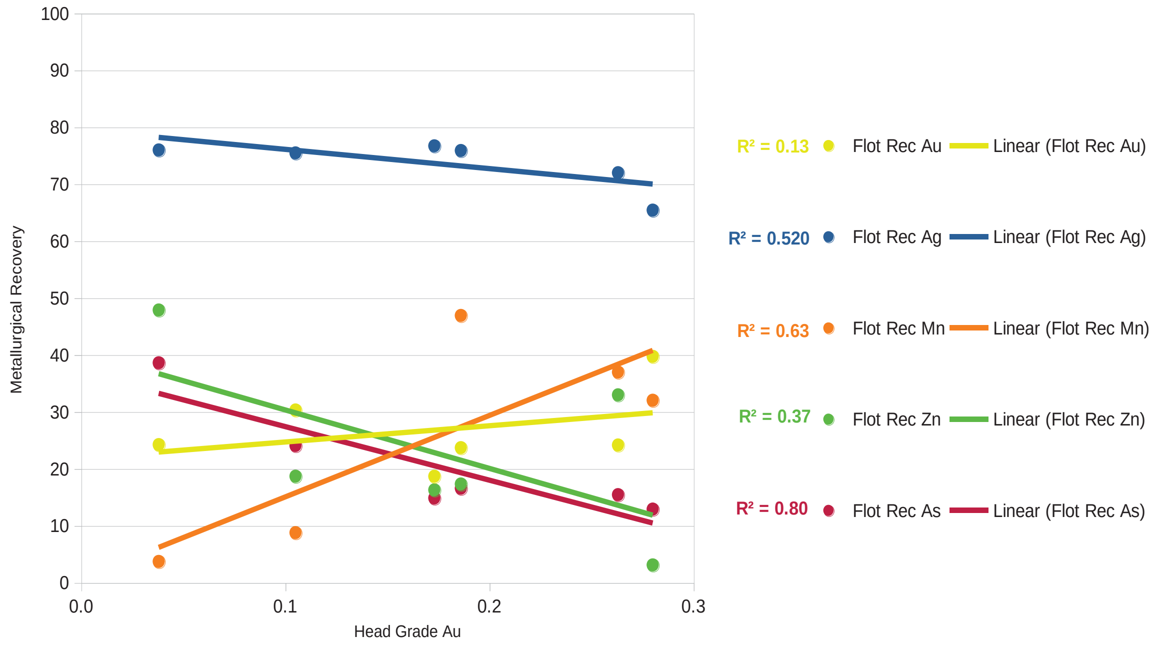


Figure 10-5: Uchucchacua, Metallurgical Testing, Recovery v/s Head Grade Au g/t

Source: BVN

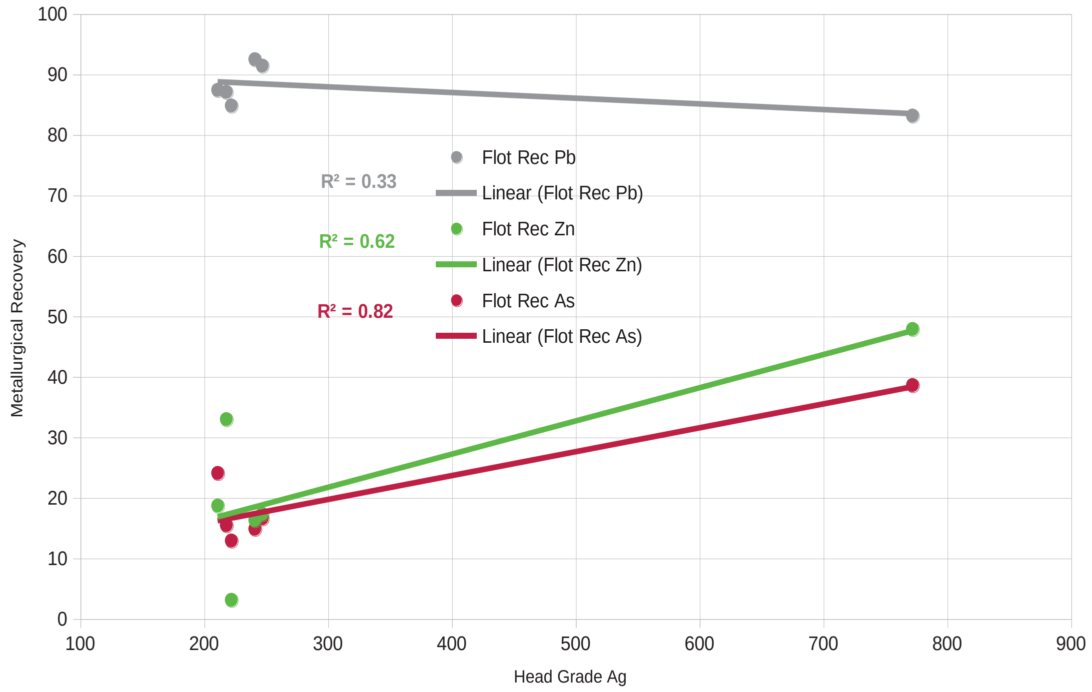


Figure 10-6: Uchucchacua, Metallurgical Testing, Recovery v/s Head Grade Ag g/t

Source: BVN

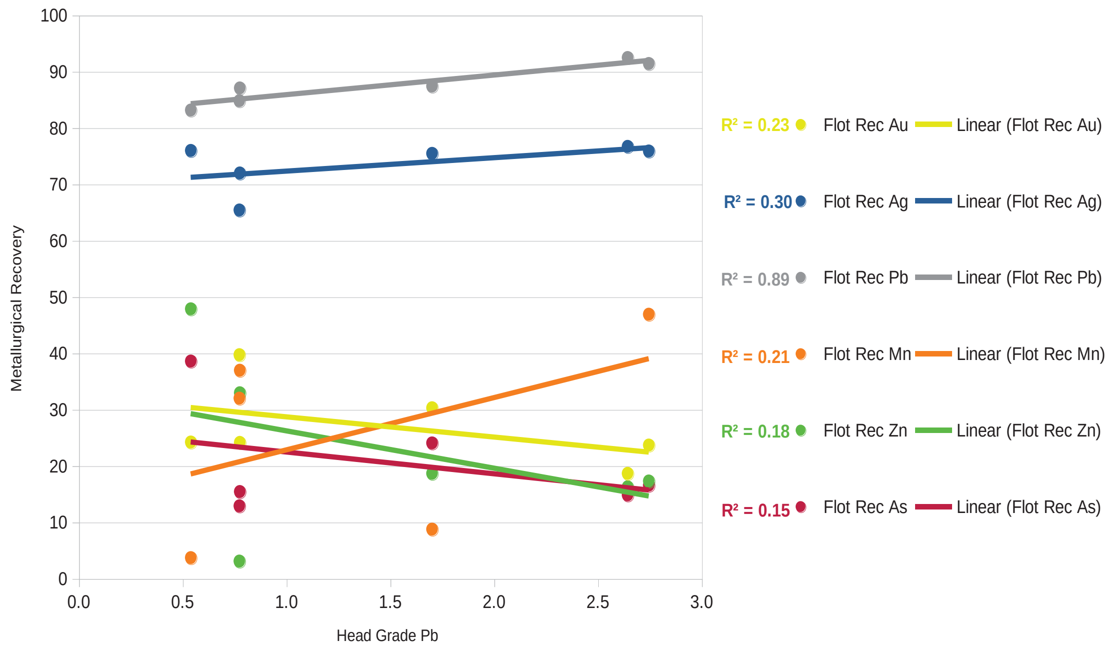


Figure 10-7: Uchucchacua, Metallurgical Testing, Recovery v/s Head Grade Pb%

Source: BVN

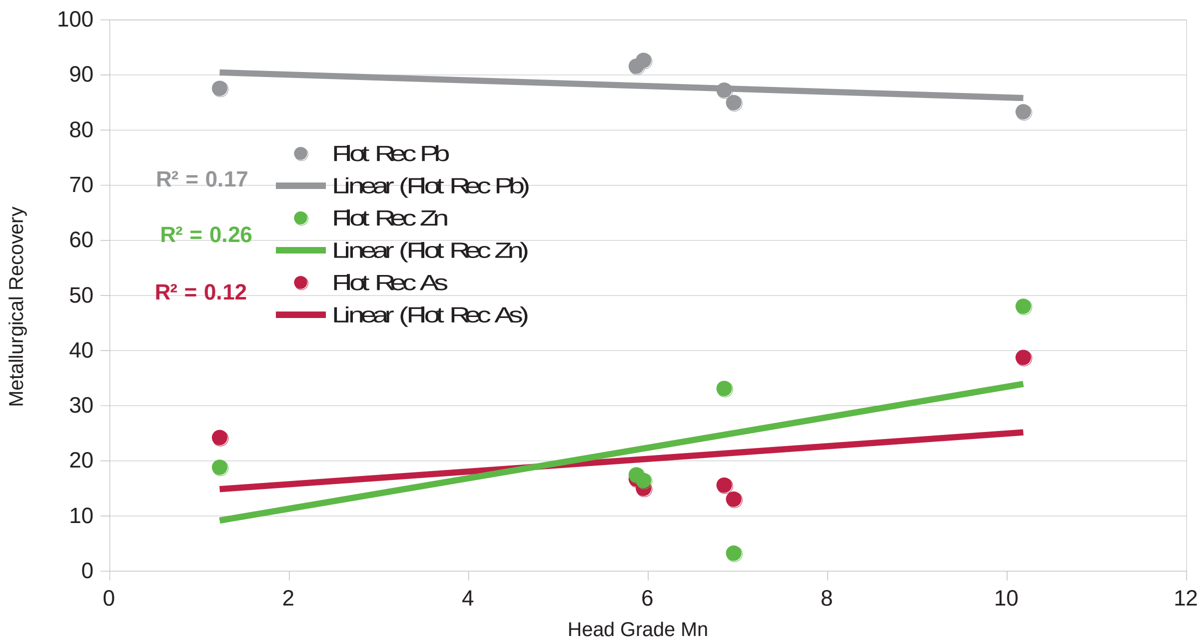


Figure 10-8: Uchucchacua, Metallurgical Testing, Recovery v/s Head Grade Mn g/t

Source: BVN

10.3.2 Metallurgical Testing Yumpag

Uchucchacua executed multiple metallurgical tests on samples obtained from the existing deposits as well as from the Yumpag project.

Note that Yumpag project is being developed, and that currently the main focus has been on definition drilling of the deposit.

At this time, the number of testing results for Yumpag are preliminary, limited in scope, and not optimized; nevertheless, available results suggest amenable mineralization for the conventional flotation concentration. Table 10-3 presents flotation results from the Flash concentrate, and the manganese leaching results of the locked-cycled cleaner concentrate. Note the following:

- The simple average head grades for all samples are 1,758 grams per tonne, 1.13% lead, 25.9% manganese with one sample assaying 45.1% manganese and 1.7% zinc.
- Concentrate mass pull average is 16.9%, which is high for a flash concentrate and presents room for optimization.
- Flotation recoveries averaged 77.3% Ag, 90% lead, 20.8% manganese and 23% zinc.
- Leaching of the cleaner concentrate achieved an extraction of 97.9% manganese

Table 10-3: Yumpag Metallurgical Testing 2019 Results

Sample ID	Ag (g/t)	Pb %	Mn %	Zn %	Mass Pull	Flot Rec Ag	Flot Rec Pb	Flot Rec Mn	Flot Rec Zn	Lix Rec (Cleaner) Mn
BWEX6301	1662	1.37	32	1.85	24.5	82.9	96.2	25.6	16	98.9
BWEX6302	426	0.21	24.1	0.39	10.4	82.4	93.2	15.7	40	99.2
BWEX6303	677	2	45.1	0.46	10.5	43.3	80.2	10.4	15.3	99.5
BWEX6304	9186	1.99	19.4	4.55	14.5	79.8	88	12.4	16.6	94.4
BWEX6305	1352	0.67	33.4	0.72	14.1	81	93.2	13.1	18.5	98.5
BWEX6306	2105	1.69	23.7	3.01	21.2	87.3	94.4	25.8	15.9	98.4
BWEX6309	2083	2.7	19.7	3.68	32.7	88.2	93.7	41.6	12.5	99.2
BWEX6311	526	0.47	23.4	1	16.2	76	85.5	23.5	30.9	99
BWEX6314	851	0.22	36.2	0.62	14.1	73.4	87.2	14.9	23.1	99.1
BWEX6315	2001	1.25	26	2.61	31.1	87.6	92.7	35.4	14.2	98.4
BWEX6316	1419	2.14	15	3.34	15.9	72.6	88.5	29	11.7	98.5
BWEX6317	668	0.39	17.1	0.5	9	86.7	91.1	15.2	48.8	98.3
BWEX6318	935	0.93	10.9	1.69	8.4	90.3	91.4	10.9	34.2	89.3
BWEX6319	1402	0.66	29.1	0.45	15.7	77.2	91.1	23.8	23.6	99.3
BWEX6320	749	0.24	39.5	0.61	14.5	50.1	83.1	15.4	24.3	99.3
BWEX6309	2083		19.7							96.9
Average	1,758	1.13	25.9	1.7	16.9	77.3	90.0	20.8	23.0	97.9

Source: BVN

Head grade correlation analysis are presented in Figures 10-09 to Figure 10-15. The correlations coefficients suggest the followings:

- Silver appears associated with manganese and zinc
- Lead is associated with manganese, zinc, and silver
- Manganese is strongly associated with silver
- Recovery for all metals responded positively to increased mass pull

- Overall, Yumpag samples' metallurgical performance appears comparable to Uchucchacua's samples.

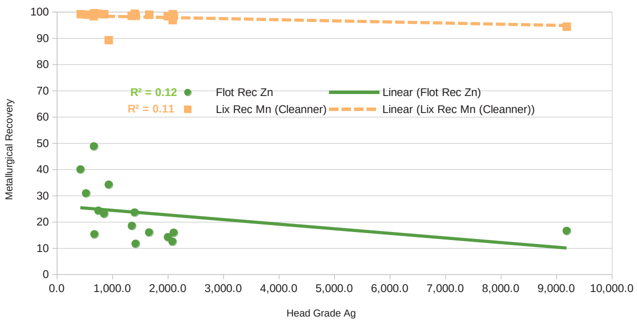


Figure 10-9: Yumpag Testing, Recovery v/s Ore Ag g/t

Source: BVN

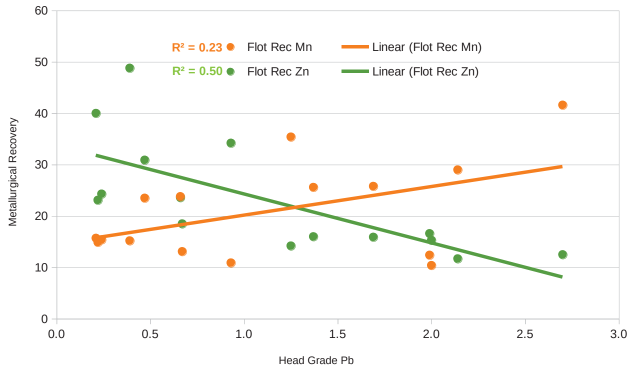


Figure 10-10: Yumpag Testing, Recovery v/s Ore Pb%

Source: BVN

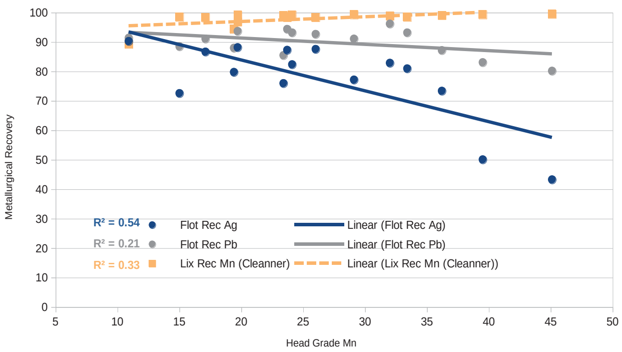


Figure 10-11: Yumpag Testing, Recovery v/s Ore Mn%

Source: BVN

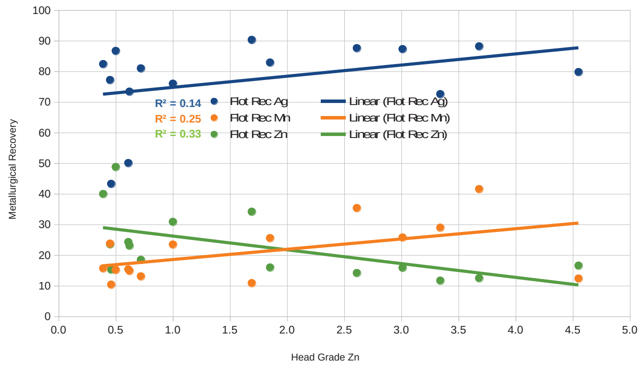


Figure 10-12: : Yumpag Testing, Recovery v/s Ore Zn%

Source: BVN

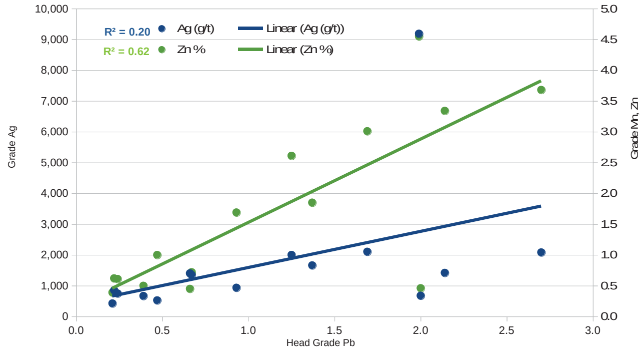


Figure 10-13: Yumpag Testing, Head Grade v/s Ore Pb%

Source: BVN

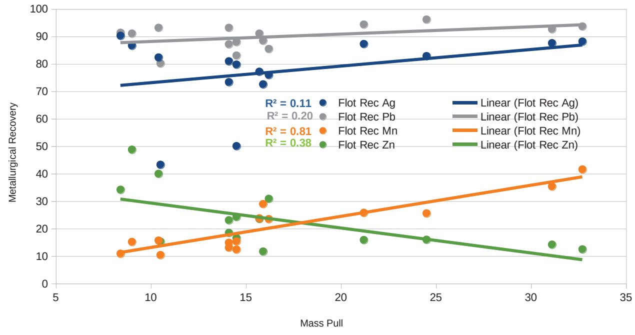


Figure 10-14: Yumpag Testing, Recovery v/s Ore Mass Pul

Source: BVN

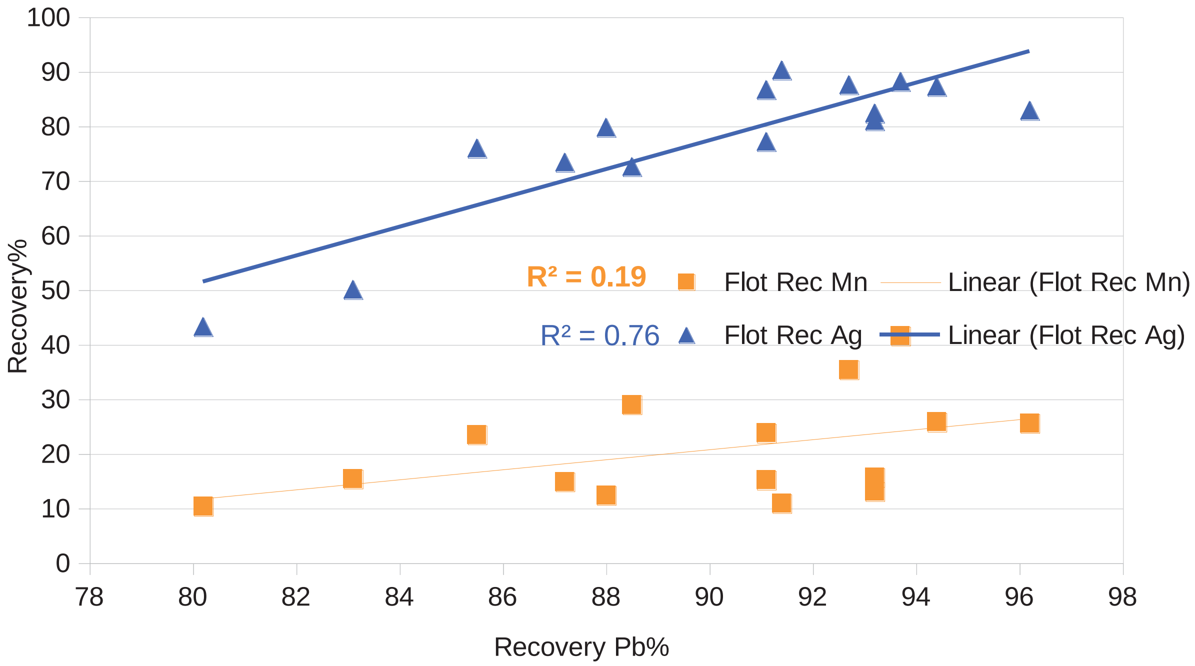


Figure 10-15: Yumpag Testing, Recovery v/s Recovery Pb

Source: BVN

10.4 Conclusions and Recommendations

The Yumpag deposit is being developed as a replacement ore source. Yumpag project is currently focused on the deposit's drilling definition. At this time, the number of testing results for Yumpag are preliminary, limited and not optimized, nevertheless, available results are positive, suggesting an amenable mineralization for the conventional flotation concentration. Metallurgical testing's assays need to include the complete suit of base metals, precious metals, and deleterious elements.

SRK is of the opinion that the Yumpag Project offers multiple opportunities to revise and improve the Uchucchacua-Rio Seco integrated business. A good practice that will facilitate timely evaluation of the business's potential would be to execute metallurgical testing immediately after the release of DDH's geochemistry data.

The current general condition of Uchucchacua’s processing facilities, as well as that of the process equipment is extremely deficient. SRK is of the opinion that Uchucchacua´s current condition is the result of poor operating and management practices, and that to re-start the processing plant, it will be necessary to execute a major refurbishment in at least the following terms:

- The total refurbishment cost will range between USD 5.0 million and USD 10.0 million, and
- To implement the refurbishment will take at least six months, if done efficiently.
- Executing the refurbishment in advance of the operation restart will allow Uchucchacua to reinitiate production at or near full capacity, and better control costs.
- A successful plant start-up (or re-starting for this particular purpose) must be understood as one that simultaneously achieves: target instantaneous ore throughput (tonnes/hour), target mechanical availability (hours/day, hours/week, hours/month), and nominal concentrate production in terms of tonnage and quality over at least four consecutive months.
- Refurbishment of the plant brings the opportunity to modernize some of the equipment and ancillary systems.

Rio Seco removes approximately 98% of the manganese content in Uchucchacua’s concentrates. Rio Seco’s processing facilities seem well maintained and operated. It is SRK’s opinion that Rio Seco has significant potential to become a custom refinery for non-typical concentrates in the region.

11 Mineral Resource Estimates

A.- Uchucchacua Unit

11.1 Key Assumptions, Parameters, and Methods Used

The 2021 Mineral Resource estimates at the Uchucchacua mine (Carmen, Casualidad, Huantajalla and Socorro zones) were prepared by BVN in accordance with the following steps and reviewed by SRK:

- Data validation
- Data preparation, including import into various software packages.
- Review of geological interpretation and modeling of mineralization domains
- Coding of drillhole and channel data within mineralized domains
- Sample length composition of both drill holes and channel samples
- Analysis of extreme data values and application of top cut
- Analysis of exploratory data of the key elements: silver, lead, zinc and density
- Analysis of boundary conditions
- Analysis and modeling of variograms
- Estimation plan
- Kriging neighborhood analysis and creation of block models
- Grade interpolation of Ag, Pb, Zn and sample length, assignment of density values
- Validation of grade estimates against original data
- Classification of estimates with respect to the CIM guidelines
- Assignment of an NSR based on long-term metal prices, metallurgical recoveries, smelter costs, commercial contracts and average concentrate grades.
- Exhaustion of blocks identified as mined or inaccessible
- Tabulation and reporting of mineral resources based on NSR cut-off grades

Reviewed methodology, estimation results, and updated metal prices, recoveries, and costs applied to the calculation of NSR values. This was carried out for the four separate zones of Uchucchacua (i.e., Carmen, Casualidad, Huantajalla and Socorro).

11.2 Geological Model

The Uchucchacua deposit is part of the polymetallic deposits hosted in carbonate rocks of the Upper Cretaceous related to Miocene intrusions in the Andes of Central Peru. Maurice Romaní (1982) suggests 2 stages of mineralization: the first associated with the dacite intrusion of the Casualidad mine of 25.3 Ma with poorly developed Pb-Zn mineralization and the second with associated Ag-Mn- (Pb-Zn) mineralization, related to the magmatism of 10 Ma consistent with the formation of the different deposits of central Peru.

Uchucchacua has three types of mineralization: filling of fractures of the rock units of Jumasha; metasomatic replacement of sulfides and silicates by silver and zinc within the limestones of the middle and lower Jumasha; and finally by contact metasomatism, resulting in endoskarn and exoskarn, which was mineralized predominantly with Chalcopyrite and Galena.

The structural control associated with the mineralization in the Uchucchacua deposit is found in 3 fault systems: Carmen Mine (EW System, N30°E, S55°E, S55°W), Huantajalla Mine (N30°W System, N15°E and EW) and Socorro Mine (System N35°- 40°E, N60°E and EW).

Conditions for geological modeling at Uchucchacua are well established with underground work, which identified sharp contacts between mineralized vein structures and host rock in all veins. Subsequently, domain boundaries were treated as hard boundaries. Coded samples within a vein were used to estimate blocks within that vein to prevent samples within veins from including host rock information.

The wireframes of mineralized structures were constructed by the Uchucchacua mine geology department based on the deposit geology interpretation, using information from mine workings mapping; drillhole sections obtained from logging; and other geological controls. The model was built using Leapfrog implicit modeling tools; the sequence of this procedure can be found in ¡Error! No se encuentra el origen de la referencia.. The modeling baseline database considered the chemical analyses (assays) of mine channels and diamond drill holes. The existing model only considers mineralized structures; the geological models (lithology, alteration, and structural) are currently being worked on.

¡Error! No se encuentra el origen de la referencia. shows the structure modeling flowchart, which initially collects information from drilling, channels, topography and Laboratory that is stored in a database to be used in the modeling of structures; interpretations of the Geologist; visualization of sampling; and identification of mining areas.

Uchucchacua contains four systems: Carmen (1000), Casualidad (2000), Huantajalla (3000), and Socorro (4000) as shown in ¡Error! No se encuentra el origen de la referencia..

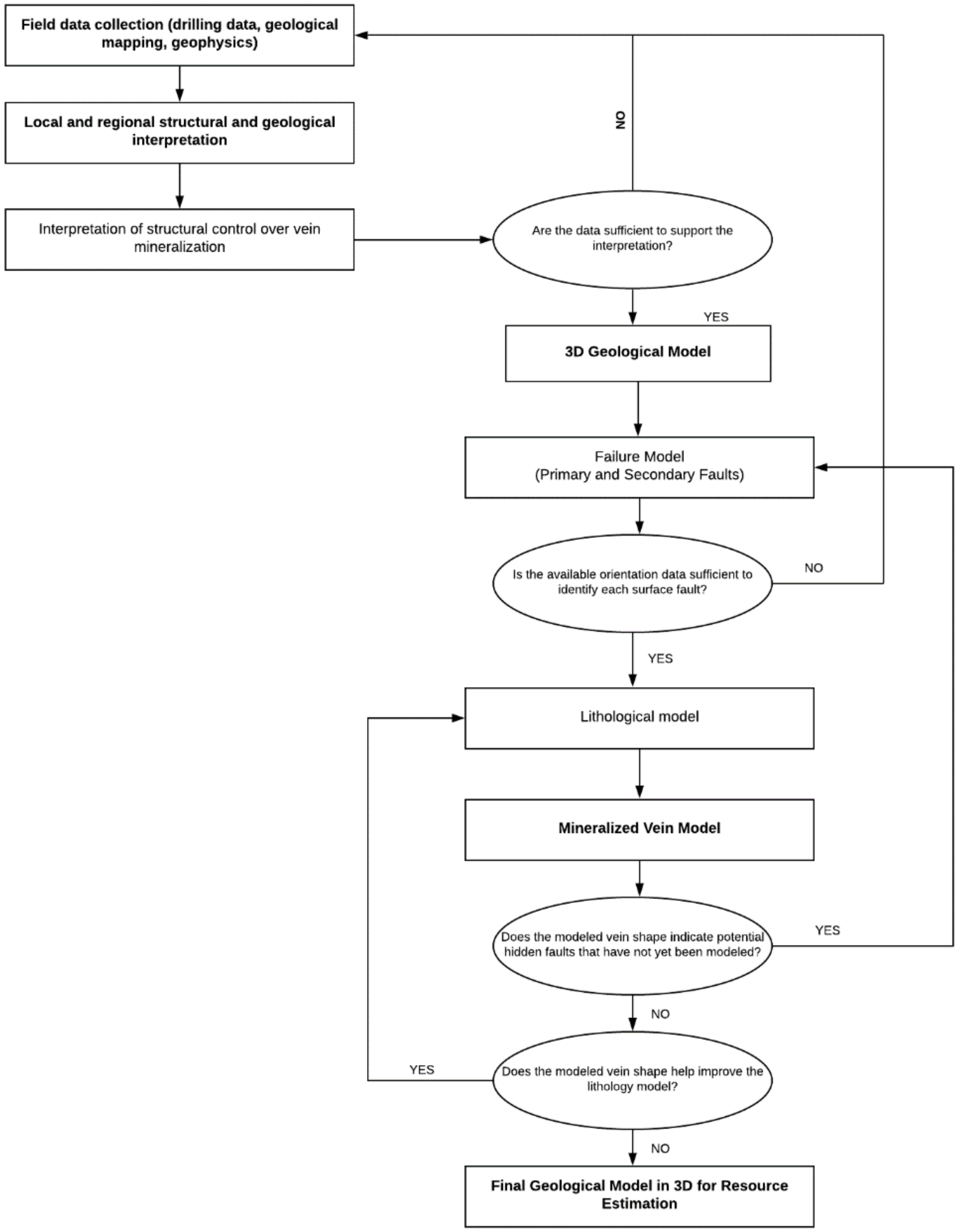


Figure 11-1: Implicit modeling flowchart.

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

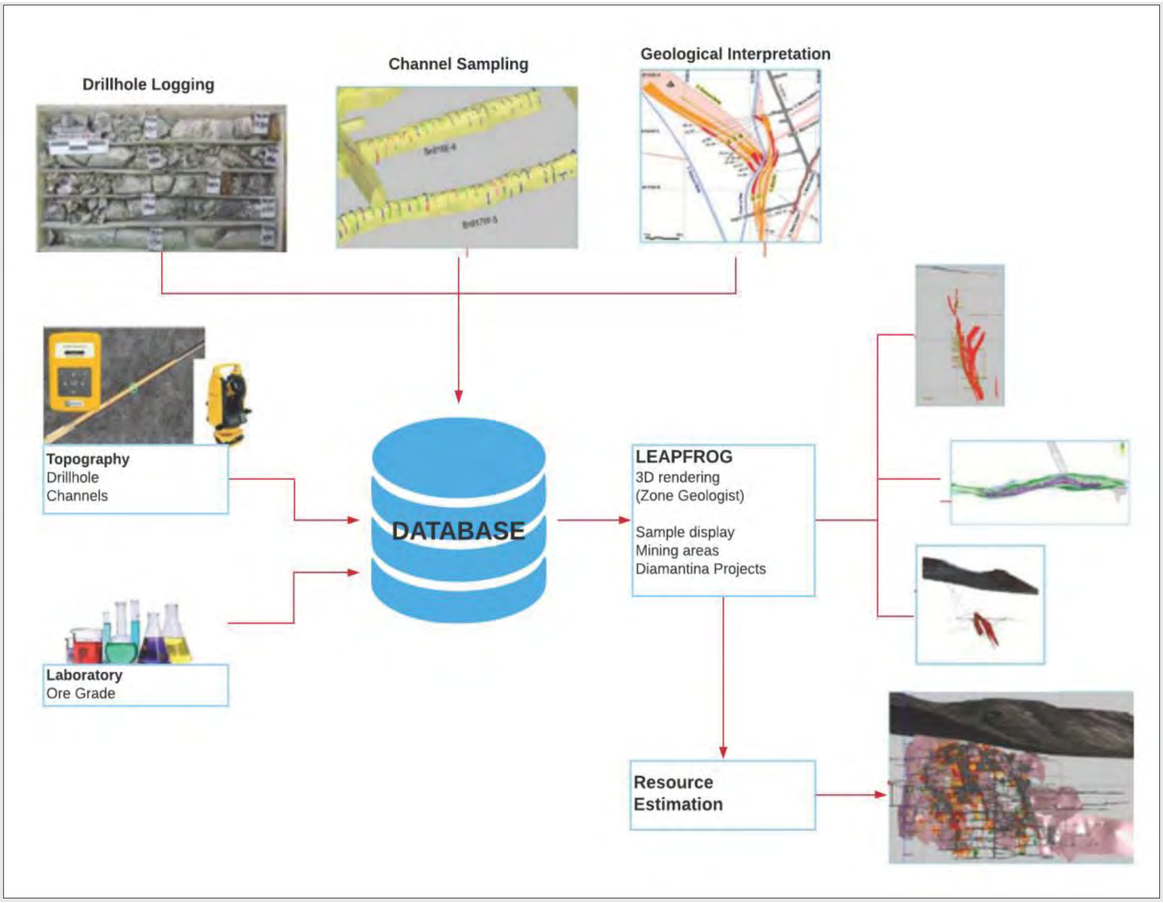


Figure 11-2: Structures modeling flowchart.

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

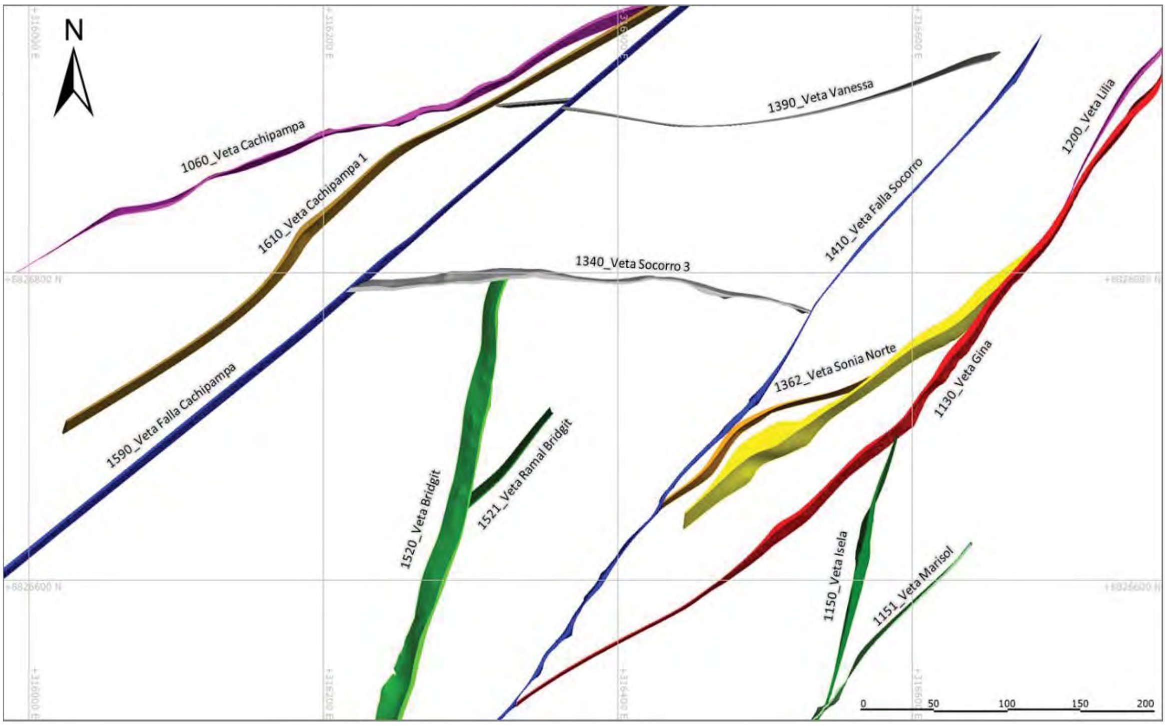


Figure 11-3: Modeled structures in the Uchucchacua mine

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

11.2.1 Exploratory Data Analysis

Sample length compositing was performed so that the samples used in statistical analysis and estimation have similar support (i.e., length). Minera Uchucchacua samples diamond drill holes and mine channels at different interval lengths depending on the length of the intercepted geological features and the actual width of the vein structure. Sample lengths were examined for each vein and composited according to the most frequently sampled length interval. Data from composited and unprocessed samples were compared to ensure that no loss of sample length or loss of metal content had occurred.

Exploratory data analysis was performed on the composites identified for each of the veins. Statistical and graphical analysis (including histograms, probability plots, scatter plots) was performed for each vein to evaluate if additional subdomains were required to achieve stationarity.

The estimation process only considers samples within wireframes and/or mineralized structures (277 veins).

A comparison between the drillhole and channel samples was carried out, comparing the different types of sampling in a similar spatial coverage. The results showed a bias indicating that the grades obtained from the channel samples on average tend to be higher values compared to the grades from the drill core samples.

However, in most cases, channel samples are clustered around historical and current workings, while drilling is focused on exploring the periphery of veins and is therefore generally sited away from workings, so it is difficult to find examples where they share the same spatial coverage.

The estimate predominantly uses channel samples with drill hole samples generally only used to infer resources at the edge of mineralized envelopes. Both types of samples are required to provide a reasonable assessment of the deposit.

Statistical study of the original samples (raw data) within each modeled domain for Ag, Pb, Zn, Fe and Mn, and separated by borehole and channel diameters, was performed as shown in ¡Error! No se encuentra el origen de la referencia., "Undefined" diameter refers to samples where a diameter was not identified into the database.

Table 11-1: Statistical summary of the original samples separated by channel and drilling (diameters)

Type	Diameter	Element	Unit	Count	Minimum	Maximum	Mean	Variance	Standard Deviation	CV
Channel	-	Ag	oz/t	133,855	0.010	1181.46	19.66	1046.27	32.35	1.65
		Pb	pct	133,846	0.0001	56.10	1.61	8.79	2.97	1.84
		Zn	pct	133,819	0.0001	58.20	2.15	9.55	3.09	1.44
		Fe	pct	103,311	0.010	66.30	9.08	101.70	10.08	1.11
		Mn	pct	124,798	0.0001	71.09	9.07	79.16	8.90	0.98
Drillhole	IEW	Ag	oz/t	15	0.001	135.68	16.33	1260.44	35.50	2.17
		Pb	pct	15	0.001	1.31	0.23	0.14	0.38	1.68
		Zn	pct	15	0.001	1.51	0.34	0.30	0.55	1.60
		Fe	pct	15	0.001	24.79	4.15	53.11	7.29	1.76
		Mn	pct	15	0.001	40.80	8.12	137.01	11.71	1.44
	AQ	Ag	oz/t	1,460	0.001	535.57	8.79	599.18	24.48	2.79
		Pb	pct	1,460	0.0001	33.55	1.19	7.41	2.72	2.29
		Zn	pct	1,460	0.0001	24.16	1.71	11.16	3.34	1.95
		Fe	pct	1,460	0.001	56.49	6.64	102.17	10.11	1.52
		Mn	pct	1,459	0.0001	49.58	4.90	62.99	7.94	1.62
	BQ	Ag	oz/t	5,477	0.001	482.58	9.15	489.09	22.12	2.42
		Pb	pct	5,477	0.0001	38.48	1.56	12.08	3.48	2.23
		Zn	pct	5,477	0.0001	32.60	2.17	14.70	3.83	1.77
		Fe	pct	5,443	0.001	56.05	7.43	118.18	10.87	1.46
		Mn	pct	5,442	0.000	59.02	5.11	90.27	9.50	1.86
	NQ	Ag	oz/t	1,181	0.0001	227.72	6.56	248.05	15.75	2.40
		Pb	pct	1,181	0.0001	31.23	0.92	6.47	2.54	2.78
		Zn	pct	1,181	0.0001	23.09	1.11	6.35	2.52	2.27
		Fe	pct	1,155	0.001	42.62	3.64	45.87	6.77	1.86
		Mn	pct	1,155	0.001	56.72	5.09	98.45	9.92	1.95
	HQ	Ag	oz/t	333	0.001	128.04	5.29	188.30	13.72	2.59
		Pb	pct	333	0.0001	17.78	1.13	7.37	2.72	2.40
		Zn	pct	333	0.0001	16.58	1.54	9.64	3.11	2.01
		Fe	pct	332	0.001	41.30	3.75	48.50	6.96	1.86
		Mn	pct	332	0.0001	42.64	2.72	38.67	6.22	2.29
	Undefined	Ag	oz/t	14,944	0.001	746.15	10.04	607.96	24.66	2.46
		Pb	pct	14,939	0.0001	38.88	0.83	4.91	2.22	2.69
		Zn	pct	14,934	0.0001	23.34	1.05	5.39	2.32	2.21
		Fe	pct	12,365	0.001	58.10	3.59	48.19	6.94	1.93
		Mn	pct	14,898	0.001	57.70	5.82	74.11	8.61	1.48

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

11.2.2 Outliers and Compositing

Top cuts of grade outliers avoid overestimation in domains due to disproportionately high grade samples. Whenever the domain contains an outlier, this extreme grade will overly influence the estimate.

If the outliers are supported by surrounding data, they are considered a valid part of the sample population and are not considered a risk to the estimation quality; accordingly, they can be discarded. If the outliers are not considered a valid part of the population (e.g., they belong to another domain or are simply incorrect), they should be removed from the domain dataset. If the outliers are considered a valid part of the population but are deemed to represent a risk to the quality of the estimate (e.g., they are poorly supported by neighboring values), they should be cut to the value selected as the upper bound. Top cut is the practice of resetting all values above a certain cut off value to the threshold value.

Minera Uchucchacua examined the grades of all metals that were estimated (Ag, Pb and Zn) to identify the presence and nature of grade outliers. This was done by examining sample histogram, log histogram, log probability plot, and by examining the spatial location of outliers. Top cut thresholds were determined by examining the same statistical plots and examining the effect of top cuts on the mean, variance, and coefficient of variation (CV) of the sample data and loss of metal content. The top cut thresholds used for each vein are shown in **¡Error! No se encuentra el origen de la referencia.**.

The limits were established between the 90th and 98th percentiles of the population of each domain, considering the loss of metal content that was sought to remain within 25-30%, and the value of the coefficient of variation, which should not exceed 2 as shown in ¡Error! No se encuentra el origen de la referencia.; for this purpose, each domain was evaluated to calculate the most appropriate value.

Capping is evaluated by analyzing the metal loss and the coefficient of variation to determine an appropriate value. The number of samples capped is also recorded, the number of samples capped and the percentage of metal reduction are shown in ¡Error! No se encuentra el origen de la referencia..

Table 11-2: Ag (oz) top cut values for main veins

Vein	Element	Unit	Vein Code	Capping	No. of Samples	%CM red***	Total Samples
Cachipampa	Ag	oz/t	1060	49	30	3.70%	2,608
Gina	Ag	oz/t	1130	128	189	2.10%	25,461
Lesly	Ag	oz/t	1160	52	93	5.00%	2,993
Lilia	Ag	oz/t	1200	96	162	5.00%	4,889
Luz	Ag	oz/t	1250	64	82	4.90%	3,385
Socorro	Ag	oz/t	1340	43	43	5.00%	3,078
Sonia Norte	Ag	oz/t	1362	43	59	5.00%	2,584
Vanessa	Ag	oz/t	1390	48	7	5.00%	1,769
Xiomara	Ag	oz/t	1400	116	96	5.10%	2,382
Sistema Giovana	Ag	oz/t	1420	94	43	5.00%	1,604

Vein	Element	Unit	Vein Code	Capping	No. of Samples	%CM red***	Total Samples
CPO Ana Lucia	Ag	oz/t	1430	147	30	5.00%	2,274
CPO Eliana	Ag	oz/t	1441	81	60	5.00%	3,203
CPO Gio 1	Ag	oz/t	1461	40	49	4.90%	1,626
Rosa	Ag	oz/t	2300	76	58	3.00%	6,301
Rosa 2	Ag	oz/t	2310	142	11	4.30%	1,651
Veta 3A	Ag	oz/t	3010	164	63	5.00%	5,303
Veta 4A	Ag	oz/t	3020	164	67	5.00%	3,776
Esmeralda	Ag	oz/t	3120	92	23	3.00%	1,786
Sarita	Ag	oz/t	3320	230	16	2.40%	2,815
CPO Edith	Ag	oz/t	3371	253	36	1.30%	2,254
Jacqueline	Ag	oz/t	4070	68	42	4.10%	2,245
Sandra	Ag	oz/t	4110	61	38	1.90%	2,153
Violeta	Ag	oz/t	4120	110	20	2.40%	1,788

*The information of selected domains was included.
** Vein codes containing the suffixes 10, 11 and 12 refer to low, medium and high grade envelopes.
***MC red: Metal content reduction.

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

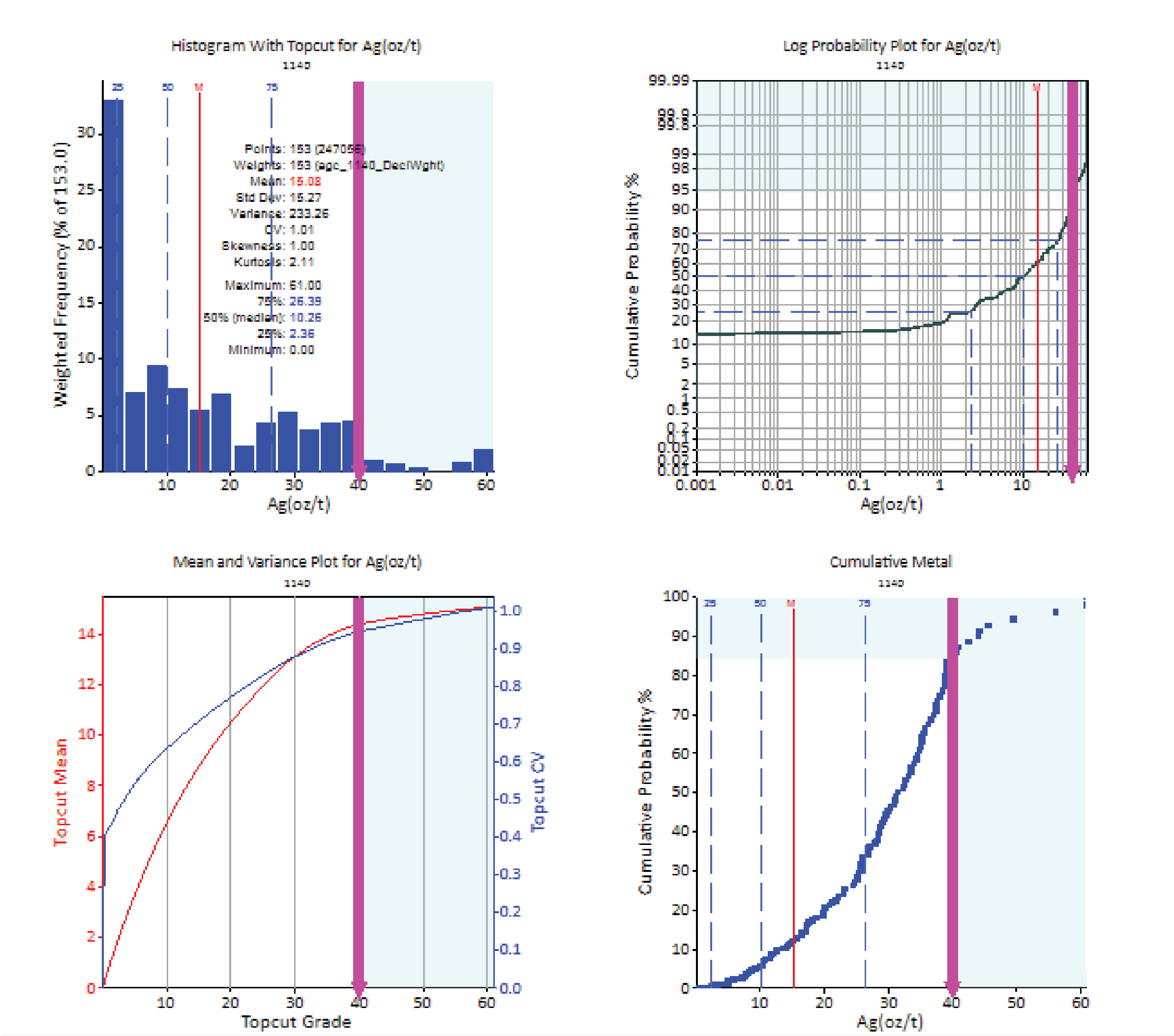


Figure 11-4: Top cut analysis for Ag in the R_GS (1140) vein - Cut at 40 Ag (oz/t) with 3.6% of lost metal content

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

Table 11-3: Comparison between statistics before and after applying top cut 40 oz/t to Ag(oz/t) in R_GS (1140) vein

Statistics	Mean	Maximum	SD	CV	Samples	Num cut	Metal cut
Raw data	17.66	61	14.63	0.83	143	-	-
Top cut	17.02	40	13.44	0.79	131	12	3.60%
% Difference	3.60%	34.40%	8.20%	4.70%	8.40%	-	96.40%

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

11.2.3 Determination of the Regularized Length (Composite)

Minera Uchucchacua composited the data to different lengths in order to define an acceptable width, where the mean and coefficient of variation are affected as little as possible. This was done in different domains, both high and low grade.

Results show that the most suitable composite length is 1.50 m. The reason for this is that, although there is already a change in the mean and coefficient of variation at 1.50 m, at 2.0 m the changes are even greater.

¡Error! No se encuentra el origen de la referencia., ¡Error! No se encuentra el origen de la referencia. and **Figure 11-7** depicts the results at different composite lengths for Ag, Pb and Zn in the domains; the statistics at different lengths of composites can be seen in **Table 11-4**, **Table 11-5** and **Table 11-6**. A greater change occurs by compositing at 2.00 m rather than 1.50 m, as seen in the figures. Additionally, using lower values becomes counterproductive given that rather than compositing, it splits the samples, which generates false continuity in the variography.

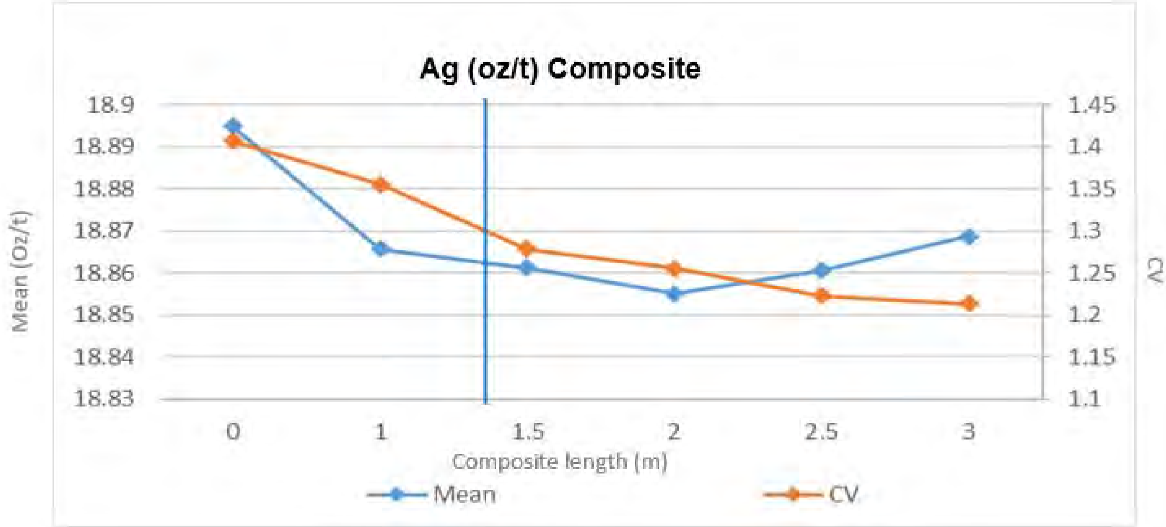


Figure 11-5: Plot of relative variations of mean and CV (Y-axis) vs. composite length (X-axis) for Ag (oz/t)

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

Table 11-4: Statistics of the composite for Ag

Comp Ag (oz/t)	0	1	1.5	2	2.5	3
Count	55,953	57,427	43,774	36,295	32,514	29,790
Length	47,569.73	47,534.62	47,571.19	47,575.37	47,541.84	47,522.96
Mean	18.895	18.866	18.861	18.855	18.861	18.869
Var.Rel Mean	0%	0%	0%	0%	0%	0%
SD	26.588	25.571	24.118	23.680	23.067	22.896
CV	1.407	1.355	1.279	1.256	1.223	1.213
Var.Rel CV	0%	-4%	-9%	-11%	-13%	-14%
Variance	706.936	653.853	581.676	560.723	532.105	524.216
Minimum	0.00965	0.00965	0.00965	0.00965	0.00965	0.00965
Q1	3.96	4.51	4.96	5.15	5.33	5.40
Q2	11.13	11.50	11.92	12.08	12.29	12.34
Q3	23.76	23.74	23.87	23.92	24.08	24.20
Maximum	944.16	944.16	664	614.89	535.57	535.57

Source: BVN

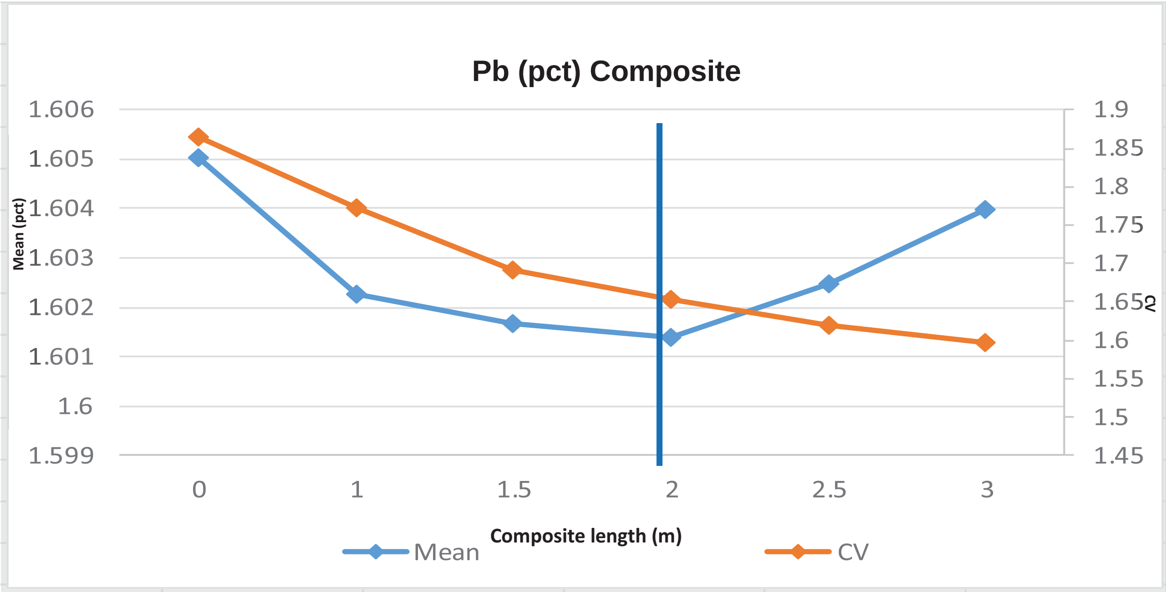


Figure 11-6: Plot of relative variations of mean and CV (Y-axis) vs. composite length (X-axis) for Pb (pct).

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

Table 11-5: Statistics of the composite for Pb

Comp Pb (pct)	0	1	1.5	2	2.5	3
Count	55,944	57,421	43,770	36,291	32,511	29,787
Length	47,564.49	47,530.20	47,567.77	47,571.95	47,538.42	47,519.54
Mean	1.605	1.602	1.602	1.601	1.602	1.604
Var.Rel Mean	0%	0%	0%	0%	0%	0%
SD	2.993	2.841	2.707	2.646	2.594	2.562
CV	1.864	1.773	1.690	1.653	1.619	1.597
Var.Rel CV	0%	-5%	-9%	-11%	-13%	-14%
Variance	8.955	8.070	7.330	7.003	6.731	6.563
Minimum	0.00053	0.00053	0.00053	0.00053	0.001	0.001
Q1	0.15	0.17	0.19	0.2	0.21	0.21
Q2	0.47	0.51	0.55	0.57	0.59	0.597
Q3	1.64	1.72	1.78	1.80	1.83	1.85
Maximum	56	42	45.024	36	36	36

Source: BVN

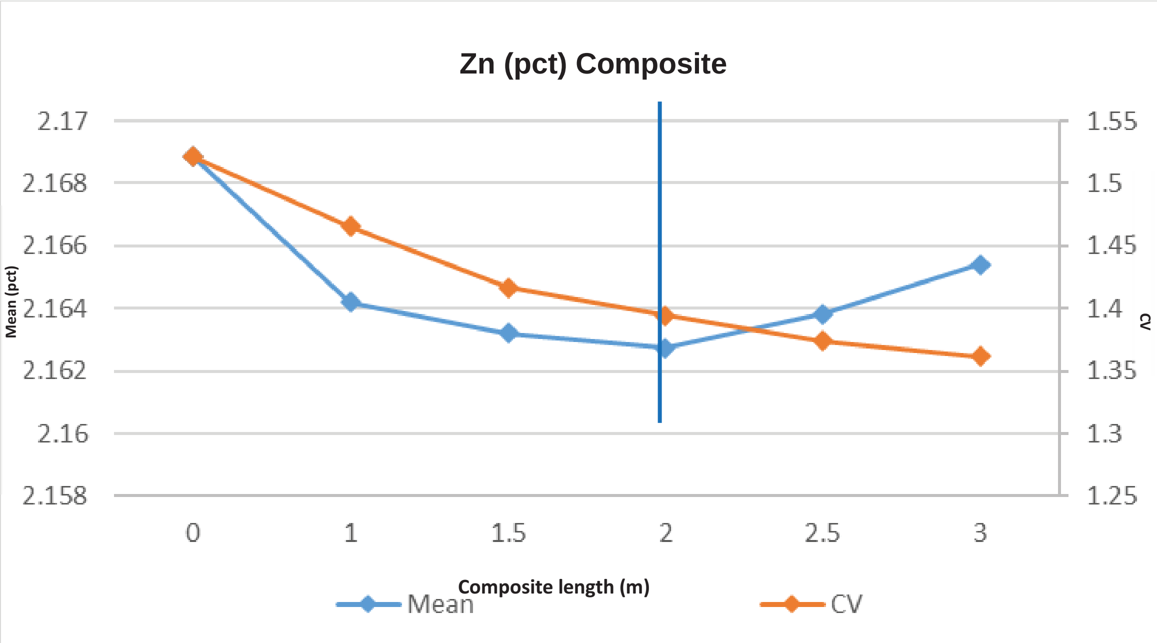


Figure 11-7: Plot of relative variations of mean and CV (Y-axis) vs. composite length (X-axis) for Zn (pct).

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

Table 11-6 : Statistics of the composite for Zn

Comp Zn (pct)	0	1	1.5	2	2.5	3
Count	55,914	57,393	43,749	36,275	32,499	29,776
Length	47,536.39	47,504.48	47,541.55	47,545.73	47,512.20	47,493.32
Mean	2.169	2.164	2.163	2.163	2.164	2.165
Var.Rel Mean	0%	0%	0%	0%	0%	0%
SD	3.299	3.171	3.064	3.015	2.973	2.948
CV	1.521	1.465	1.417	1.394	1.374	1.361
Var.Rel CV	0%	-4%	-7%	-8%	-10%	-10%
Variance	10.882	10.057	9.391	9.093	8.837	8.690
Minimum	0.001	0.001	0.001	0.001	0.001	0.001
Q1	0.22	0.25	0.28	0.29	0.3	0.30
Q2	0.72	0.79	0.85	0.88	0.906	0.92
Q3	2.64	2.69	2.75	2.78	2.80	2.82
Maximum	51	51	40.864	38.94942	30.728	31.26661343

Source: BVN

11.2.4 Determination of Regularized Length (Composite)

Grade distributions for Ag, Pb and Zn in 1.5 m composites are presented by structure and envelope in boxplots, **Figure 11-8** shows the silver distribution for the main veins.

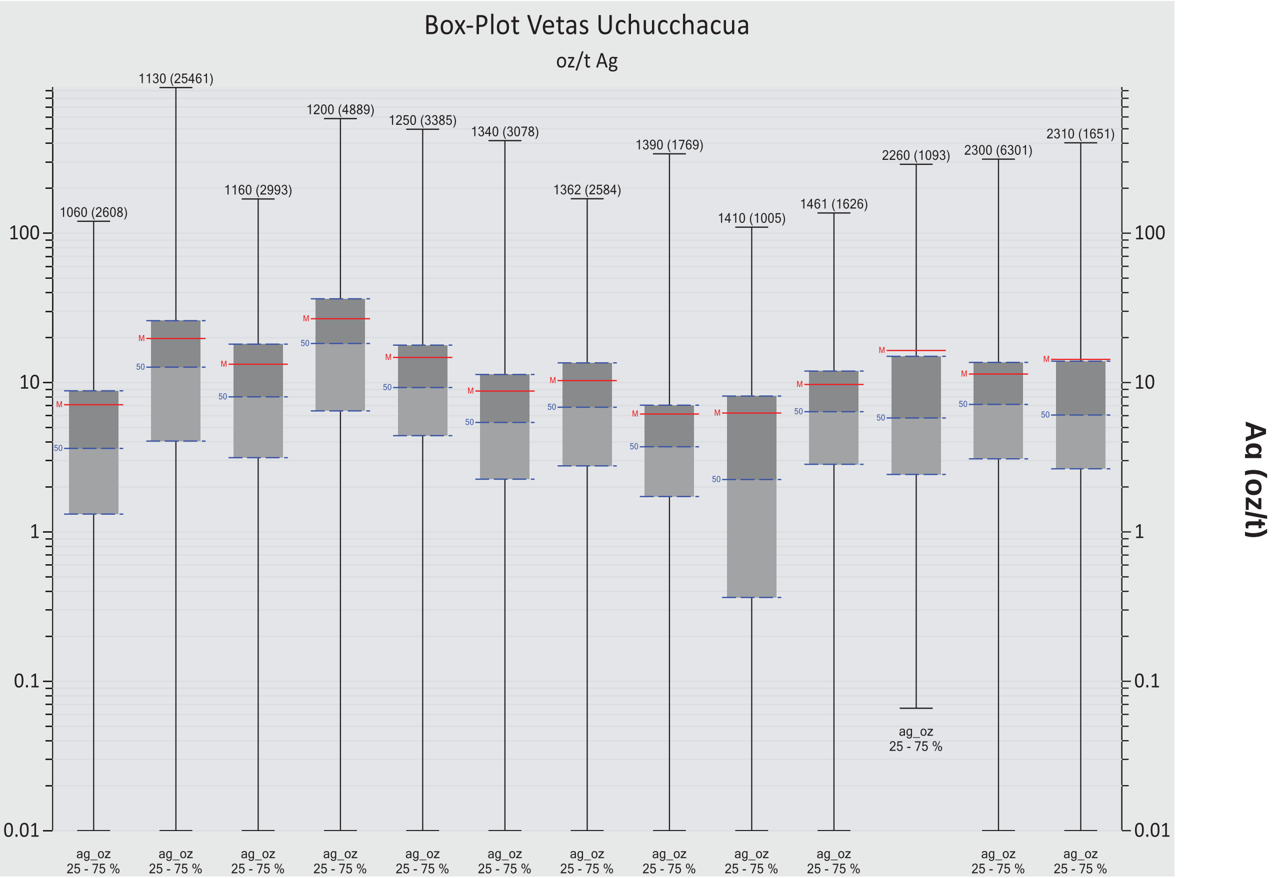


Figure 11-8: Example of Ag (oz/t) box-plot for main veins

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

In general, the grade distribution analysis indicates that, within envelopes, grades are significantly higher compared to those outside envelopes, grades that are mainly associated with gangue and/or low-grade mineralization.

¡Error! No se encuentra el origen de la referencia. shows the statistics of composites by domain and element. The coefficient of variation of silver values is relatively low (less than 4.0), so we have less dispersed values than the raw data when estimating.

Table 11-7: Composite statistics for the main veins

Zone	Vein	Vein Code	Element	Units	Count	Minimum	Maximum	Mean	Variance	Std. Dev	Coef. Var.
Socorro	V Cachipampa	1060	Ag	oz/t	1,706	0.001	49.00	7.38	72.58	8.52	1.16
Socorro	V Cachipampa	1060	Pb	Pct	1,706	0.001	21.59	4.26	21.45	4.63	1.09
Socorro	V Cachipampa	1060	Zn	Pct	1,706	0.001	24.85	6.27	24.74	4.97	0.79
Socorro	V Gina	1130	Ag	oz/t	16,681	0.001	128.00	19.12	385.94	19.65	1.03
Socorro	V Gina	1130	Pb	Pct	16,681	0.001	10.80	1.06	2.66	1.63	1.54
Socorro	V Gina	1130	Zn	Pct	16,681	0.001	17.00	1.33	3.69	1.92	1.45
Socorro	V Lesly	1160	Ag	oz/t	1,829	0.001	52.00	11.91	121.03	11.00	0.92
Socorro	V Lesly	1160	Pb	Pct	1,829	0.001	8.72	0.77	1.05	1.03	1.34
Socorro	V Lesly	1160	Zn	Pct	1,829	0.001	8.36	1.05	1.15	1.07	1.02
Socorro	V Lilia	1200	Ag	oz/t	3,395	0.001	96.00	25.25	487.88	22.09	0.88
Socorro	V Lilia	1200	Pb	Pct	3,395	0.001	18.09	2.03	8.22	2.87	1.41
Socorro	V Lilia	1200	Zn	Pct	3,395	0.001	18.00	2.27	8.36	2.89	1.27
Socorro	V Luz	1250	Ag	oz/t	2,642	0.001	64.00	14.27	185.27	13.61	0.95
Socorro	V Luz	1250	Pb	Pct	2,642	0.001	18.65	1.91	5.78	2.40	1.26
Socorro	V Luz	1250	Zn	Pct	2,642	0.001	16.80	2.55	6.36	2.52	0.99
Socorro	V Socorro 3	1340	Ag	oz/t	2,040	0.001	43.00	8.04	55.13	7.43	0.92
Socorro	V Socorro 3	1340	Pb	Pct	2,040	0.001	18.72	2.10	9.30	3.05	1.45
Socorro	V Socorro 3	1340	Zn	Pct	2,040	0.001	22.00	4.06	15.90	3.99	0.98
Socorro	V Sonia Norte	1362	Ag	oz/t	1,702	0.001	43.00	9.60	81.30	9.02	0.94
Socorro	V Sonia Norte	1362	Pb	Pct	1,702	0.001	16.28	4.40	14.55	3.82	0.87
Socorro	V Sonia Norte	1362	Zn	Pct	1,702	0.001	22.42	5.65	17.37	4.17	0.74
Socorro	V Vanessa	1390	Ag	oz/t	1,284	0.001	48.00	6.08	45.01	6.71	1.10
Socorro	V Vanessa	1390	Pb	Pct	1,284	0.001	16.56	1.78	7.32	2.71	1.52

Zone	Vein	Vein Code	Element	Units	Count	Minimum	Maximum	Mean	Variance	Std. Dev	Coef. Var.
Socorro	V Vanessa	1390	Zn	Pct	1,284	0.001	24.50	6.16	20.22	4.50	0.73
Socorro	V Xiomara	1400	Ag	oz/t	1,481	0.001	116.00	28.12	789.66	28.10	1.00
Socorro	V Xiomara	1400	Pb	Pct	1,481	0.001	19.44	1.69	5.24	2.29	1.36
Socorro	V Xiomara	1400	Zn	Pct	1,481	0.001	14.83	1.88	5.28	2.30	1.22
Socorro	V Sistema Giovana	1420	Ag	oz/t	1,048	0.001	94.00	20.56	445.07	21.10	1.03
Socorro	V Sistema Giovana	1420	Pb	Pct	1,048	0.001	2.85	0.43	0.21	0.46	1.08
Socorro	V Sistema Giovana	1420	Zn	Pct	1,048	0.001	4.07	0.54	0.37	0.61	1.12
Socorro	Cpo Analucia	1430	Ag	oz/t	1,495	0.001	147.00	22.46	498.57	22.33	0.99
Socorro	Cpo Analucia	1430	Pb	Pct	1,495	0.001	8.12	0.32	0.63	0.80	2.47
Socorro	Cpo Analucia	1430	Zn	Pct	1,495	0.001	9.81	0.48	0.74	0.86	1.82
Socorro	Cpo Eliana	1441	Ag	oz/t	2,218	0.001	81.00	18.27	221.55	14.89	0.82
Socorro	Cpo Eliana	1441	Pb	Pct	2,218	0.001	2.30	0.21	0.07	0.26	1.21
Socorro	Cpo Eliana	1441	Zn	Pct	2,218	0.001	3.73	0.31	0.10	0.32	1.00
Socorro	Cpo Gio 1	1461	Ag	oz/t	1,185	0.001	40.00	8.49	74.30	8.62	1.02
Socorro	Cpo Gio 1	1461	Pb	Pct	1,185	0.001	1.51	0.14	0.03	0.17	1.23
Socorro	Cpo Gio 1	1461	Zn	Pct	1,185	0.001	10.00	0.27	0.24	0.49	1.82

*The information of selected domains was included.

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

¡Error! No se encuentra el origen de la referencia. shows a histogram and probability plot of Gina Vein for Ag (composites). A lower dispersion of information is observed. Likewise, the evaluation of these plots also helps in the identification of restriction values.

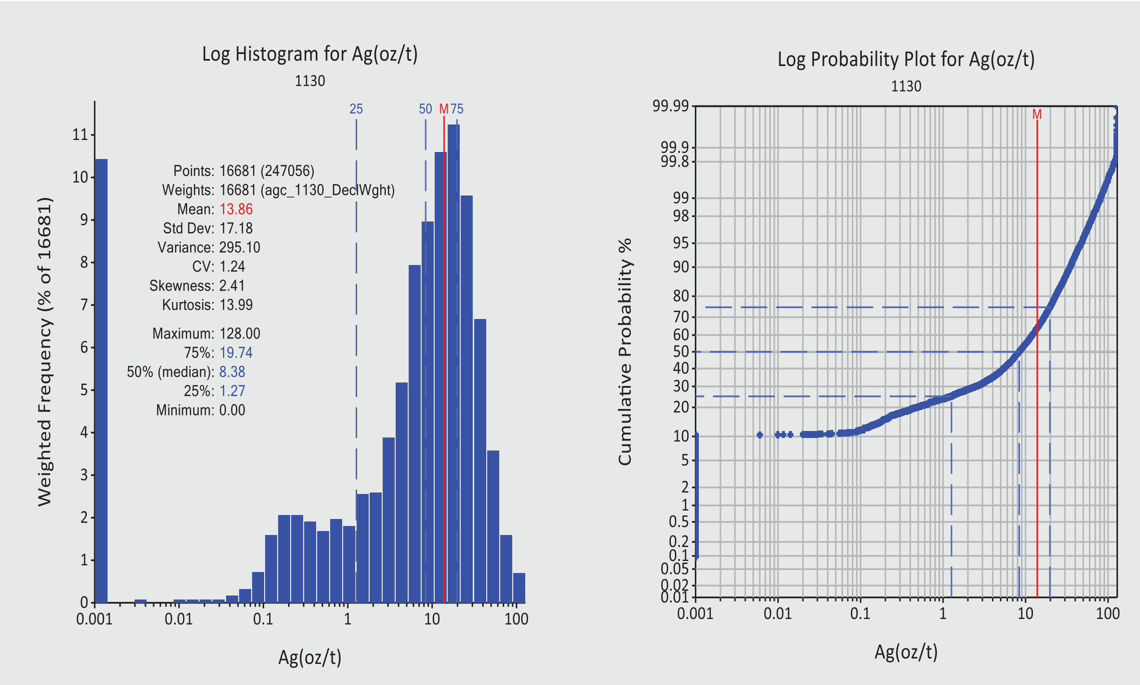


Figure 11-9: Histogram and cumulative probability plot for Ag (oz) composites in Gina vein (1130).

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

¡Error! No se encuentra el origen de la referencia. shows the distance restriction values applied in the estimation stage. In general, a distance of 3mx3mx3m has been considered for such restriction.

Table 11-8: Ag (oz/t) statistics in the main veins after applying distance restriction

Vein	Vein Code	Restriction (oz/t)	No. of composites	%MC Restricted	Total Composites
Cachipampa	1060	40	24	1.3%	1,674
Gina	1130	100	132	0.7%	16,164
Lesly	1160	50	25	0.2%	1,751
Lilia	1200	80	105	1.4%	3,172
Luz	1250	54	84	1.7%	2,590
Socorro	1340	35	22	0.7%	1,987
Sonia Norte	1362	35	43	1.2%	1,624
Vanessa	1390	30	19	2.5%	1,266
Xiomara	1400	100	39	0.9%	1,410
Sistema Giovana	1420	75	42	2.5%	1,015
CPO Ana Lucia	1430	114	21	1.4%	1,431
CPO Eliana	1441	70	37	0.7%	2,093
CPO Gio 1	1461	35	34	1.3%	1,078

Vein	Vein Code	Restriction (oz/t)	No. of composites	%MC Restricted	Total Composites
Rosa	2300	60	68	1.5%	4,399
Rosa 2	2310	90	15	2.0%	1,184
Veta 3A	3010	130	51	2.1%	3,611
Veta 4A	3020	133	50	2.3%	2,507
Esmeralda	3120	80	11	0.8%	1,077
Sarita	3320	160	25	2.4%	1,690
CPO Edith	3371	200	40	2.5%	1,521
Jacqueline	4070	47	49	3.3%	1,513
Sandra	4110	62	9	0.9%	1,401
Violeta	4120	88	11	1.1%	1,197

*The information of selected domains was included.
**MC restricted: Metal content restricted.

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

11.2.5 Declustering

Due to the spatial distribution of data, it was decided to decluster information, in order to give an equal weight to data that were clustered and those that were not. Declustering was done based on the distribution of drillhole information in each structure, opting to minimize the mean value. Figure 11-10 shows different mean values at different cell sizes. The purple mark indicates the lowest mean value, which is 45m x 75m x 10m.

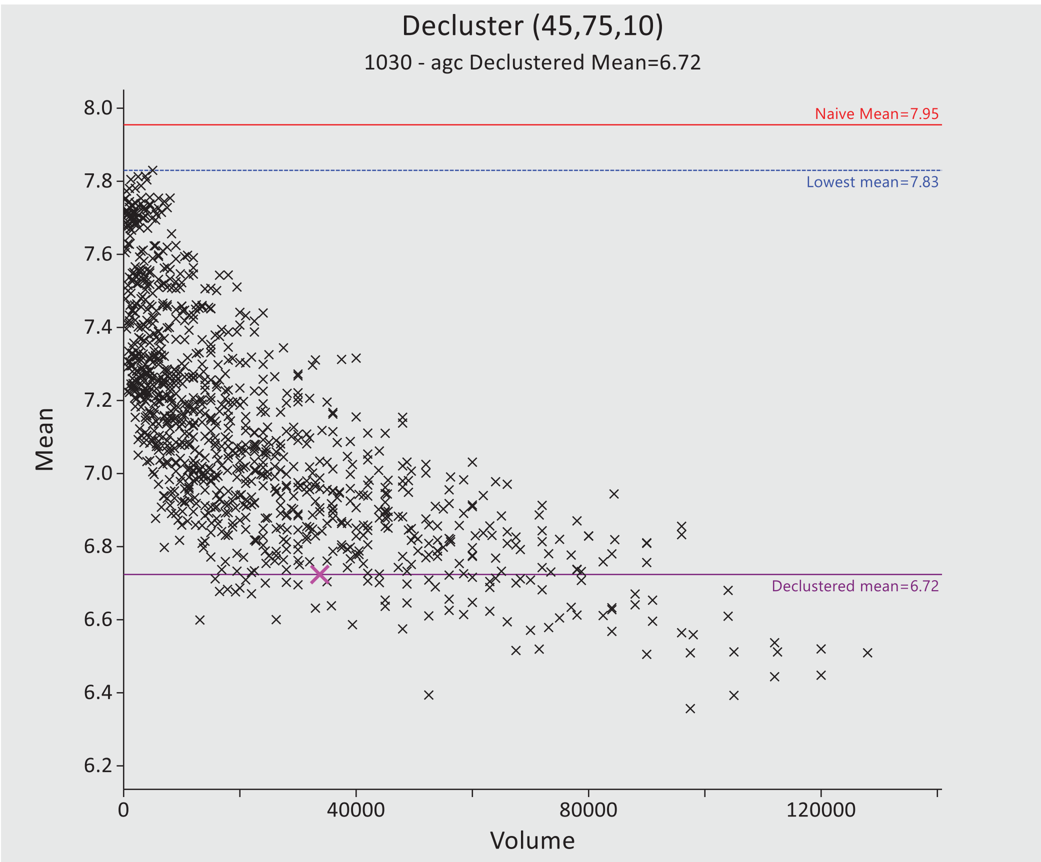


Figure 11-10: Declustering of Ag (oz/t) for composites in Ada vein (1030).

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

11.3 Mineral Resources Estimate

11.3.1 Estimation Plan

Minera Uchucchacua carried out the estimation of the following elements: Silver (Ag) in oz, Lead (Pb) in pct, and Zinc (Zn) in pct. Estimation domains were generated for each element according to the stationarity conditions.

Boundary conditions at Uchucchacua are well established with underground workings, and strong contact was identified between mineralized vein structures and host rock in all veins. Subsequently, domain boundaries were treated as hard boundaries. Only samples coded within a vein were used to estimate blocks within that vein, to prevent high-grade samples from the vein from being stained by the low-grade host rock, and vice versa.

For resource estimation, Supervisor ® (Statistical Analysis), Leapfrog Geo ® (Structure Modeling) and Vulcan ® (Resource Estimation) software were used.

11.3.2 Qualitative Kriging Neighborhood Analysis (QKNA)

Kriging neighborhood analysis was performed to define the estimation parameters, such as, minimum and maximum number of samples, maximum number of samples from the same drillhole, and search distances.

Scenarios of block sizes close to the one used to build the block model were analyzed, using the values obtained in the variographic analysis shown in the previous section, checking that the kriging efficiency and slope of regression have adequate values.

In general, a minimum of 2 samples and a maximum of 24 have been used as a starting point, with a maximum of 2 samples per drillhole. From this configuration, it was possible to determine which are the appropriate parameters for each domain.

¡Error! No se encuentra el origen de la referencia., **¡Error! No se encuentra el origen de la referencia.** and **¡Error! No se encuentra el origen de la referencia.**, and show the Supervisor environment for the KNA analysis, where the appropriate neighborhood for Gina Vein (1130) is finally determined.

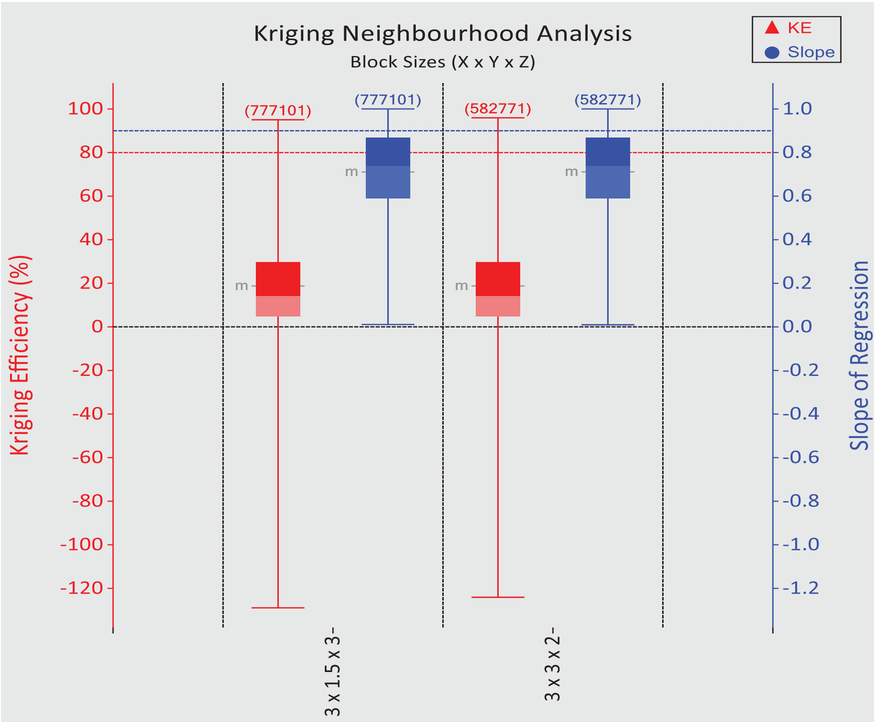
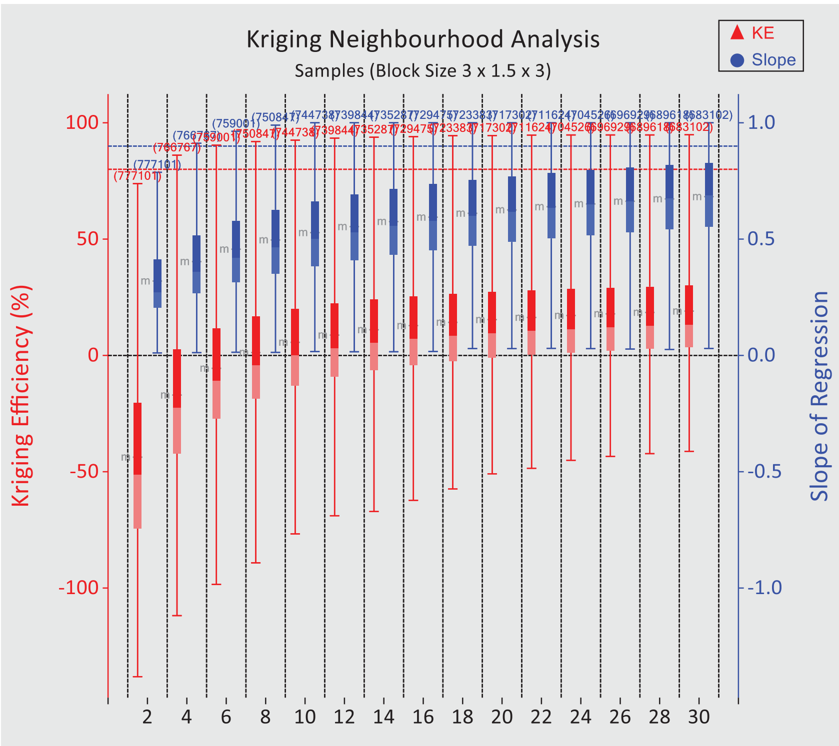


Figure 11-11: Determination of the minimum and maximum number of samples

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)



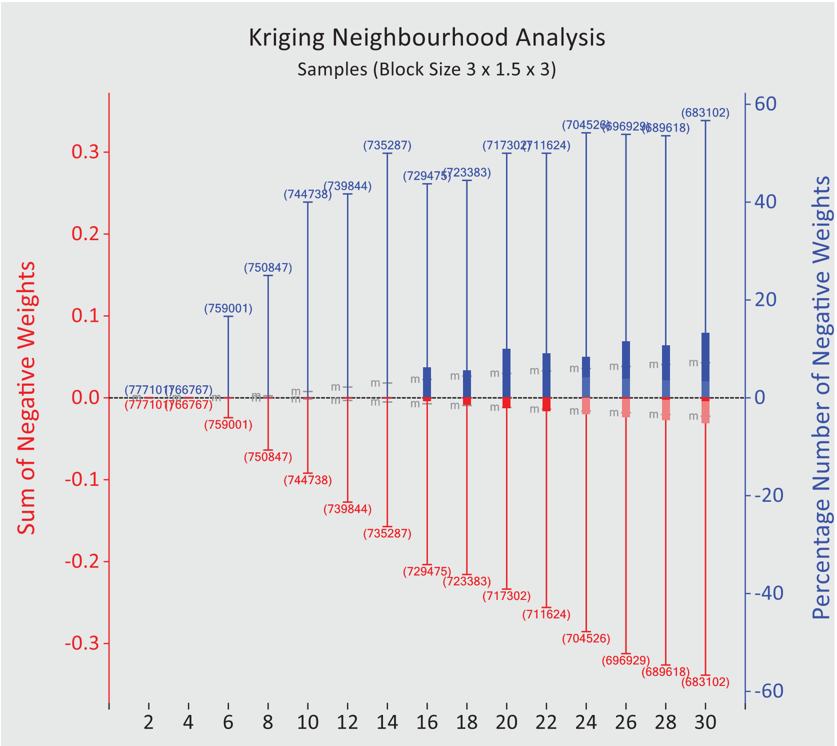


Figure 11-12: Behavior of KE and slope of regression, according to the number of samples (top), and the negative weights generated (bottom).

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

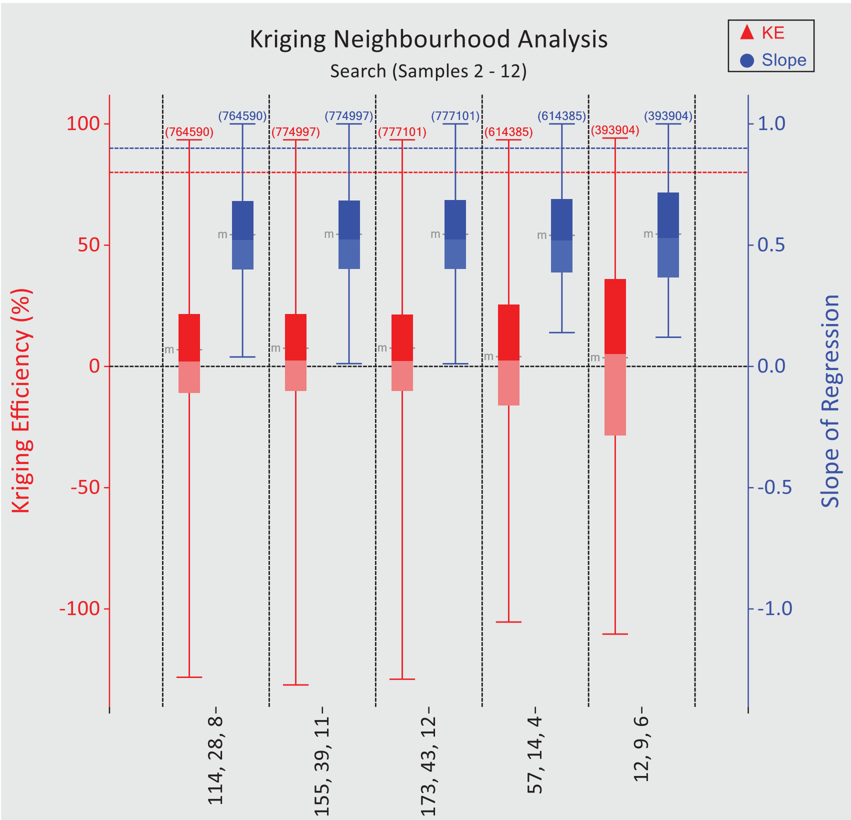


Figure 11-13: The plot shows that neighborhood 12,9,6 has the best values for KE and slope of regression.

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

11.3.3 Continuity Analysis

Continuity analysis refers to the analysis of spatial correlation of a score value between pairs of samples to determine the main axis of spatial continuity.

Grade distribution has a log-normal distribution, so traditional experimental variograms tend to be of poor quality. To counter this, the data were transformed to a normal score distribution for continuity analysis.

Minera Uchucchacua examined horizontal, across strike, and down dip continuity maps (and their underlying variograms) for Ag, Pb, and Zn to determine the directions of greatest and least continuity.

Continuity analysis confirmed that some veins have insufficient data to allow variogram modeling. In the case of these veins, inverse distance (ID3) was used as an alternative estimation technique.

11.3.4 Variable Orientation Modeling

The next step is to model the variograms for the major, semi-major, and minor axes. This exercise creates a mathematical model of the spatial variance that can be used by the ordinary kriging algorithm. The most important aspects of the variogram model are the nugget effect and the short-range characteristics. These aspects have the most influence on estimation.

The nugget effect is the variance between sample pairs at the same location (zero distance). The nugget effect contains components of inherent variability, sampling error, and analytical error. A high nugget effect implies that there is a high degree of randomness in the sample grades (i.e., samples taken even at the same location can have quite different grades). The best technique for determining the nugget effect is to examine the downhole variogram calculated with lags equal to the composite length.

After determining the nugget effect, the next step is to model directional variograms in the three main directions for Ag, Pb, and Zn based on the directions chosen from the variogram fans. It was not always possible to generate a variogram for minor axes, and in these cases the ranges for the minor axes were taken from the downhole variograms, which have a similar orientation (perpendicular to the vein) as the minor axes. Modeled variogram results were back transformed to define the estimation parameters. Variogram parameters are detailed in **¡Error! No se encuentra el origen de la referencia.**. **¡Error! No se encuentra el origen de la referencia.** shows the variography of domain 1461 for the Gio 1 vein.

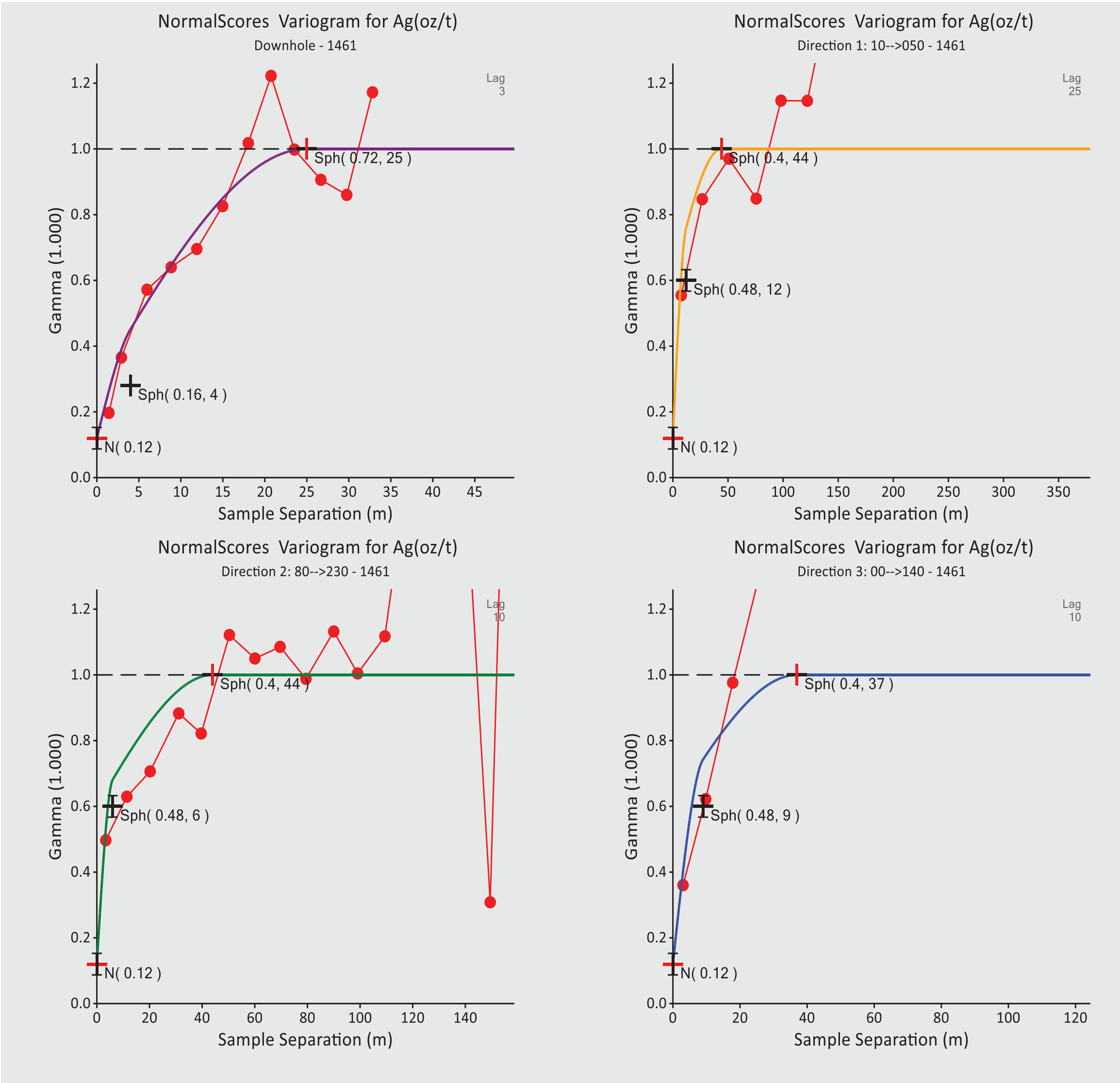


Figure 11-14: Variography of Ag (oz/t) for Gio 1 vein (1461).

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

¡Error! No se encuentra el origen de la referencia. shows the variography (by domain) of the main structures in each zone. All veins were estimated using OK (ordinary Krigging) and ID3 (Inverse Distance), but the method with the smallest percentage difference from the NN (nearest neighbor) estimate was chosen. A method that was used in all the veins, the exponent (3) based on historical comparisons of previous estimates, the ID3 vs. ID2 results confirmed that ID3 outperforms for this deposit. For structures estimated by the Inverse Distance method, variograms were prepared to define the search ellipsoids.

Table 11-9: Variography parameters in the estimation files for the main veins.

Vein	Vein Code	Element	Unit	Bearing (°)	Plunge (°)	Dip (°)	Nugget	Str1 Sill	Major Axis	Semi-Major Axis	Minor Axis	Str2 Sill	Major Axis	Semi-Major Axis	Minor Axis
Cachipampa	1060	Ag	oz	59.686	17.229	-58.433	0.129	0.535	13	17	7	0.336	72	28	8
Cachipampa	1060	Pb	pct	51.118	41.641	-62.764	0.067	0.501	3	3	3	0.432	15	18	13
Cachipampa	1060	Zn	pct	229.494	-67.731	62.727	0.085	0.362	4	4	4	0.553	29	43	38
Gina	1130	Ag	oz	36.102	25.659	56.31	0.25	0.51	18	12	7	0.24	173	43	12
Gina	1130	Pb	pct	51.485	-31.321	-60.349	0.27	0.299	3	5	5	0.432	450	352	48
Gina	1130	Zn	pct	223.492	34.847	83.904	0.113	0.534	30	20	15	0.344	804	461	38
Lesly	1160	Ag	oz	47.042	-60.48	-60.48	0.11	0.637	16	15	9	0.253	113	86	13
Lesly	1160	Pb	pct	42.904	18.747	-68.827	0.256	0.372	7	60	15	0.372	102	115	21
Lesly	1160	Zn	pct	233.466	69.409	75.651	0.106	0.545	30	20	8	0.35	100	85	25
Lilia	1200	Ag	oz	40	-30	-90	0.162	0.601	21	14	8	0.236	231	55	9
Lilia	1200	Pb	pct	29.225	-8.178	-125.413	0.39	0.437	15	15	13	0.173	98	68	14
Lilia	1200	Zn	pct	211.508	34.847	96.096	0.356	0.338	3	12	8	0.306	35	30	14
Luz	1250	Ag	oz	48.246	9.847	-79.849	0.0629	0.755	15	7	4	0.182	78	32	5
Luz	1250	Pb	pct	5.768	-26.065	44.311	0.394	0.3	85	32	20	0.306	386	265	40
Luz	1250	Zn	pct	157.376	61.095	-29.032	0.129	0.479	9	10	5	0.392	14	74	8
Rosa	2300	Ag	oz	10	-10	-90	0.123	0.583	43	7	6	0.294	530	18	11
Rosa	2300	Pb	pct	75	30	-90	0.198	0.418	55	54	7	0.384	287	161	14
Rosa	2300	Zn	pct	274.07	49.741	-82.249	0.224	0.454	14	5	7	0.322	100	12	8
Rosa 2	2310	Ag	oz	90	20	-90	0.1	0.569	21	71	23	0.331	122	72	26
Rosa 2	2310	Pb	pct	47.904	-18.747	68.827	0.087	0.415	8	15	18	0.499	155	54	145
Rosa 2	2310	Zn	pct	288.018	74.207	71.323	0.187	0.459	44	16	5	0.354	164	85	30
Veta 3A	3010	Ag	oz	126.384	19.683	-79.372	0.102	0.675	26	15	10	0.223	225	128	11
Veta 3A	3010	Pb	pct	123.703	4.829	-74.945	0.367	0.145	14	8	5	0.489	54	60	10
Veta 3A	3010	Zn	pct	109.494	67.731	117.273	0.171	0.268	11	6	17	0.561	73	59	29
Veta 4A	3020	Ag	oz	286.659	-29.499	42.394	0.0638	0.636	30	4	7	0.3	181	45	14

Vein	Vein Code	Element	Unit	Bearing (°)	Plunge (°)	Dip (°)	Nugget	Str1 Sill	Major Axis	Semi-Major Axis	Minor Axis	Str2 Sill	Major Axis	Semi-Major Axis	Minor Axis
Veta 4A	3020	Pb	pct	130	0	-65	0.311	0.291	40	8	5	0.399	151	30	10
Veta 4A	3020	Zn	pct	328.466	69.409	-104.349	0.232	0.323	25	35	17	0.445	480	180	18
Esmeralda	3120	Ag	oz	70	20	-90	0.0625	0.672	19	16	8	0.266	174	24	11
Esmeralda	3120	Pb	pct	80	0	65	0.276	0.336	10	4	7	0.388	24	19	10
Esmeralda	3120	Zn	pct	142.727	67.731	-154.494	0.059	0.783	13	17	5	0.158	51	82	6
Sarita	3320	Ag	oz	81.71	39.273	-77.038	0.0884	0.558	13	13	6	0.353	97	71	14
Sarita	3320	Pb	pct	85	0	-105	0.408	0.188	19	29	5	0.404	87	57	6
Sarita	3320	Zn	pct	45.968	-61.095	-122.376	0.183	0.352	4	6	3	0.464	76	68	21
CPO Edith	3371	Ag	oz	57.693	6.409	39.569	0.0558	0.708	13	11	7	0.237	143	98	11
CPO Edith	3371	Pb	pct	50	0	-125	0.244	0.128	2	7	11	0.628	67	40	19
CPO Edith	3371	Zn	pct	194.21	41.561	131.93	0.144	0.385	5	3	19	0.47	170	50	26
Jacqueline	4070	Ag	oz	42.76	33.826	-127.005	0.0838	0.55	9	7	2	0.366	57	33	10
Jacqueline	4070	Pb	pct	15	0	60	0.522	0.247	36	20	6	0.231	324	43	9
Jacqueline	4070	Zn	pct	168.952	22.521	117.226	0.319	0.258	9	14	7	0.423	15	15	8
Sandra	4110	Ag	oz	83.451	9.391	-110.264	0.0861	0.701	31	24	4	0.213	111	94	10
Sandra	4110	Pb	pct	95	0	-95	0.468	0.301	55	3	5	0.231	136	24	8
Sandra	4110	Zn	pct	80	5	-90	0.055	0.695	26	23	4	0.25	35	84	6
Violeta	4120	Ag	oz	82.732	24.404	32.732	0.142	0.688	5	9	5	0.17	43	50	8
Violeta	4120	Pb	pct	51.466	7.644	-130.432	0.187	0.43	3	9	7	0.383	56	16	8
Violeta	4120	Zn	pct	140	40	-180	0.547	0.127	8	14	10	0.325	28	47	11

***The information of selected domains was included.**

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

11.3.5 Anisotropic Model

Given the difficulty of determining the preferential orientation of the mineralization continuity in complex structures, the application of Vulcan's Locally Varying Anisotropy (LVA), which builds an anisotropic model from modeled structures, was evaluated. LVA generates orientation variations over short distances and allows the orientation of the mineralization continuity to be incorporated into the estimation with greater accuracy.

The anisotropic model allows rotation angles to be defined individually, considering the local trend, being assigned to each model cell, and assumes that the dimensions of the ellipsoid remain constant.

A point file, where each point has a value for dip and dip direction, is created from the roof and floor surfaces of the structure and would be representing the preferential direction that varies locally over the extension of surfaces.

A plan view of the calculated LVA values for the Cachipampa Vein model is shown in ¡Error! No se encuentra el origen de la referencia..

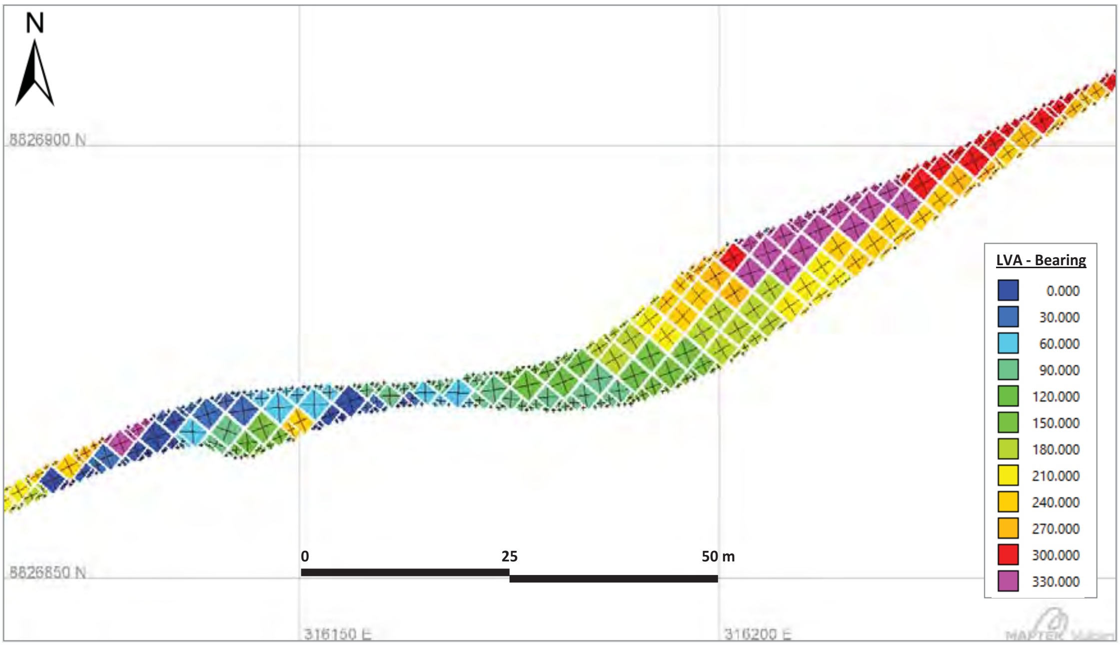


Figure 11-15: LVA-bearing in Cachipampa vein

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

11.3.6 Block Model

The block size was selected based on the needs of the Planning area, which are linked to the mining methods at Uchucchacua mine; cell dimensions are 3 m x 3 m x 3 m and are represented on the X, Y, and Z axes.

The block model consists of cells and sub-cells that fill the entire volume of interest. Each cell occupies a discrete volume that can be assigned whatever information is deemed necessary to accurately and precisely describe and interpret the deposit; the entire block model or fraction thereof can be evaluated, and tonnage and grades reported.

Block Model Characteristics

Dimensions were based on the mining SMU, since the mining method used is cut-and-fill stoping and, in areas with lower rock quality, breasting.

Four resource models were made using Vulcan software, based on the main structures of the mine (Carmen, Casualidad, Huantajalla, and Socorro), whose characteristics are presented below:

Table 11-10: Block model dimensions

Zone	Origin X	Origin Y	Origin Z	Bearing (°)	Plunge (°)	Dip (°)	Extension X	Extension Y	Extension Z	Size X (m)	Size Y (m)	Size Z (m)
Carmen	318,650	8,826,200	3,600	282	0	0	2,901	1,602	1,701	3	3	3
Casualidad	315,900	8,824,300	3,700	50	0	0	2,220	1,500	1,500	3	3	3
Huantajalla	317,070	8,823,520	3,900	40	0	0	1,650	1,551	852	3	3	3
Socorro	316,000	8,825,100	3,200	40	0	0	3,699	1,902	1,710	3	3	3

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

Figure 11-16 shows that all the zones are independent, so they can be worked as separate block models.

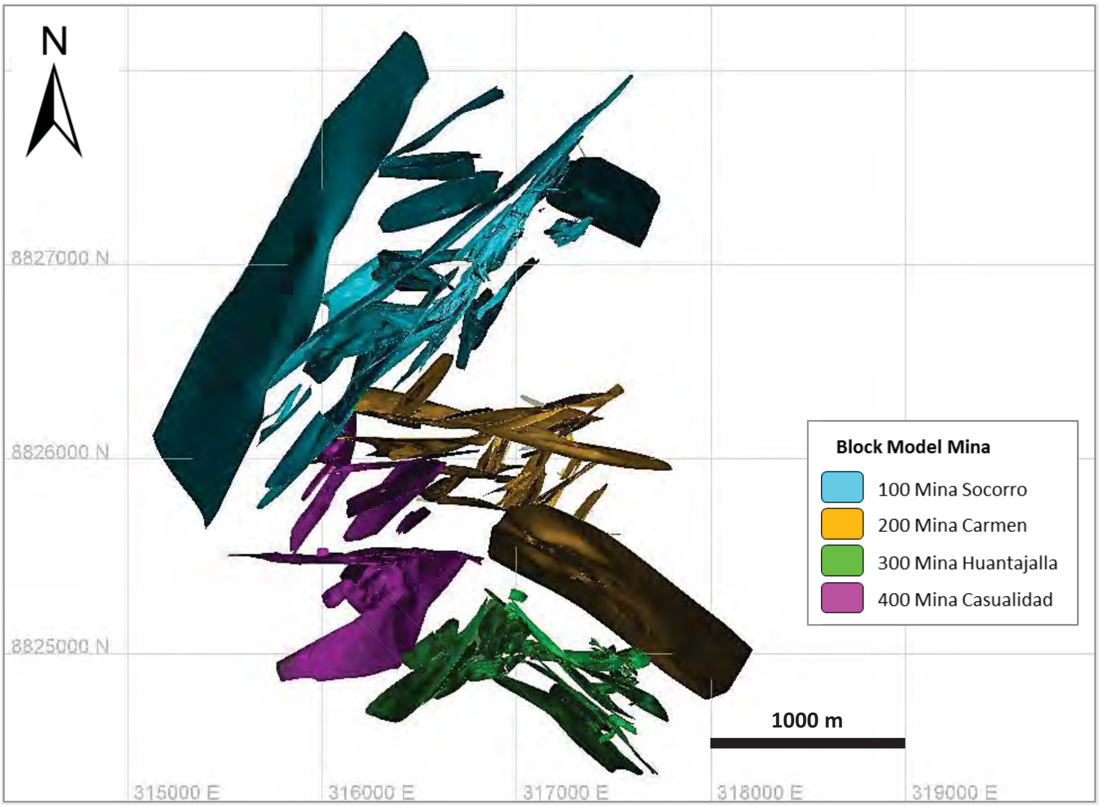


Figure 11-16: Distribution of Uchucchacua block models.

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

11.3.7 Grade Interpolation

The methods used for estimation in Uchucchacua include: Ordinary Kriging (OK), Inverse Distance (ID3), and Nearest Neighbor (NN), the first two will be used to report resources and categorize them; NN, due to its characteristics, will be used to validate the interpolation of OK and ID3 methods. These methods were used for the estimation of the year 2020 and were validated by SRK, however, these elements do not intervene in the calculation of the NSR nor in the commercialization; the estimation is for internal control purposes only.

Estimation Parameters

Parameters were derived from block size selection, search neighborhood optimization, and variogram modeling. Sample data were composited and, when required, capped prior to estimation.

Sample data and blocks were categorized into mineralized domains for estimation. Each block is discretized (a matrix of points to ensure that score variability is represented within the block).

The estimation plan was defined with 4 passes with incremental search radii with outlier restriction; minimum and maximum number of composites; minimum and maximum number of drillholes; and number of composites per drillhole/channel so that the interpolation of grades respects the composite information locally and globally. The fourth pass is to generate potential resources.

Table 11-11 : Estimation parameters of the main veins

Vein	Vein Code	Element	Unit	Pass	Estimator	Major Axis	Semi Axis	Minor Axis	Min. Samples Composites	Max. Samples Composites	Max. composites per Drill
Cachipampa	1060	Ag	oz	1	ok	12	9	6	3	8	2
Cachipampa	1060	Ag	oz	2	ok	24	18	12	3	8	2
Cachipampa	1060	Ag	oz	3	ok	48	36	44	3	8	2
Cachipampa	1060	Ag	oz	4	ok	100	80	60	1	12	2
Cachipampa	1060	Pb	pct	1	ok	15	12	10	3	6	2
Cachipampa	1060	Pb	pct	2	ok	30	24	20	3	12	2
Cachipampa	1060	Pb	pct	3	ok	60	48	40	3	8	2
Cachipampa	1060	Pb	pct	4	ok	120	96	80	1	8	1
Cachipampa	1060	Zn	pct	1	ok	30	45	37	5	10	2
Cachipampa	1060	Zn	pct	2	ok	40	50	45	3	8	2
Cachipampa	1060	Zn	pct	3	ok	60	90	70	3	8	2
Cachipampa	1060	Zn	pct	4	ok	90	120	105	5	10	1
Gina	1130	Ag	oz	1	ok	15	12	3	3	8	2
Gina	1130	Ag	oz	2	ok	30	24	6	3	8	2
Gina	1130	Ag	oz	3	ok	48	36	44	3	8	2
Gina	1130	Ag	oz	4	ok	100	80	60	1	12	2
Gina	1130	Pb	pct	1	ok	15	12	10	3	6	2

Vein	Vein Code	Element	Unit	Pass	Estimator	Major Axis	Semi Axis	Minor Axis	Min. Samples Composites	Max. Samples Composites	Max. composites per Drill
Gina	1130	Pb	pct	2	ok	30	24	20	3	12	2
Gina	1130	Pb	pct	3	ok	60	48	40	3	8	2
Gina	1130	Pb	pct	4	ok	120	96	80	1	8	1
Gina	1130	Zn	pct	1	ok	26	15	12	3	6	2
Gina	1130	Zn	pct	2	ok	52	30	24	3	8	2
Gina	1130	Zn	pct	3	ok	75	45	36	3	8	2
Gina	1130	Zn	pct	4	ok	100	60	50	1	12	2

*The information of selected domains was included.

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

Distance restriction was applied at the time of interpolation for values above the thresholds listed in **¡Error! No se encuentra el origen de la referencia.**. These values were defined based on the Probability plot of each domain (by composites) and the evaluation of their metal content; at the 95-98th percentile of each population, less than 20% of the metal content is generally discounted.

Table 11-12: Table of restrictions for Cachipampa, Gina, Lesly, Lilia, and Luz veins.

Vein	Vein Code	Element	Unit	High Yield Limit	Distance Restriction (m)			Estimator
					High Yield Major	High Yield Semi	High Yield Minor	
Cachipampa	1060	Ag	oz	28	3	3	3	ok
Cachipampa	1060	Pb	pct	17.34	3	3	2	ok
Cachipampa	1060	Zn	pct	19	8	12	10	ok
Gina	1130	Ag	oz	0	3	3	3	ok
Gina	1130	Pb	pct	2.5	3	3	3	ok
Gina	1130	Zn	pct	3.5	3	3	3	ok
Lesly	1160	Ag	oz	35	3	3	3	ok
Lesly	1160	Pb	pct	6	8	7	2	ok
Lesly	1160	Zn	pct	0	7	4	2	ok
Lilia	1200	Ag	oz	0	3	3	3	ok
Lilia	1200	Pb	pct	11.5	8	5	2	ok
Lilia	1200	Zn	pct	4	3	3	3	ok
Luz	1250	Ag	oz	0	3	3	3	ok
Luz	1250	Pb	pct	13	7	7	2	ok
Luz	1250	Zn	pct	0	3	10	2	ok

***The information of selected domains was included.**

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

11.3.8 Validation

Techniques to validate the estimation included visual inspection of the model, with plan, section, and 3D composites; cross validation; validation of global estimates through statistical comparison of average estimated values per domain between the Ordinary Kriging (OK) or inverse distance (ID3) with the nearest neighbor (NN); and validation of local estimates through the generation of Swath Plots.

Cross Validation

When defining the modeled variograms, estimation, and search neighborhoods, there is a range of potential values that can be set. In order to optimize these values, a cross validation was performed. This technique involves excluding a sample point and estimating a grade in its place using the remaining composites.

With this methodology at Uchucchacua, a variety of estimation techniques, search neighborhoods, and variogram models were tested to establish the parameters that provided the most precise result.

Cross-validation results confirmed that ordinary kriging is a reasonable estimation method when sufficient data is available for variogram analysis. For veins with insufficient data, inverse power of distance proved to be a superior estimation technique. Cross validation also helped in adjusting the variogram and search neighborhood parameters, an example of this is shown in **Figure 11-17**.

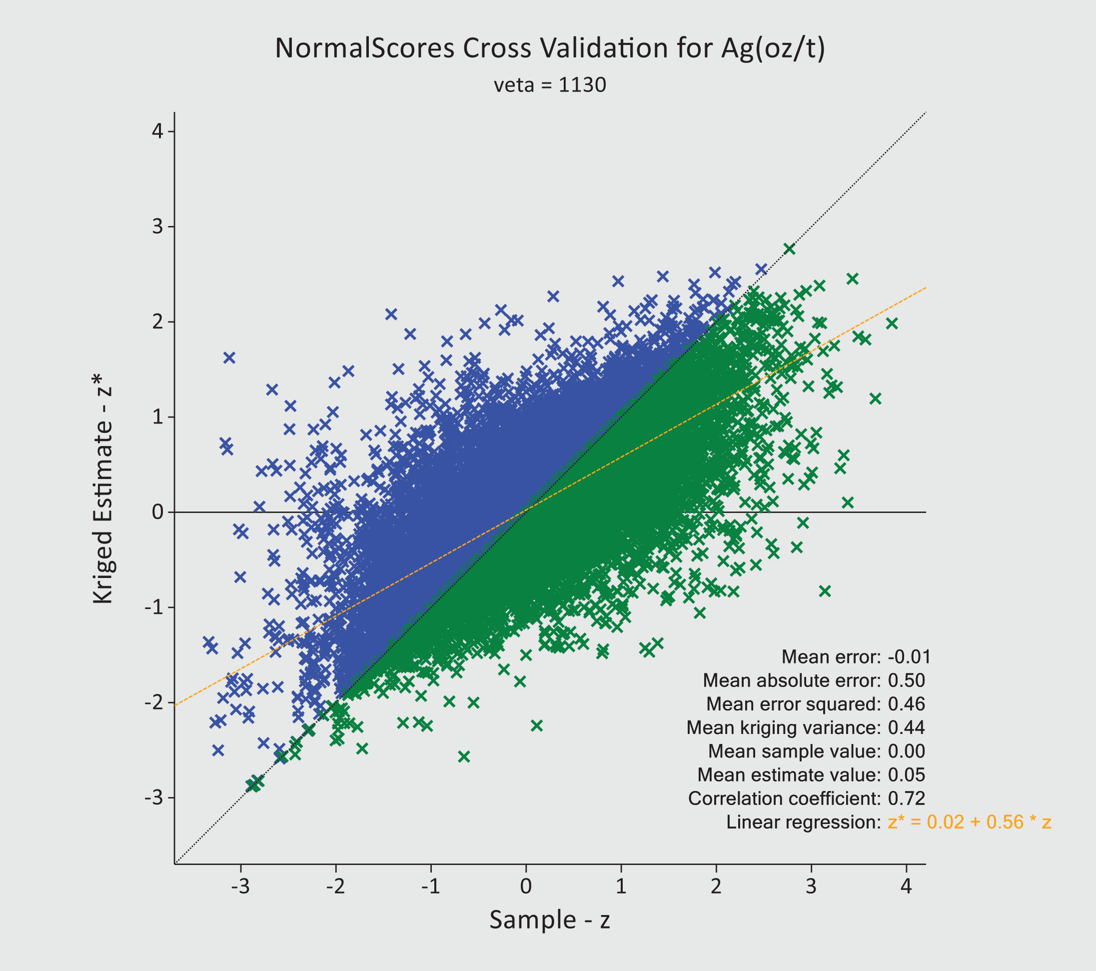


Figure 11-17: Cross Validation of Ag for Gina Vein (1130), showing a correlation coefficient of 0.72.

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

Visual Inspection

Visual inspection is an important tool to detect spatial artifacts; it entails the visual comparison of composites and block grades. This step is also particularly useful to ensure that the block model respects the drillhole data and/or channel samples. Composite data, block model, and geological interpretations were considered for visual examination.

Both drillhole and block coding were checked during the visual inspection to ensure that coding is appropriate and respects the interpretation. Additionally, the estimated grades show a reasonable correspondence between samples and blocks where we have a fair population of drillholes.

Figure 11-18 shows the variation of Ag grades both transversely and longitudinally. The addition of envelopes prevents high grades from being extrapolated to zones with little information (low grade zones).

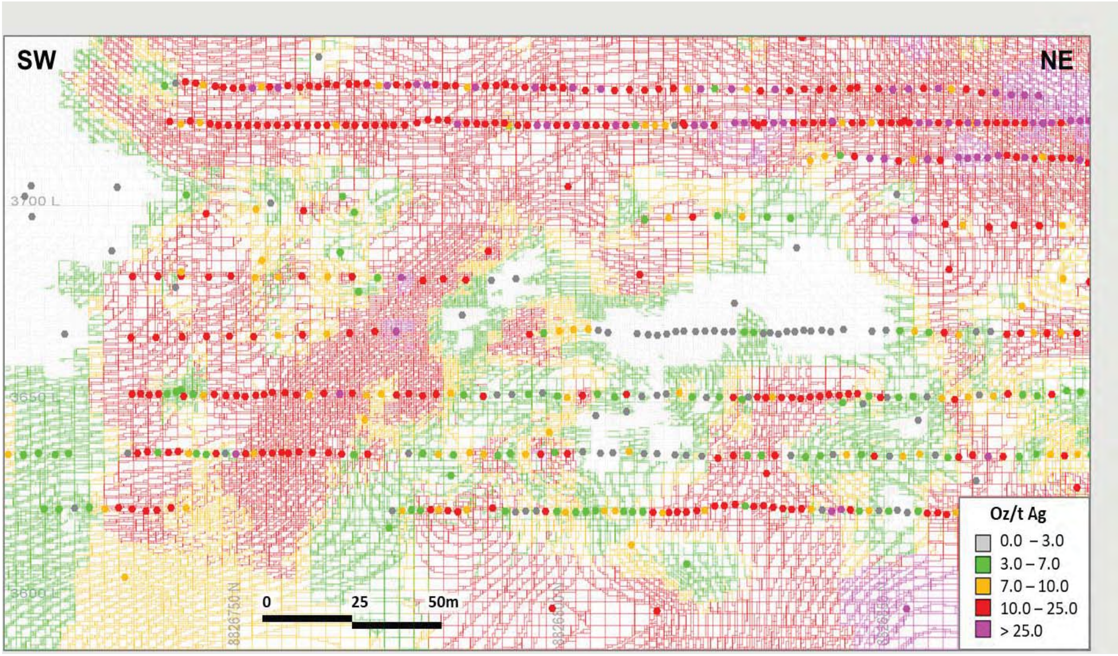


Figure 11-18: Gina-Socorro vein - visual validation.

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

Validation of the Global Estimate

Uchucchacua compared the model estimated with Ordinary Kriging or Inverse Distance vs. the Nearest Neighbor model. The estimation results are considered reasonable, with differences generally below 5%. Differences greater than 5% are due to overestimation of the Nearest Neighbor degree due to the presence of isolated high degree compounds; low overall grade concentrations; or presence in areas classified as inferred resources.

Table 11-13: shows the overall validation results within the Measured and Indicated categories. As can be seen, 90% of results are below ±5%. However, there are some structures with a variation greater than 10%. Upon closer examination, these structures contain isolated high grades in their domains, which have been restricted in the estimation; after analysis, the estimation method with the lowest percentage difference for each vein was chosen.

Table 11-13: Global validation for main veins

							Percentage Diff.	
Vein	Vein Code	Element	Unit	NN	ID	OK	ID-NN	OK-NN
Cachipampa	1060	Ag	oz	4.33	4.33	4.29	0.00%	0.96%
Gina	1130	Ag	oz	14.12	14.17	14.04	-0.37%	0.52%
Lesly	1160	Ag	oz	6.62	6.45	6.51	2.67%	1.63%
Lilia	1200	Ag	oz	17.65	17.37	17.20	1.58%	2.59%
Luz	1250	Ag	oz	12.41	9.85	9.92	26.05%	25.07%
Socorro	1340	Ag	oz	6.50	6.44	6.46	0.93%	0.62%
Sonia Norte	1362	Ag	oz	8.26	8.27	8.24	-0.13%	0.21%
Vanessa	1390	Ag	oz	4.47	4.45	4.45	0.29%	0.43%
Xiomara	1400	Ag	oz	7.40	7.41	7.19	-0.16%	3.01%

							Percentage Diff.	
Vein	Vein Code	Element	Unit	NN	ID	OK	ID-NN	OK-NN
Sistema Giovana	1420	Ag	oz	18.46	17.75	17.58	4.01%	4.98%
CPO Ana Lucia	1430	Ag	oz	16.17	16.61	16.81	-2.66%	-3.80%
CPO Eliana	1441	Ag	oz	13.82	13.57	13.62	1.86%	1.44%
CPO Gio 1	1461	Ag	oz	7.97	8.15	8.42	-2.23%	-5.29%
Rosa	2300	Ag	oz	8.27	8.06	7.97	2.58%	3.74%
Rosa	2300	Zn	pct	0.65	0.63	0.63	3.50%	3.99%
Rosa 2	2310	Ag	oz	9.53	9.04	9.08	5.33%	4.90%
Rosa 2	2310	Zn	pct	0.41	0.42	0.42	-0.48%	-0.48%
Veta 3A	3010	Ag	oz	5.21	5.52	5.44	-5.51%	-4.07%
Veta 4A	3020	Ag	oz	5.18	5.09	5.10	1.69%	1.55%
Sarita	3320	Ag	oz	11.66	11.25	11.43	3.61%	2.00%
CPO Edith	3371	Ag	oz	27.07	27.29	27.19	-0.81%	-0.46%
Jacqueline	4070	Ag	oz	6.67	6.45	6.40	3.41%	4.22%
Sandra	4110	Ag	oz	4.40	4.68	4.91	-5.84%	-10.38%
Violeta	4120	Ag	oz	13.21	13.60	13.64	-2.87%	-3.11%

***The information of selected domains was included.**

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

Local Validation

Validations were generated using Swath Plots of blocks estimated by Ordinary Kriging (OK) and Inverse Distance (ID3) versus their respective Nearest Neighbor (NN) models, and declustered composites for each of the veins in the east, north, and elevation directions to validate the estimates on a local scale with an average bandwidth of 10 meters. Local estimate validation evaluates each model to ensure that the estimation process does not introduce excessive or conditional bias and that there is an acceptable level of score variation.

The plots show good continuity between Ordinary Kriging estimates and declustered nearest neighbor estimates, which indicates that the kriging is not overly smoothed. The areas that do not correlate well, generally at the extremes of veins, are related to areas with limited number of samples. Based on the above results, it was concluded that ordinary kriging was an adequate interpolation method and provided reasonable global and local estimates for all economic metals.

¡Error! No se encuentra el origen de la referencia. shows the swath plot of Sistema Giovana vein (1420), which was executed in all 3 directions. Except for the peaks, which correspond to unconcentrated high grades, we observe that, on average, the estimates by Inverse Distance (n=3) and Ordinary Kriging remain below the average of composites.

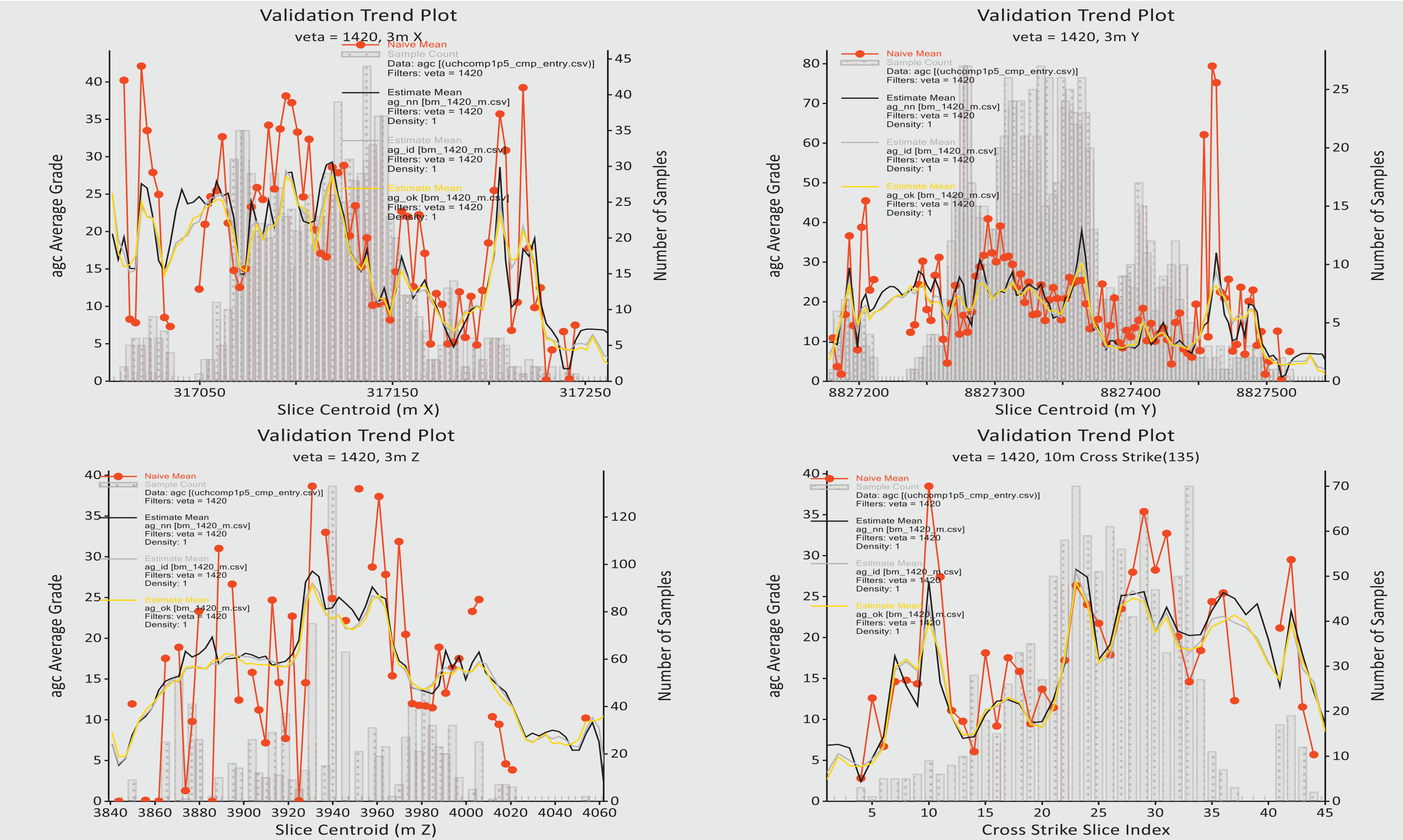


Figure 11-19: Swath plot - veins for Ag (g/t) - Sistema Giovana Vein (1420) - Axis X, Y, Z, and 135°

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

11.3.9 Depletion

Minera Uchucchacua identifies mined zones with coding to exclude them from resource reports. All underground developments and pits are regularly surveyed using topographic methods with total station equipment. The survey data generates mining polygons and then three-dimensional solids which are identified within the "Type=1" resource models. 3D solids are used to identify the resource blocks that have been mined.

Removal of extracted material often leads to the following: blocks of resource remain in the model that will likely never be mined. These represent unavoidable components of mining, such as pillars and crown pillars, or material that due to problems in mining was left unextracted. Minera Uchucchacua's planning department identified areas as fully mined, and the remaining blocks within these areas were identified in the block model with the code "Condition = 1, 2, and 3" and excluded from the reported Mineral Resources as shown in **¡Error! No se encuentra el origen de la referencia.**.

Table 11-14: Values assigned to the condition variable.

Classification	Value	Type
Mineral	0	Mineral In Situ
	1	Mineral Extracted
Remnant	0	In Situ Resource
	1	Pillars
	2	Crown pillars
	3	Crusts or Remnants (Mining Loss)

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

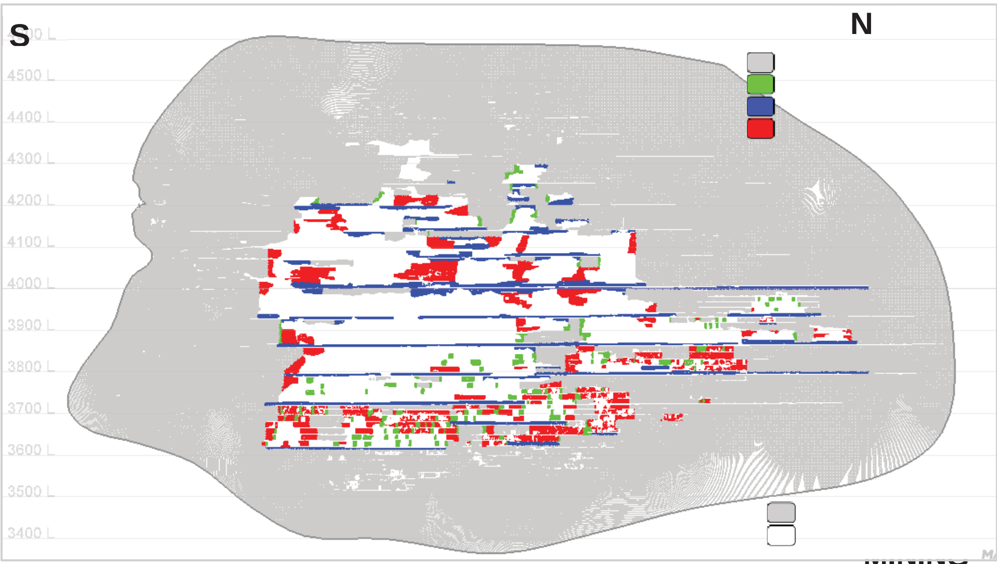


Figure 11-20: Classification by mining and condition variables in Gina vein

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

Finally, zones that comply with: Mining = "0 - Mineable Zone" and Condition = "0 - Mineable" are reported, these conditions are shown in Figure 11-20.

11.3.10 Bulk Density

A total of 984 density measurements have been made at the Uchucchacua unit; these density samples correspond to 112 veins representing 5 domains. Outliers that are not representative of the sample population were discarded reducing the total density measurement numbers used in the analysis to 948. The veins that have no density sample information were associated according to their mineralogical characteristics, location, structural family, and tectonic regime with veins that did have density samples.

The calculation of overall statistics was performed with data filtered by limits of Mean ± 2 Standard Deviation without Independent Veins (domain, lithology, alteration, etc.) and by domain (**¡Error! No se encuentra el origen de la referencia.**), then the statistics of data filtered by limits of Mean ± 2 Standard Deviation for Independent Veins were calculated (**¡Error! No se encuentra el origen de la referencia.**).

Table 11-15 : Density(g/cm³) statistics with data filtered by Mean ± 2SD without considering independent veins

Descriptive Data		Statistics											
Zone	**Domain**	**# Data**	**Minimum**	**Maximum**	**Range**	**Mean**	**Median**	**Standard Deviation**	**Variance**	**CV**	**Standard Error**	**Skewness**	**Kurtosis**
Socorro	Vein	363	2.68	5.19	2.51	3.89	3.93	0.574	0.329	0.148	0.0301	-0.198	-0.856
	Host rock	51	2.66	2.86	0.2	2.75	2.75	0.0463	0.00214	0.017	0.00648	0.163	-0.0826
Carmen	Vein	26	2.97	4.12	1.15	3.53	3.57	0.315	0.099	0.089	0.0617	-0.113	-0.883
	Host rock	3	2.46	2.7	0.24	2.62	2.7	0.139	0.0192	0.053	0.08	-1.73	-
Huantajalla	Vein	94	2.93	4.17	1.24	3.64	3.66	0.261	0.0679	0.072	0.0269	-0.309	-0.0527
	Host rock	20	2.43	2.99	0.56	2.72	2.73	0.0963	0.00927	0.035	0.0215	-0.392	7.3
Casualidad	Vein	118	2.62	4.53	1.91	3.46	3.49	0.444	0.197	0.129	0.0409	0.0837	-0.68
	Host rock	8	2.53	2.95	0.42	2.74	2.75	0.118	0.0139	0.043	0.0416	-0.105	2.11
Mn	Vein	46	2.74	3.72	0.98	3.22	3.26	0.281	0.0791	0.087	0.0415	-0.00522	-1.116
	Host rock	5	2.68	2.76	0.08	2.73	2.74	0.0327	0.00107	0.012	0.0146	-0.849	-0.666
	Oxides	11	1.18	3.16	1.98	2.14	2.15	0.603	0.363	0.281	0.182	-0.17	0.0634

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

Table 11-16: Density(g/cm³) statistics of independent veins with data filtered by Mean ± 2SD

Descriptive Data		Statistics											
Zone	**Domain**	**# Data**	**Minimum**	**Maximum**	**Range**	**Mean**	**Median**	**Standard Deviation**	**Variance**	**CV**	**Standard Error**	**Skewness**	**Kurtosis**
Independent Veins	1130	151	2.65	4.64	1.99	3.55	3.46	0.544	0.296	0.153	0.0443	0.35	-0.86
	3010	10	2.96	3.9	0.94	3.53	3.6	0.325	0.106	0.092	0.103	-0.483	-1.12
	1441	7	2.69	3.95	1.26	3.55	3.67	0.414	0.171	0.117	0.156	-1.78	3.79
	1160	5	2.76	3.62	0.86	3.03	2.89	0.354	0.126	0.117	0.158	1.55	2.18
	1461	30	2.73	3.74	1.01	3.08	3.07	0.291	0.0845	0.094	0.0531	0.467	-0.861

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

11.3.11 Resource Classification and Criteria

The Confidence Limits methodology was used to categorize the resources. First, the panel that will be evaluated is defined according to the production volume of a month (Table 11-17:).

Table 11-17: Defining the panel to be evaluated

UCHUCCHACUA CONFIDENCE LIMITS	
Tonnes per day	3,000
Tonnes per month	90,000
Tonnes per quarter	270,000
Volume per quarter (SG = 2.6)	26,471
Volume 50x50x10m block	30,000

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

A fictitious drilling pattern is defined every 10 meters, results are shown in Table 11-18: . Based on EDA and variography, the Kriging variance (OKV) and the Coefficient of variation (CV) of composites are determined. These two parameters are used to calculate the Relative Standard Error (RSE) and subsequently the Confidence Limit at 90% for an annual production volume (A90%), and the Confidence Limit at 90% for a quarterly production volume (Q90%).

Table 11-18: Calculation of A90% and Q90%, based on OKV and CV for each spacing

				Ind.	Meas.			
Spacing	**CV Comp**	**OKV**	**RSE**	**A90%**	**Q90%**	**Slope**	**BDV**	**KV/BDV**
100x100	1.110	0.0564	0.26	13%	26%	0.41	0.023	2.51
80x80	1.110	0.0653	0.28	14%	27%	0.29	0.023	2.90
60x60	1.110	0.0648	0.28	14%	27%	0.30	0.023	2.88
50x50	1.110	0.0637	0.28	14%	27%	0.32	0.023	2.83
40x40	1.110	0.0556	0.26	13%	25%	0.44	0.023	2.47

Source: BVN

A90% and Q90% values are plotted on a graph versus spacing in Figure 11-21.

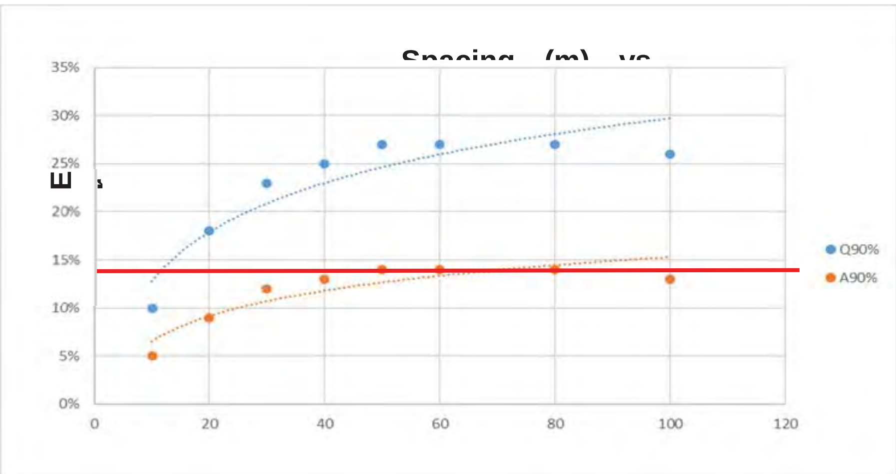


Figure 11-21: Spacing vs Error plot for Vein 2090

The mesh for indicated resources is defined in 15% of annual errot; and for measured resources is defined in 15% (0.15)(Red Line) of quarterly error (10%)

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

Finally, the Measured Resource is represented by spacing with a margin of error less than or equal to 15% at Q90% while the Indicated Resource is represented by the spacing with a margin of error less than or equal to 15% at A90%. These values are calculated from the graph in Table 11-19:.

The variable "d3h_avgdist_anisot" was calculated as the average anisotropic distance of the three closest drillholes. Based on this variable and number of holes involved in the block estimation, categorization was performed.

In this way, the estimation parameters at Uchucchacua Mine have been simplified, considering:

- Measured resource, when there are 3 or more drill holes within a 10 m search radius.
- Indicated resource, when there are 2 or more drill holes within a 28 m search radius.
- Inferred resource, when there is 1 or more drill holes within a 60 m search radius.

In addition to the process described above, a procedure for smoothing the categorization has been defined to eliminate any risk of generating the "spotted dog" effect. Minera Uchucchacua generated polygons based on the initial categorization in measured and indicated resources to adequately manage the distribution of resource categorization and its continuity. **Table 11-19**: below shows the summary criteria of distance between samples and number of drillholes for each category. As a result, a classification like the one shown in **Figure 11-22** for the Gina-Socorro vein is obtained.

Table 11-19: Categorization summary table

Category	Distance(m)	Pass	No. of Drills
Measured	0 to 10	<=3	>=3
Indicated	0 to 10	<=3	2
	10 to 20	<=3	>=2
Inferred	0 to 20	<=3	1
	20 to 60	<=3	>=1

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

In addition to the described procedure, a number of aspects affecting confidence in the estimate were considered for resource classification at Minera Uchucchacua, such as:

- Geological continuity (including geological understanding and complexity).
- Data density and orientation
- Data accuracy and precision
- Grade continuity (including spatial continuity of mineralization)
- Density sampling

Geological continuity

Substantial geological information exists to support a good understanding of the geological continuity on Minera Uchucchacua's property. Detailed surface mapping that identifies vein structures is supported by extensive exploration drilling.

Minera Uchucchacua's exploration geologists record drill cores in detail, including textural, alteration, structural, geotechnical, mineralization, and lithological properties, and continue to develop a detailed understanding of the geological controls on mineralization.

Understanding of vein systems is greatly enhanced by the presence of extensive underground workings, which allow for detailed geology mapping. Underground observations have greatly increased the ability to accurately model mineralization. The proximity of resources to underground workings was considered during resource classification.

Data density and orientation

The estimate is based on two types of data, drillhole and channel samples. Minera Uchucchacua has explored the veins using a drilling pattern spaced approximately 60 m apart along strike. Each drillhole is intended to intercept the vein perpendicular to the mineralization strike, but in most intercepts the actual intercept angle varies between 70 and 90 degrees.

Exploration drilling data is supplemented by a wealth of underground information, including channel samples taken at approximately 3 m intervals perpendicular to the strike of mineralization. Geological confidence and quality of estimation are closely related to data density, and this is reflected in the classification of resource confidence categories.

Data accuracy and precision

Resource confidence classification is also influenced by the accuracy and precision of available data. The accuracy and precision of data can be determined by QAQC programs and through an analysis of the methods used to measure data.

SRK has noted that the database has a number of minor findings or inconsistencies, the vast majority of which are historical information derived from data migration; however, they have no significant impact on the Resource Estimate.

Spatial Continuity

Spatial continuity of values, as shown in the variogram, is an important consideration when assigning resource classification. The variogram characteristics greatly influence estimation quality parameters such as kriging efficiency and slope of regression.

The nugget effect and short-range variance characteristics of the variogram are the most important measures of continuity. For the Uchucchacua veins, the variogram nugget variance for Ag is between 6% and 25% of the population variance, demonstrating the low variability of this precious metal. This shows that, in general, silver grades have good continuity over short distances, resulting in higher confidence in these estimated grades. The variogram nugget variance for Pb and Zn is higher and is between 4% and 55%. This shows that, in general, lead and zinc grades also have good continuity over short distances, resulting in higher confidence in these estimated grades.

Density Samples

Density samples are not representative of the entire deposit; 112 veins out of a total of 275 veins that are included in this report have density sampling. The veins without density samples were associated with other veins as they have the same mineralogical characteristics, location, structural family, and tectonic regime. The distribution of density samples in each of the veins does not cover all vein levels; in many cases samples were taken only in the mined levels, which could generate an underestimation or overestimation in the average values used. The limited information compiled for density is one of the factors for not reporting measured resources in certain veins.

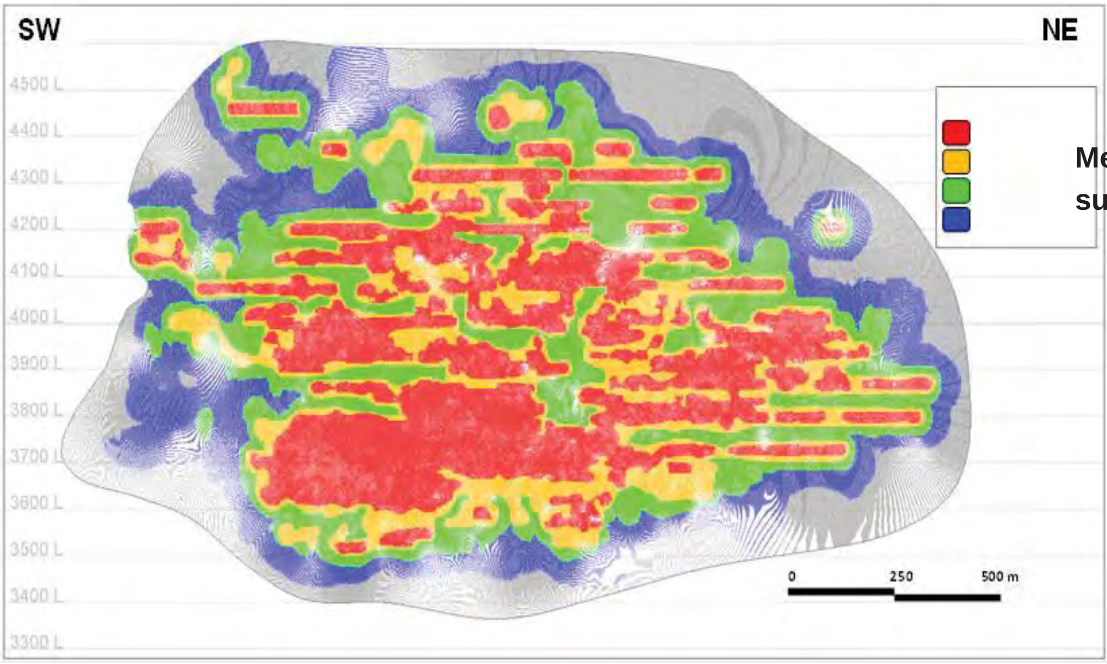


Figure 11-22: Block classification of Gina-Socorro vein.

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

11.4 Cut-Off Grade Estimates

The cut-off value used to report mineral resources is based on the average operating costs for the operation 2021 as determined by the finance and operations departments of Uchucchacua Mine. There are two extraction methods (Bench & Fill and Cut & Fill) divided into 2 circuits (the first corresponds to the high-grade silver circuit and the second corresponds to the polymetallic circuit) as shown in **¡Error! No se encuentra el origen de la referencia.**, that have been taken into account to determine the value of Mineral Resources cutoff during 2021.

The veins selected by the planning area for extraction with the Bench & Fill mining method for circuit 1 have a variable cost of US$/t 68.28 (Mining, processing and off-site costs). Taking into account a 10% contingency on mining and processing costs a final NSR marginal cut-off value of US$/t 74.99 was defined for this method, which is applied to the Angelica, Camucha, Deyssi, Gina, Lesly, Rita, Rosa and Liliana veins. The veins that can be extracted using the Bench & Fill mining method for circuit 2 have a variable cost of US$ 52.85/t. Taking into account a 10% contingency on mining and processing costs a final NSR marginal cut-off value of US$/t 58.01 was defined for this method, which is applied to the Andrea 1, Cachipampa, Lesly Sur, Luz, Sonia, Vanessa and Socorro 3 veins.

The veins selected by the planning area for extraction with the Cut & Fill mining method for circuit 1 have a variable cost of US$/t 76.00 (Mining, processing and off-site costs). Taking into account a 10% contingency on mining and processing costs a final NSR marginal cut-off value of US$/t 83.48 was defined for this method, which is applied to the Brenda, Irma Viviana, Nora, Petra Branch, Guisel, Jackie, Karina and Marcia veins. The veins that can be extracted using the Cut & Fill mining method for circuit 2 have a variable cost of US$/t 60.57. Taking into account a 10% contingency on mining and processing costs a final NSR marginal cut-off value of US$/t 66.50 was defined for this method, which is applied to the Ada 2, Ada, 7A, Edith and Providencia veins.

Table 11-20: Cut Off grade calculation for Resources

	Variable Cost (US$/t) *			
	Circuit 1		Circuit 2	
Area	**Bench & Fill**	**Cut & Fill**	**Bench & Fill**	**Cut & Fill**
Mine	39.26	46.98	39.26	46.98
Plant Circuit 1	27.76	27.76	12.33	12.33
Off-Site costs	1.26	1.26	1.26	1.26
Sub-Total Variable Costs	**68.28**	**76.00**	**52.85**	**60.57**
Contingency (10%) **	6.71	7.48	5.16	5.93
Marginal Cut-Off Value * **	**74.99**	**83.48**	**58.01**	**66.50**

Source: Buenaventura

** For the Marginal cut off Value estimation was considered the variable costs*

*** Contingency is applied only on the mining and processing costs*

**** Marginal cut-off value includes contingency*

The following considerations were taken into account in the reporting of resources:

Ore mined: the mining variable provides this information where value 0 means available and value 1 means mined. For the report, the value used was value 0.

Crusts, crown pillars, and pillars: the condition variable provides this information, where 1 represents the blocks that are deducted and 0 represents the blocks that remain in resources. For the report, the value used was value 0.

Category: the category variable provides this information, where 1: measured, 2: indicated, 3: inferred, 4: potential.

NSR (Net Smelter Return) calculation considers variable metallurgical recoveries according to grade ranges and metal prices (Table 11-21).

Table 11-21: NSR calculation formula

Unit	**NSR Formula**
Uchucchacua	Ag grade (oz/t/t)*16.84*Ag Recovery(oz/t/t) + Pb grade (%)*10.10*Pb Recovery(%)+ Zn grade (%)*9.24*Zn Recovery(%)

Source: BVN

It is the opinion of the QPs that by reporting resources based on actual mining, processing and smelting costs; actual metallurgical recoveries achieved at the plant; reasonable long-term metal prices; and the application of transparent court laws, mineral resources have "reasonable prospects for economic extraction."

11.5 Reasonable Potential for Economic Extraction (RPEE)

To prove reasonable perspectives for an economic extraction, Uchucchacua Mine constructed restrictive conceptual stopes for the mineralized structures using Deswik Stope Optimizer ™; this included measured, indicated and inferred mineralized material; considered the structure’s width as well as the net smelter return (NSR); and was limited to a differentiated Cut Off to limit the stopes generated.

- Stope height: 3.00 m
- Stope length: 3.00 m
- Minimum width: 0.75 m
- Optimization variable: NSR
- Optimization is performed following the azimuth of the vein, with a tolerance of 90°.
- Cut-Off: Differentiated by Mining Method, as shown in the Table 11-22:

Table 11-22: Cut-Off differentiated by mining method

Mining Method	Metallurgical Circuit	
	Circuit 1	Circuit 2
Bench & Fill	74.99	58.01
Cut & Fill	83.48	66.5

Source: Buenaventura Planning Area (Buenaventura, 2021)

- Circuit 1 or high-grade Ag circuit and circuit 2 or polymetallic circuit.
- It is considered within the optimization of Measured, Indicated and Inferred Resources in the same process.
- Measured, Indicated and Inferred Resources are considered within the optimization in the same process.

Additional terms Deswik

- Pillar Length: 0.01 m

The information received from the Planning area includes the resource model, stope control surfaces and stope geometry controls; this information is crossed with the wireframe files, string files and the files are verified to obtain a detailed summary of resources, such as shown in **Figure 11-23**.

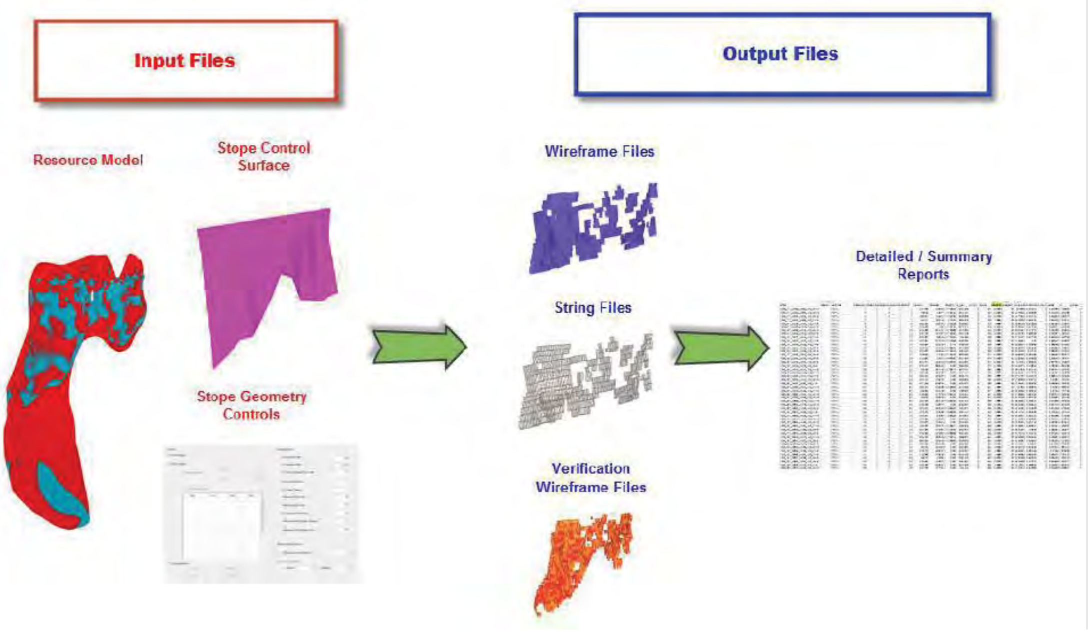


Figure 11-23: Input and output files after RPEE analysis

Source: Buenaventura Planning Area (Buenaventura, 2021)

11.6 Uncertainty

SRK evaluated the uncertainty of Mineral Resources considering the following items:

- Database and QAQC: the database is in an MsSQL engine and the storage structure has been generated in Acquire software. For information management, an InHouse BVN implementation is used, which guarantees the traceability of information. SRK evaluated the documents supporting (certificates) this information and was able to identify that around 25% had no such support documents, mainly for information collected prior to 2010. In the case of QAQC, problems were identified with accuracy and precision (especially for duplicates).
- Density: only the 112 most important veins have been sampled to obtain density measurements. SRK has defined a methodology to assign density values to unsampled veins that clusters by geological similarity to the 112 sampled veins. SRK recommends improving the distribution of density samples in subsequent updates to cover the entire volume of structures and include density interpolations in line with industry best practices.
- Geological Model: the deposit has a lithological and structural model with a basic level of detail, which facilitates efforts to identify litho-structural domains in the deposit. Additionally, Uchucchacua has defined solids that represent the deposit's mineralized structures; these are prepared based on mapping, channel sampling, and drillhole information. SRK reviewed the solids for 58 major veins in the deposit (representing about 75% of Measured and Indicated Resources) and believes that these have been prepared consistently. Given the importance of this deposit structure, SRK recommends creating and periodic updating information to add further detail to the structural model.
- Resource Estimation: the process has been carried out following Best Practices for Resource Reporting proposed by the CIM. During the Exploratory Data Analysis, BVN assigned boundedness that in SRK's opinion are conservative, which makes grade estimation in the deposit conservative as well. The existence of artifacts was visually checked as the estimation is highly local. SRK recommends using search parameters and block size to provide a smoothed estimate. Other stages of the estimation process have also been reviewed by SRK, and the results can generally be validated satisfactorily.
- Resource categorization: the criteria used consider the number of composites and the average distance of three initially closest drillholes. Some artifacts generated by grade extrapolation are generally outside of the ore considered a Mineral Resource. After the first stage of categorization, BVN performed an additional process to avoid the Spotted Dog effect and downgraded Measured and Indicated Resources generated in veins of less than 5 kt to Inferred Resources (these Resources are usually generated around drillhole sampling and workings). The Spotted Dog effect was eliminated in 58 veins subject to classification smoothing; the remaining veins continue to exhibit this effect. Consequently, this risk was downgraded to a lower category than initially reported. In SRK's opinion, the categorization is relatively conservative for Measured, Indicated, and Inferred Resources. The current classification reduces the risk of potential overestimation.
- No reconciliation information is available to validate the results between estimates and ore processing results. For the next update, to faciltate resource and reserve validations processes, it is important to incorporate the results of a reconciliation of main processes as well as results from resource models and the metallurgical plant.

Based on the level of uncertainty outlined above and the means designed to address uncertainty in the estimation - categorization process, SRK believes that the stated mineral resources are appropriate and adequate for public disclosure.

11.7 Summary Mineral Resources

The summary of variables and filters used in the report are listed in ¡Error! No se encuentra el origen de la referencia..

Table 11-23: Description of variables and condition used for reporting

Variable	Description	Default	Condition
Ag_oz	Ag content in ounces	0	-
Ag_ppm	Ag content in ppm	0	-
Category	Category 1: measured, 2: indicated, 3: Inferred, 4: Potential	0	-
Density	Density in g/cm³	-	-
Fe_pct	Iron content in %	0	-
Mn_pct	Manganese content in %	0	-
Pb_pct	Lead content in %	0	-
Vein	Vein code	-	-
Zn_pct	Zinc content in %	0	-
Mining	0: available, 1: mined	0	Mining = 0
Condition	Deductions for crown pillars, crusts, and pillars 0: available 1: not available	0	Condition = 0
NSR (Cut-off)	Net Smelter Return in US$/t (considers variable recoveries)	0	NSR >= 70

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

Table 11-24: Mineral Resource Statement

Resource Report as of June 30, 2021
Unit: Uchucchacua
Date: 03/16/2022
Summary Resources- Cut-off Differentiated

Zone	**Category**	**Tonnes**	**Ag**	**Pb**	**Zn**	**Mn**	**Fe**	**NSR**	**Width**
		(000)	**oz/t**	**PCT**	**PCT**	**PCT**	**PCT**	**US$/t**	**m**
Carmen	Measured	143	7.84	0.74	1.16	6.00	1.13	126.70	1.71
	Indicated	311	9.04	0.90	1.18	6.44	3.10	147.00	2.01
	Measured & Indicated	454	8.66	0.85	1.17	6.30	2.48	140.61	1.91
	Inferred	2,344	14.54	1.09	1.33	7.03	3.43	236.25	3.50
Casualidad	Measured	18	6.90	1.53	2.04	3.83	4.64	127.77	1.44
	Indicated	125	6.70	1.55	2.98	2.83	7.51	133.17	1.85
	Measured & Indicated	143	6.73	1.54	2.86	2.95	7.15	132.49	1.79
	Inferred	381	8.98	2.37	3.21	3.14	8.89	178.22	2.05
Huantajalla	Measured	9	16.37	1.66	2.20	3.33	9.73	281.40	1.51
	Indicated	92	11.06	1.61	1.95	5.50	10.03	193.04	2.15
	Measured & Indicated	101	11.54	1.61	1.97	5.31	10.00	200.97	2.09
	Inferred	808	13.74	2.01	2.43	4.00	11.07	242.85	2.31
Socorro	Measured	450	7.86	1.14	1.83	7.44	4.71	136.90	1.72
	Indicated	1,079	7.38	1.06	1.90	7.55	5.74	129.38	2.07
	Measured & Indicated	1,529	7.52	1.08	1.88	7.52	5.44	131.59	1.97
	Inferred	3,496	9.69	1.54	2.62	7.24	7.38	176.01	2.85
Total	Measured	620	7.95	1.06	1.69	6.94	3.96	136.38	1.71
	Indicated	1,607	7.86	1.10	1.85	6.85	5.61	136.71	2.04
	Measured & Indicated	2,227	7.88	1.09	1.80	6.87	5.15	136.62	1.95
	Inferred	7,029	11.73	1.49	2.20	6.58	6.57	203.90	2.96

Note: Resources do not include reserves, no ore loss or dilution has been included.
The prices used are US$ 25.00 per ounce Ag, US$ 2,286.00 per MT Pb, US$ 2,385.00 per MT Zn
Source: BNV

Table 11-25: Summary excluded Mineral Resources

Classification	Tonnes	Ag	Pb	Zn	Mn	Fe	NSR	Width
	(000)	oz/t	pct	pct	pct	pct	US$/t	m
Measured	620	7.95	1.06	1.69	6.94	3.96	136.38	1.71
Indicated	1,607	7.86	1.1	1.85	6.85	5.61	136.71	2.04
Measured & Indicated	2,227	7.88	1.09	1.8	6.87	5.15	136.62	1.95
Inferred	7,029	11.73	1.49	2.2	6.58	6.57	203.9	2.96

Source: BVN

Notes on mineral resources:

- Mineral Resources are defined by the SEC Definition Rules for Mineral Resources and Mineral Reserves.
- Mineral Resources are exclusive of Mineral Reserves
- Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability
- The reference point for the Mineral Resources estimate is insitu. Mineral Resources were estimated as of june 30,2021. The estimate has an effective date of 31 december, 2021. The Qualified Person Firm responsible for the resource estimate is SRK Consulting (Peru) S.A.
- Mineral Resources are reported above a differentiated NSR cut-off grade for structures based on actual operating costs
- Metal prices used in the NSR assessment are US$27.5/oz for silver, US$2,515/t for lead and US$2,624/t for zinc.
- Extraction, processing and administrative costs used to determine NSR cut-off values were estimated based on actual operating costs as of 2021
- Cesar Cerdán, Engineer. (AIG #7206) is the Qualified Person for the resources being an employee of SRK Consulting Peru.
- Tons are rounded to the nearest thousand
- Totals may not add due to rounding.

11.7.1 Mineral Resources Sensitivity

Factors that may affect estimates include metal price and exchange rate assumptions; changes in the assumptions used to generate the cut-off grade; changes in local interpretations of the geometry of mineralization and continuity of mineralized zones; changes in geological form and mineralization and assumptions of geological and grade continuity; variations in density and domain assignments; geometallurgical assumptions; changes in geotechnical, mining, dilution and metallurgical recovery assumptions; changes in design and input parameter assumptions pertaining to conceptual stope designs that constrain estimates; and assumptions as to the continued ability to access the site, retain title to surface and mineral rights, maintain environmental and other regulatory permits, and maintain the social license to operate.

There are no other known environmental, legal, title, tax, socioeconomic, marketing, political or other factors that could materially affect the estimate of Mineral Resources or Mineral Reserves that are not discussed in this Report.

A grade-tonnage curve was estimated for each mining method to show the effect of varying the NSR cut-off value in tons and the NSR value (**Figure 11-24**, **Figure 11-25**, **Figure 11-26** and **Figure 11-27**).

Metallurgical Circuit 1: High Grade Ag Circuit

Bench & Fill Measured & Indicated Resources

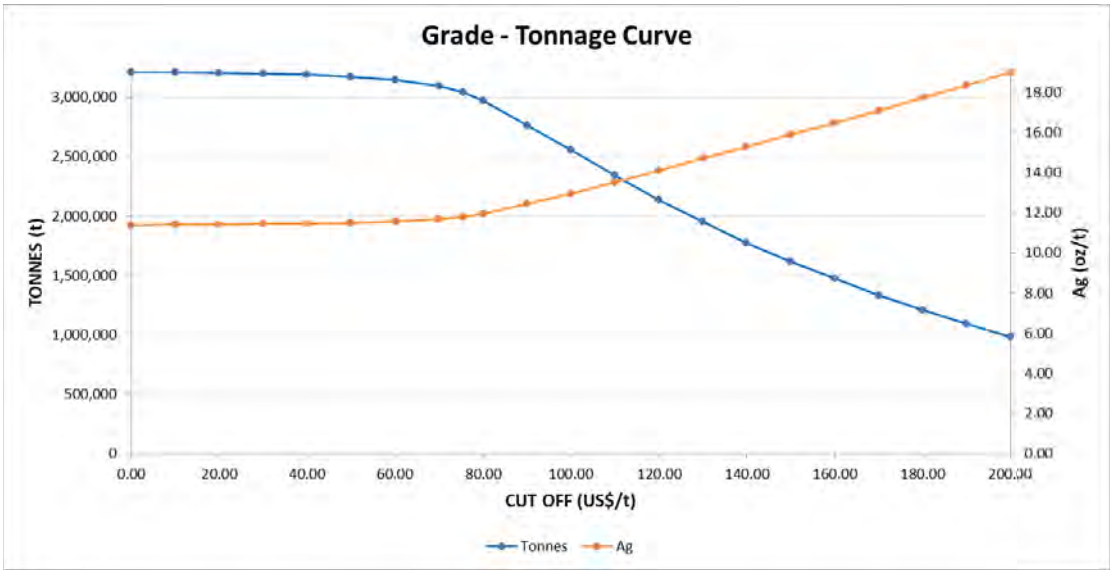


Figure 11-24: Grade-Tonnes curve for Bench & Fill at High Grade Ag circuit.

Source: Buenaventura Planning Area (Buenaventura, 2021)

Cut & Fill Measured & Indicated Resources

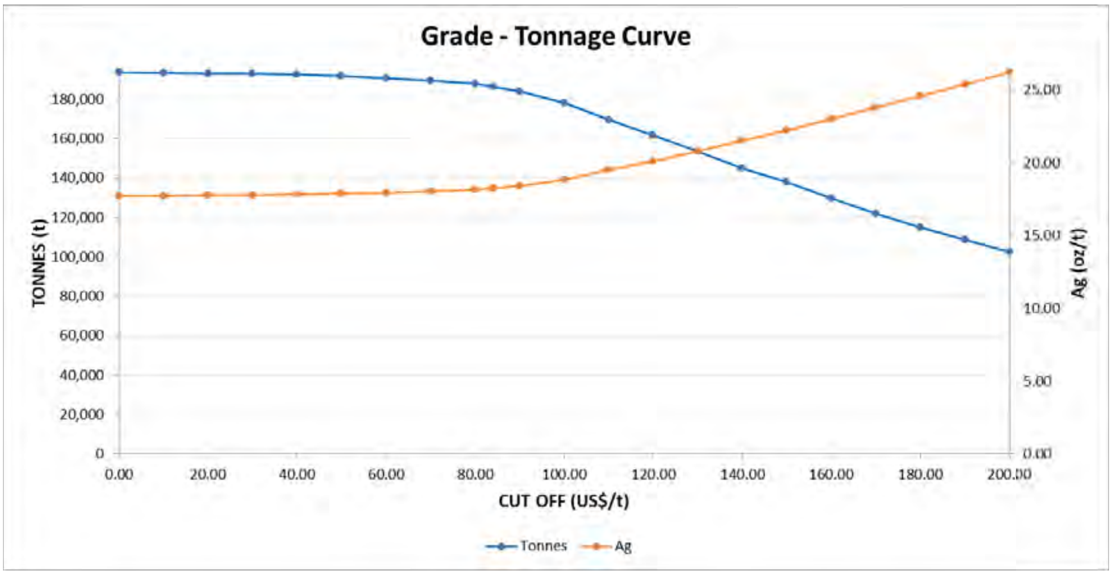


Figure 11-25: Grade-Tonnes curve for Cut & Fill at High Grade Ag circuit

Source: Buenaventura Planning Area (Buenaventura, 2021)

Metallurgical Circuit 2: Polymetallic Circuit

Bench & Fill Measured & Indicated Resources

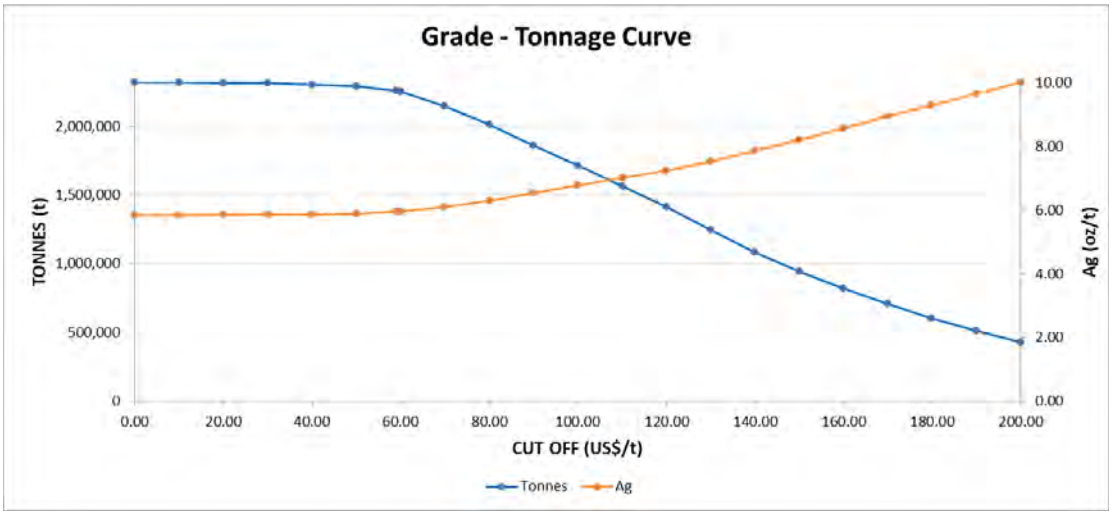


Figure 11-26: Grade-Tonnes curve for Bench & Fill at Polymetallic circuit

Source: Buenaventura Planning Area (Buenaventura, 2021)

Cut & Fill Measured & Indicated Resources

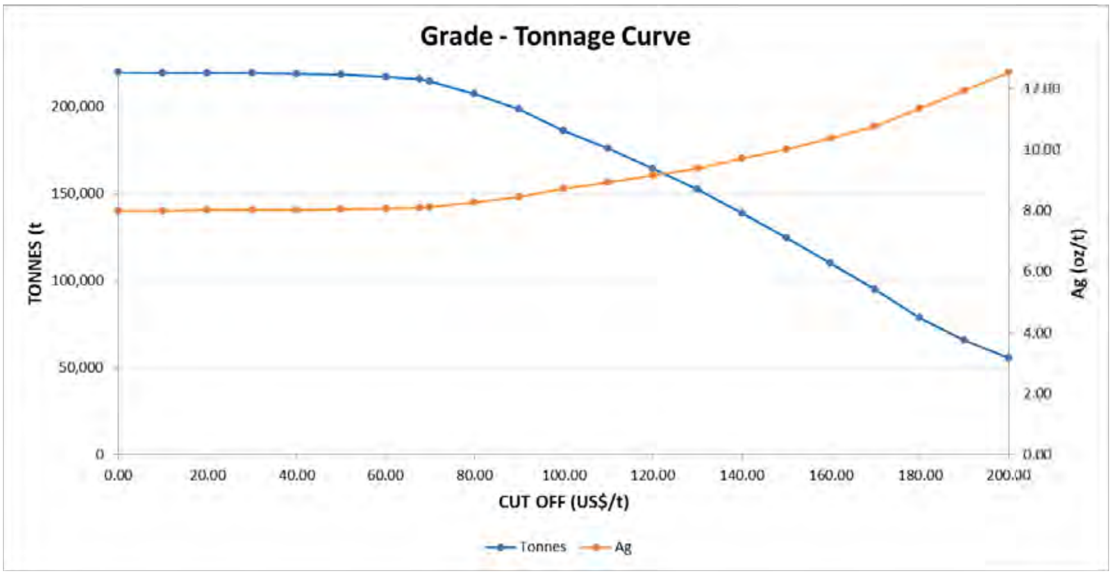


Figure 11-27: Grade-Tonnes curve for Cut & Fill at Polymetallic circuit

Source: Buenaventura Planning Area (Buenaventura, 2021)

11.8 Opinion On Influence for Economic Extraction

The QP is of the opinion that the Mineral Resources for the Uchucchacua Mine, which have been estimated using core drill and channel data, have been performed in accordance with industry best practices and with the regulations of SEC S-K 1300.The Mineral Resources are acceptable to support the declaration of Mineral Reserves. Furthermore, the QP is opinion that, based on the fact that Uchucchacua performs an annual depletion exercise where material identified as inaccessible to underground mining due to economic or geotechnical reasons is sterilized, and given that the unit's resource evaluation is based on actual mining, processing and smelting costs; actual metallurgical recoveries achieved in the plant; reasonable long-term metal prices; and the application of a transparent cut-off grade, the Mineral Resources have 'reasonable prospects for economic extraction.'

B.- Yumpag Unit

11.9 Key Assumptions, Parameters, and Methods Used

The 2021 Mineral Resource estimates at the Yumpag Project (Camila, Candela, Carmela, La Nena, Natalia, Tensional and Carolina Bodies) were prepared in the following steps by BVN and supervised by SRK:

- Data validation
- Data preparation, including import into various software packages.
- Review of geological interpretation and modeling of mineralization domains
- Coding of drillhole and channel data within mineralized domains
- Sample length composition of both drill holes and channel samples
- Analysis of extreme data values and application of top cut
- Analysis of exploratory data of the key elements: silver and density
- Analysis of boundary conditions
- Analysis and modeling of variograms
- Estimation plan
- Kriging neighborhood analysis and creation of block models
- Grade interpolation of Ag and sample length, assignment of density values
- Validation of grade estimates against original data
- Classification of estimates with respect to the CIM guidelines
- Assignment of an NSR based on long-term metal prices, metallurgical recoveries, smelter costs, commercial contracts and average concentrate grades.
- Exhaustion of blocks identified as mined or inaccessible
- Tabulation and reporting of mineral resources based on NSR cut-off grades

Reviewed methodology, estimation results, and updated metal prices, recoveries, and costs applied to the calculation of NSR values. This was carried out for the 07 bodies of Yumpag (Camila, Candela, Carmela, La Nena, Natalia, Tensional and Carolina).

11.10 Geological Model

In Yumpag, the Camila and Tomasa corridors, which are mineralized Riedel structures related to the movement of the Cachipampa fault, crossing the βeta horizon or Gastropods (pure limestone with bioclastic packstone to grainstone facies) of the upper Jumasha, has allowed the formation of high-grade silver mineralized bodies. Additionally, mineralization grades from a distal Ag-Mn halo to proximal Pb-Zn-(Cu)-enriched mineralization, following subsidence to the southwest.

The Camila corridor consists of mineralized structures made up of veins, bodies and faults with an anastomosed geometry with a N60° direction that, when they intersect favorable prospective levels such as Beta horizons and/or Gastropods, allow the precipitation of Ag-Mn- (Pb- Zn) under an impermeable and plastic “seal” horizon, which are the overlying marly limestones of Upper Jumasha.

Camila in its southwestern extension grades to higher pyrite content with better silver grade. Likewise, two argentiferous stages have been defined: a first stage, replacement with alabandite- (silver sulfosalts); a second stage, where the filling of cavities prevails with the pyrite-silver sulfosalts-sphalerite-galena association.

The Candela structure (part of the Camila corridor anastomosed system), which is quite irregular and has a structural control that follows the N60° trend, is located on the floor of Camila. Like Camilia, it develops in the Beta horizon; however, it is observed that the best cuts occur at the top of the Gastropod horizon, which, added to the high silver values, adds significant gold values, which are associated with a silver-arsenopyrite-pyrite-electrum-sulfosalt structure. (alabandite).

The Tomasa Corridor (Tomasa, Almendra and Coqueta structures), corresponds to an anastomosed system of mineralized vein-like structures and bodies with azimuth between N60° and N65°, hosted mainly in the Beta and Gastropod horizons of the Upper Jumasha, with economic mineralization high-grade Ag-(Pb-Zn) over 600m long and open to the SW along the strike to the Cachipampa fault (of which it is a stress structure), has 200m camp; the average thickness of the mineralized cuts is 12m.

The economic mineralization consists mainly of Ag-alabandite sulfosalts, containing galena-sphalerite; they show a gradation from the northeast with higher alabandite content to the southwest with an increase in sulfosalts of Ag-red silvers, base metals such as galena-sphalerite and pyrite.

Studies show elements that support a superimposition of events, whose interpretation evidences, as the first event, a distal skarn with a prograde phase characterized by pyrite-chalcopyrite-pyrrhotite mineralization plus a retrograde phase with an actinolite-tremolite-rhodonite-carbonate assemblage, with galena-sphalerite mineralization. After collapsing the skarn event, it is superimposed by an Intermediate Sulfidation (IS) epithermal event with a quartz-adularia-Ag-alabandite sulfosalt assemblage.

Conditions for geological modeling at Yumpag are well established with underground work identifying strong contact between mineralized vein structures and host rock in all veins. Subsequently, domain boundaries were treated as hard boundaries. Coded samples within a vein were used to estimate blocks within that vein, to prevent samples within veins from including host rock information.

The wireframes of mineralized structures were constructed by Yumpag Project's geology department based on the deposit geology interpretation, using information from the mapping of mine workings, drillhole sections obtained from logging, and other geological controls.

The structures geological model was built using Leapfrog implicit modeling tools (¡Error! No se encuentra el origen de la referencia.). The modeling baseline database considered the chemical analyses (assays) of mine channels and diamond drill holes.

Figure 11-29 shows the structure modeling flowchart that initially collects information from drilling, channels, topography and Laboratory that is stored in a database to be used in the modeling of structures, interpretations of the Geologist, visualization of sampling and identification of mining areas.

The Yumpag Project contains seven structures that were modeled: Camila (10), Candela (20), Carmela (30), La Nena (40), Natalia (50), Tensional (60) and Carolina (70) as shown in **Figure 11-30**.

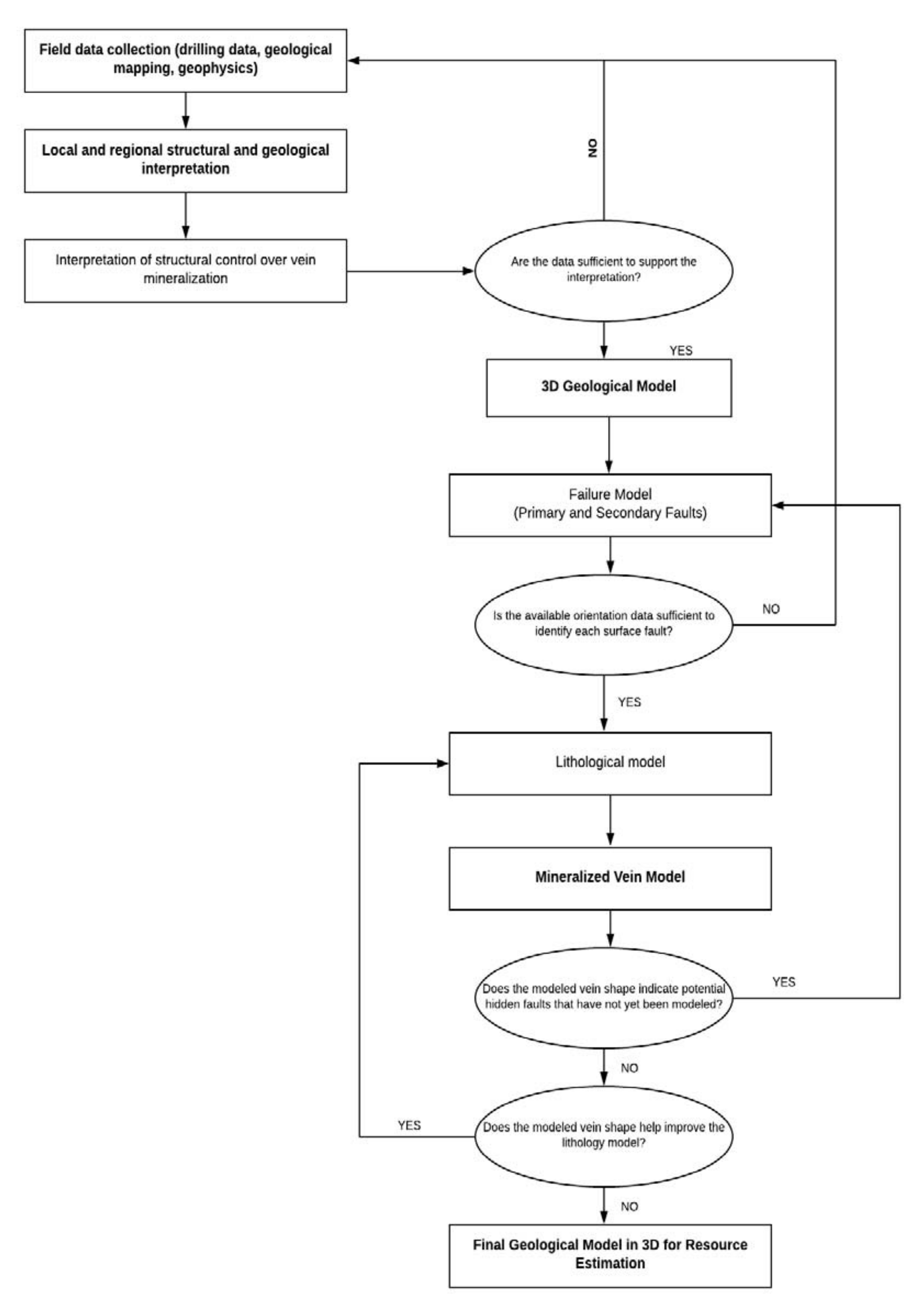


Figure 11-28: Yumpag Implicit modeling flowchart.

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

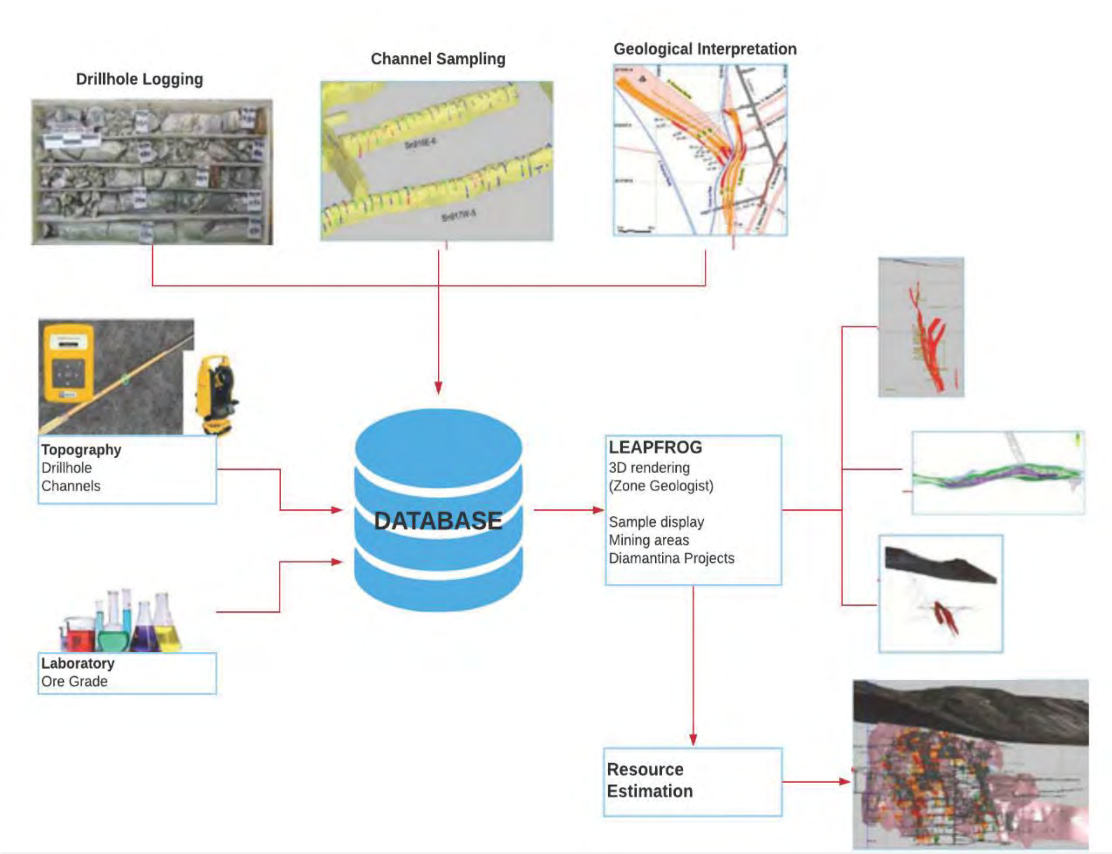


Figure 11-29: Yumpag Structures modeling flowchart.

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

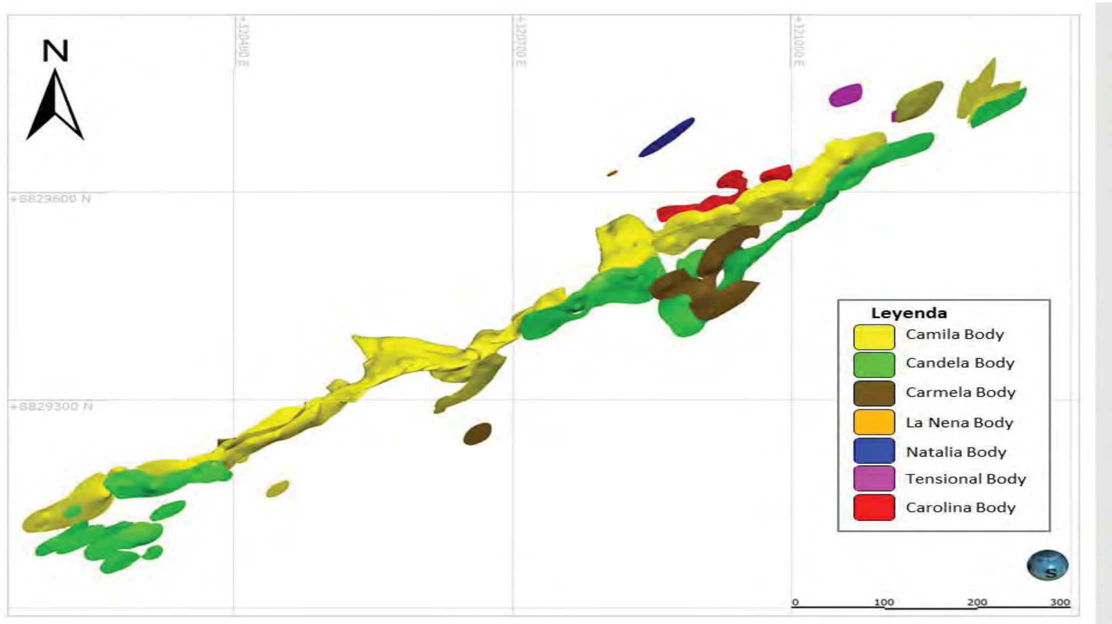


Figure 11-30: Modeled structures in the Yumpag Project

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

11.10.1 Exploratory Data Analysis

Sample length compositing was performed so that the samples used in statistical analysis and estimation have similar support (i.e., length). The Yumpag Project samples diamond drill holes and mine channels at different interval lengths depending on the length of the intercepted geological features and the actual width of the vein structure. Sample lengths were examined for each vein and composited according to the most frequently sampled length interval. Data from composited and unprocessed samples were compared to ensure that no loss of sample length or loss of metal content had occurred.

Exploratory data analysis was performed on the composites identified for each of the veins. Statistical and graphical analysis (including histograms, probability plots, scatter plots) was performed for each vein to evaluate if additional subdomains were required to achieve stationarity.

The estimation process only considers samples within wireframes and/or mineralized structures (7 structures).

Statistical study of the original samples (raw data) for Ag, Pb, Zn, Fe and Mn, was performed as shown in Table 11-26.

Table 11-26: Summary statistics of original Ag, Pb, Zn, Fe, and Mn samples by mineralized structures from the Yumpag Project - Camila and Candela structures.

Structure	Structure Code	Element	Unit	Count	Minimum	Maximum	Mean	Variance	Std. Dev	Coef. Var.
Camila	10	Ag	oz	1,951	0.02	388.22	30.12	1,271.90	35.66	1.18
Camila	10	Pb	pct	1,951	0.001	29.71	0.75	1.63	2.16	2.66
Camila	10	Zn	pct	1,951	0.001	11.24	1.28	3.55	1.88	1.48
Camila	10	Fe	pct	1,951	0.21	32.40	5.10	31.47	5.61	1.10
Camila	10	Mn	pct	1,951	0.02	55.60	21.95	192.98	13.89	0.63
Candela	20	Ag	oz	615	0.02	341.30	22.87	1,021.40	31.96	1.40
Candela	20	Pb	pct	615	0.001	7.14	0.40	0.80	2.00	0.65
Candela	20	Zn	pct	615	0.001	6.70	0.70	1.18	1.09	1.55
Candela	20	Fe	pct	615	0.001	26.80	3.18	11.06	3.33	1.05
Candela	20	Mn	pct	615	0.001	57.10	20.09	211.89	14.56	0.73

*The information of selected structures was included.

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

11.10.2 Outliers and Compositing

Top cuts of grade outliers avoid overestimation in domains due to disproportionately high grade samples. Whenever the domain contains an outlier, this extreme grade will overly influence the estimate.

If the outliers are supported by surrounding data, they are considered a valid part of the sample population and are not considered to pose a risk to the estimation quality, then they can be discarded. If the outliers are not considered a valid part of the population (e.g., they belong to another domain or are simply incorrect), they should be removed from the domain dataset. If the outliers are considered a valid part of the population but are deemed to represent a risk to the quality of the estimate (e.g., they are poorly supported by neighboring values), they should be cut to the value selected as the upper bound. Top cut is the practice of resetting all values above a certain cut off value to the threshold value.

Yumpag Project examined the grades of all metals that were estimated (Ag, Pb, Zn, Fe, and Mn) to identify the presence and nature of grade outliers. This was done by examining sample histogram, log histogram, log probability plot, and by examining the spatial location of outliers. Top cut thresholds were determined by examining the same statistical plots and examining the effect of top cuts on the mean, variance, and coefficient of variation (CV) of the sample data and loss of metal content. The top cut thresholds used for each vein are shown in Table 11-27.

Table 11-27: Yumpag, Top cut values for Camila (10) and Camila (20) structures.

Structure	Structure Code	Element	Unit	Capping	No. of Samples	%CM red.**	Total Samples
Camila	10	Ag	oz	120	66	4.2%	1,885
Camila	10	Pb	pct	9.90	13	4.8%	1,938
Camila	10	Zn	pct	9.16	8	0.3%	1,943
Camila	10	Fe	pct	25.47	19	0.6%	1,932
Camila	10	Mn	pct	52.46	8	0.0%	1,943
Candela	20	Ag	oz	120	13	4.5%	602
Candela	20	Pb	pct	6.86	1	0.1%	614
Candela	20	Zn	pct	6.70	1	0.0%	614
Candela	20	Fe	pct	16.65	2	0.6%	613
Candela	20	Mn	pct	45.45	14	0.4%	601

*The information of selected structures was included.
** CM red.: Metal Content Reduction

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

The limits were established between the 95th and 99th percentiles of the population of each domain, considering that metal content loss is confined to the 2-5% range and the value of the coefficient of variation should not exceed 2; for this purpose, each domain was evaluated to calculate the most appropriate value.

An example of the analysis is shown in **Figure** 11-31, and the statistical comparison of the results is shown in **¡Error! No se encuentra el origen de la referencia.**.

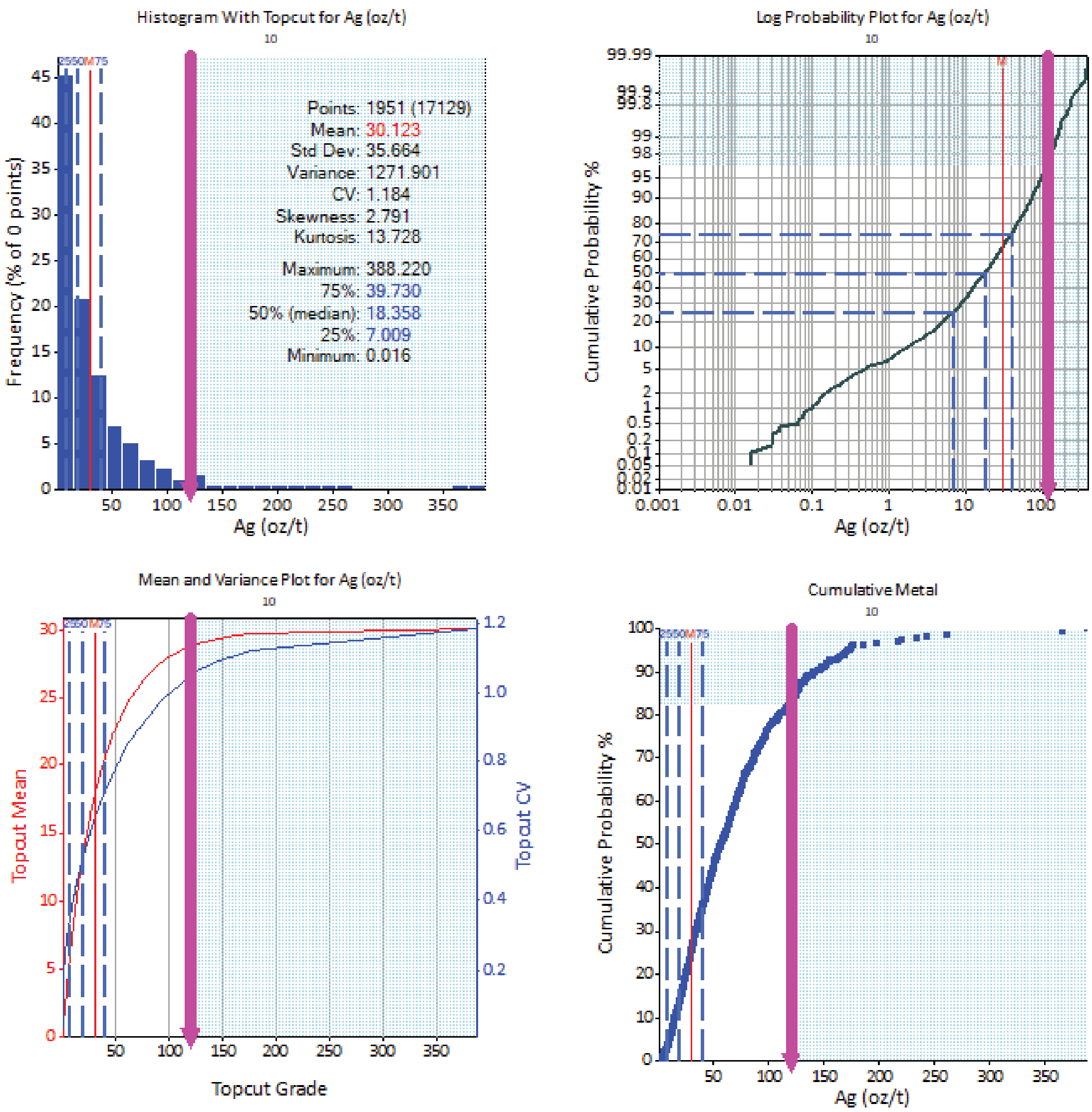


Figure 11-31: Yumpag, Top cut analysis of Ag(oz/t) in domain 10 - Cut at 120 Ag(oz/t) with 4.2% of metal content

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

Table 11-28: Comparison between statistics before and after applying top cut 120 oz/t to Ag(oz/t) in Camila structure

Statistics	Mean	Maximum	SD	CV	Samples	Num cut	Metal cut
Raw Data	30.12	388.2	35.66	1.18	1,951	-	-
Top Cut	28.87	120	30.24	1.05	1,885	66	4.20%
% Difference	4.20%	69.10%	15.20%	11.50%	3.40%	-	95.80%

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

11.10.3 Determination of Regularized Length (Composite)

Sample length compositing was performed so that the samples used in statistical analysis and estimation have similar support (i.e., length). Yumpag Project samples drillholes at different interval lengths according to the length of the intercepted geological features and the actual thickness of structures. Sample lengths were examined for each structure and composited according to the most frequently sampled length interval (¡Error! No se encuentra el origen de la referencia.). Data from composited and unprocessed samples were compared to ensure that no loss of sample length or loss of metal had occurred, and where the mean and coefficient of variation are affected as little as possible.

The mean was used to define the width of the composite; most of the samples are separated by at least 1 m, this result was obtained supported by the frequency histograms, as shown in **Figure 11-32.**

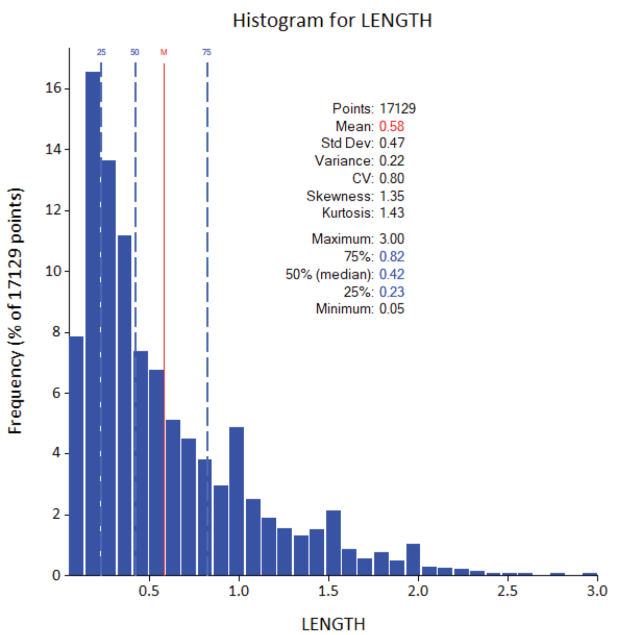


Figure 11-32: Yumpag Histogram of drillhole width values.

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

11.10.4 Geological distribution (Compositing)

Table 11-29 shows the statistics of composites by domain and element. The coefficient of variation of silver (Ag), lead (Pb), zinc (Zn), iron (Fe), and manganese (Mn) values is relatively low (less than 1.6), so we have less dispersed values than the raw data when estimating.

Table 11-29: Yumpag Statistics of composites in Camila and Candela structures

Structure	Structure Code	Element	Unit	Count	Min	Max		Mean	Variance	Std. Dev.
Camila	10	Ag	Oz	1,153	0.02	120	26.86	655.7	25.61	0.95
Camila	10	Pb	Pct	1,153	0.001	6.88	0.64	0.79	0.89	1.4
Camila	10	Zn	Pct	1,153	0.001	9.16	1.22	2.73	1.65	1.36
Camila	10	Fe	Pct	1,153	0.25	25.47	4.96	25.95	5.09	1.03
Camila	10	Mn	Pct	1,153	0.02	50.94	21.38	169.96	13.04	0.61
Candela	20	Ag	Oz	299	0.03	120	20.68	462.21	21.5	1.04
Candela	20	Pb	Pct	299	0.001	3.69	0.37	0.33	0.58	1.58
Candela	20	Zn	Pct	299	0.001	6.3	0.67	0.94	0.97	1.45
Candela	20	Fe	Pct	299	0.15	18.54	3.06	9.08	3.01	0.98
Candela	20	Mn	Pct	299	0.04	45.16	19.18	187.88	13.71	0.72

*The information of selected veins was included.

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

¡Error! No se encuentra el origen de la referencia. shows the histograms and probability plots of Ag in the Camila (10) structure (composites). A lower dispersion of information is observed. Likewise, the evaluation of these plots also helps in the identification of restriction values.

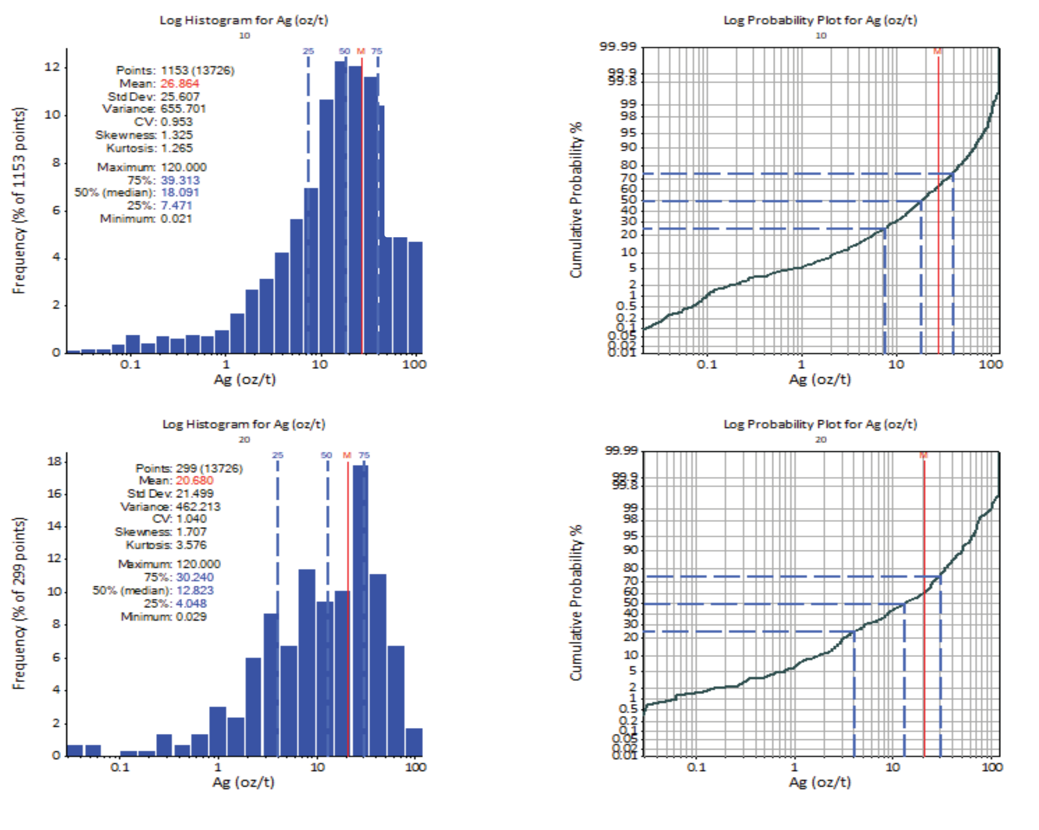


Figure 11-33: Yumpag, Histogram and cumulative probability plot for Ag (oz/t) composites in the Camila (10) and Candela (20) structures.

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

11.11 Mineral Resources Estimate

11.11.1 Estimation Plan

Yumpag Project performed estimation of the following elements: Silver (Ag), Lead (Pb), Zinc (Zn), Iron (Fe), and Manganese (Mn). Estimation domains were generated for each element according to the stationarity conditions.

Boundary conditions at Yumpag are well established with underground workings, which identified strong contact between mineralized vein structures and host rock in all veins. Subsequently, domain boundaries were treated as hard boundaries. Only samples coded within a vein were used to estimate blocks within that vein to prevent high-grade samples from the vein from being stained by the low-grade host rock and vice versa.

Variography was performed in composites and estimation plan. The validation tools available were visual validation, cross validation, global validation, and local validation or Swath Plot.

For resource estimation, Supervisor ® (Statistical Analysis), Leapfrog Geo ® (Structure Modeling), and Vulcan ® (Resource Estimation) software were used.

11.11.2 Qualitative Kriging Neighborhood Analysis (QKNA)

Kriging neighborhood analysis was performed to define the estimation parameters, such as, minimum and maximum number of samples, maximum number of samples from the same drillhole, and search distances.

Scenarios of block size close to the one used to build the block model were analyzed, using the values obtained in the variographic analysis shown in the previous section, checking that the kriging efficiency and slope of regression have adequate values.

In general, a minimum of 2 samples and a maximum of 24 have been used as a starting point, with a maximum of 2 samples per drillhole. From this configuration, it was possible to determine the appropriate parameters for each domain.

Figure 11-34, **¡Error! No se encuentra el origen de la referencia.**, and **¡Error! No se encuentra el origen de la referencia.** show the Supervisor environment for the KNA analysis, where the appropriate neighborhood for each domain is finally determined.

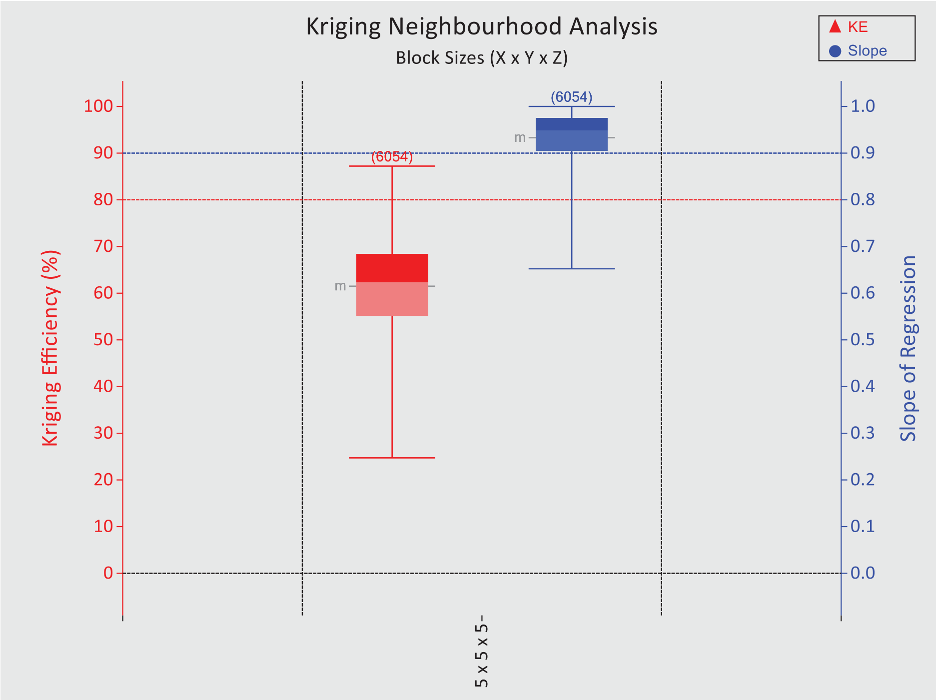
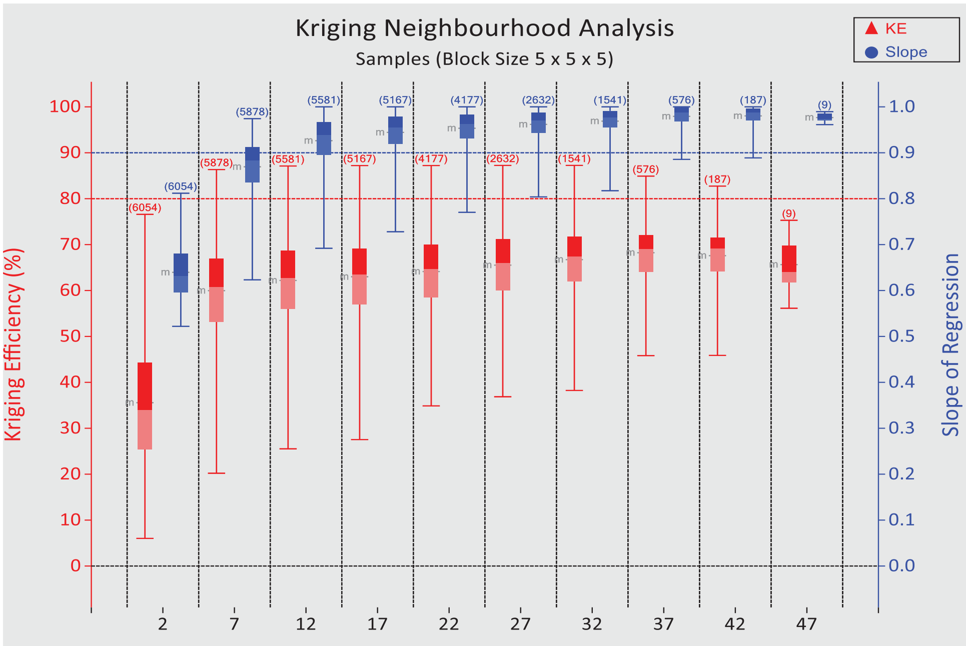


Figure 11-34: Yumpag, Determination of the minimum and maximum number of samples

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)



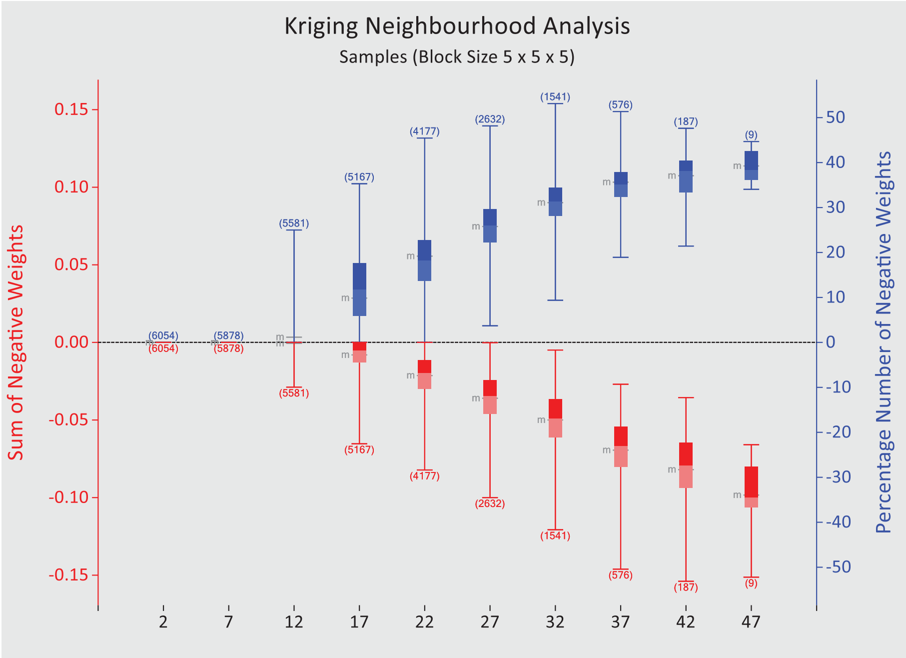


Figure 11-35: Yumpag, Behavior of KE and slope of regression, according to the number of samples (top), and the negative weights generated (bottom).

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

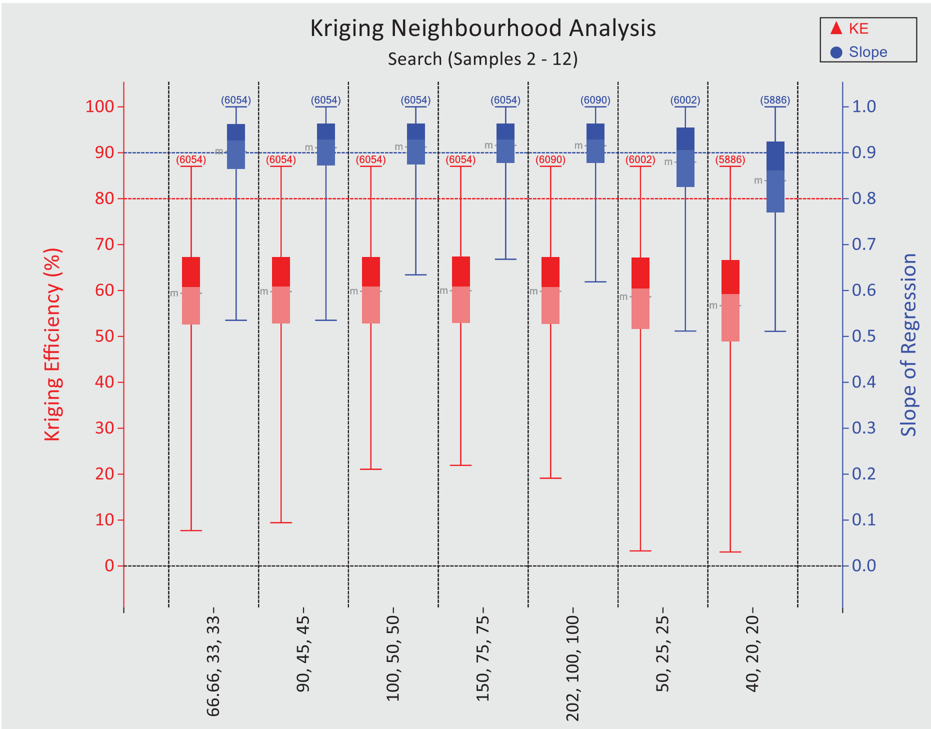


Figure 11-36: Yumpag, The plot shows that neighborhood 12,5,3 has the best values for KE and slope of regression.

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

11.11.3 Continuity Analysis

Continuity analysis refers to the analysis of spatial correlation of a score value between pairs of samples to determine the main axis of spatial continuity.

Grade distribution has a log-normal distribution, so traditional experimental variograms tend to be of poor quality. To counter this, the data were transformed to a normal score distribution for continuity analysis.

Yumpag Project examined horizontal, across strike, and down dip continuity maps (and their underlying variograms) for Ag, Pb, Zn, Fe, and Mn to determine the directions of greatest and least continuity.

Continuity analysis confirmed that some veins have insufficient data to allow variogram modeling. In the case of these veins, inverse distance (ID3) was used as an alternative estimation technique.

11.11.4 Variable Orientation Modeling

The next step is to model the variograms for the major, semi-major, and minor axes. This exercise creates a mathematical model of the spatial variance that can be used by the ordinary kriging algorithm. The most important aspects of the variogram model are the nugget effect and the short-range characteristics. These aspects have the most influence on estimation.

The nugget effect is the variance between sample pairs at the same location (zero distance). The nugget effect contains components of inherent variability, sampling error, and analytical error. A high nugget effect implies that there is a high degree of randomness in the sample grades (i.e., samples taken even at the same location can have quite different grades). The best technique for determining the nugget effect is to examine the downhole variogram calculated with lags equal to the composite length.

After determining the nugget effect, the next step is to model directional variograms in the three main directions for Ag, Pb, Zn, Fe, and Mn based on the directions chosen from the variograms. It was not always possible to generate a variogram for minor axes, and in these cases the ranges for the minor axes were taken from the downhole variograms, which have a similar orientation (perpendicular to the vein) to that of the minor axes. Modeled variogram results were back transformed to define the estimation parameters. Variogram parameters are detailed in ¡Error! No se encuentra el origen de la referencia..

¡Error! No se encuentra el origen de la referencia. shows the variography of Camila structure's domain 10; its different populations were treated as one when the respective variography was developed.

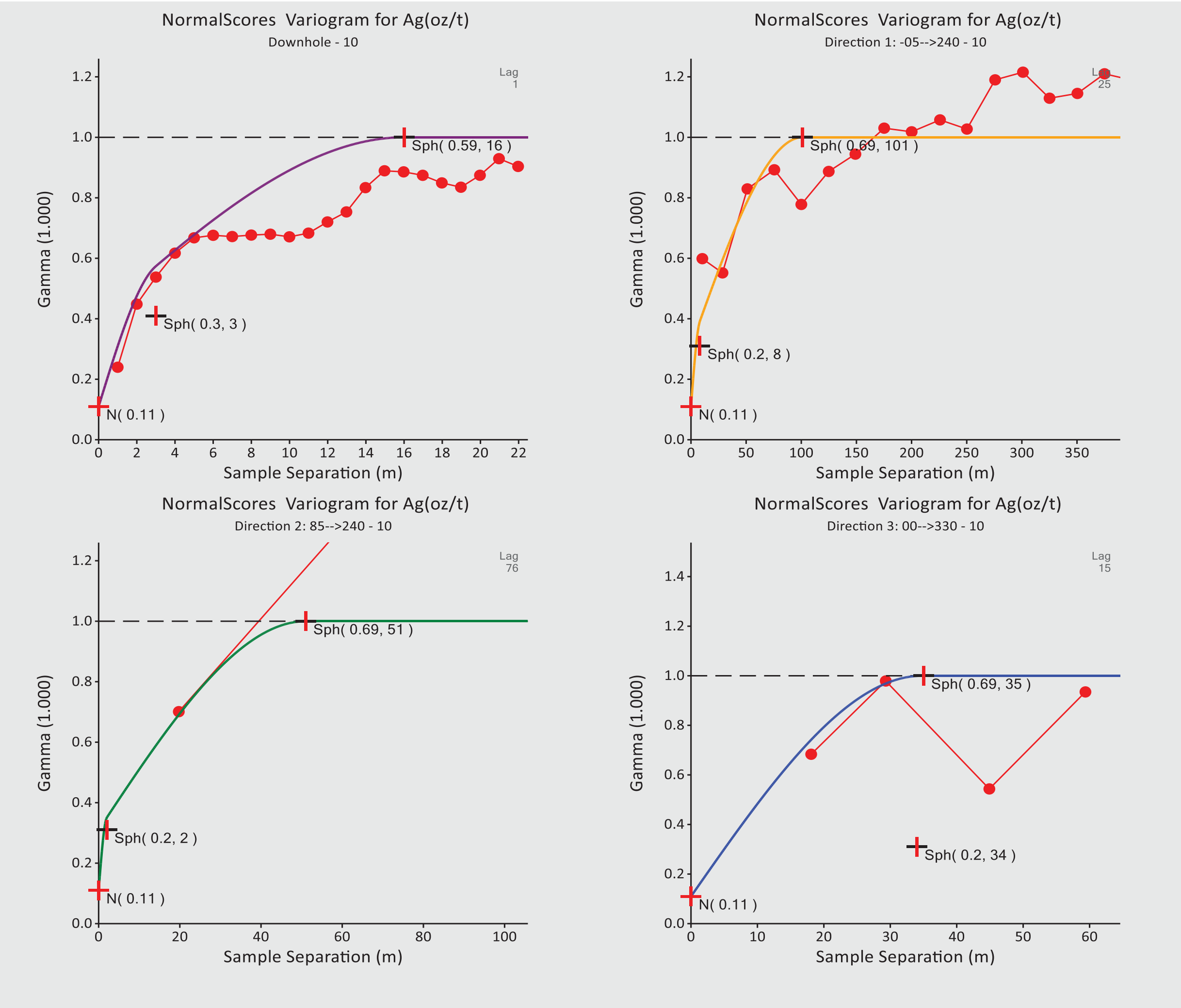


Figure 11-37: Yumpag, Variography of Ag (oz/t) for Camila structure's domain 10.

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

Table 11-30 shows the variography (by domain) of main structures. All veins were estimated using OK (ordinary Krigging) and ID3 (Inverse Distance), but the method with the smallest percentage difference from the NN (nearest neighbor) estimate was chosen. A method that was used in all the veins, the exponent (3) based on historical comparisons of previous estimates, the ID3 vs. ID2 results confirmed that ID3 outperforms for this deposit. For structures estimated by the Inverse Distance method, variograms were prepared to define the search ellipsoids.

Table 11-30: Yumpag, Variography parameters in the estimation files of main structures

Structure	Structure Code*	Element	Unit	Bearing (°)	Plunge (°)	Dip (°)	Nugget	Str 1 Sill	Major Axis	Semi-Major Axis	Minor Axis	Str 2 Sill	Major Axis	Semi-Major Axis	Minor Axis
Camila	10	Ag	oz	240	-5.00	-90.00	0.13	0.23	8	2	34	0.65	101	51	35
Camila	10	Pb	pct	8.00	-51.71	36.20	0.15	0.61	10	27	4	0.23	30	30	30
Camila	10	Zn	pct	178.67	54.69	-7.10	0.13	0.42	6	6	6	0.45	35	97	15
Camila	10	Mn	pct	240	-5.00	-90.00	0.13	0.23	8	2	34	0.65	101	51	35
Candela	20	Ag	oz	-141.47	7.64	49.57	0.65	0.38	35	24	1	0.56	71	65	15
Candela	20	Pb	pct	8.003	-51.71	36.20	0.17	0.63	5	30	4	0.21	11	45	12
Candela	20	Zn	pct	148.67	54.69	7.10	0.14	0.70	31	57	3	0.16	109	251	10
Candela	20	Mn	pct	64.12	9.96	95.08	0.15	0.27	48	9	5	0.59	80	58	15

*The information of selected structures was included.

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

11.11.5 Block Model

The block size was selected based on the needs of the Planning area, which are linked to the mining methods at Minera Uchucchacua; cell dimensions are 3 m x 3 m x 3 m and are represented on the X, Y, and Z axes.

The block model consists of cells and sub-cells that fill the entire volume of interest. Each cell occupies a discrete volume that can be assigned whatever information is deemed necessary to accurately and precisely describe and interpret the deposit; the entire block model or fraction thereof can be evaluated, and tonnage and grades reported.

Block Model Characteristics

For the Yumpag Project, the dimensions of cells making up the block model will be a function of the composite length, characteristics of the structure to be evaluated, and mining methods; cell dimensions will be 5 m x 5 m x 5 m which are represented on the X, Y, and Z axes.

Dimensions were based on the mining SMU, since the mining method used is cut-and-fill stoping and in areas with lower rock quality, breasting.

A resource model was made using Vulcan software, based on the main structures of the mine (Camila, Candela, Carmela, La Nena, Natalia, Tensional, and Carolina), whose characteristics are presented below:

Table 11-31: Block model dimensions

Structure	Origin X	Origin Y	Origin Z	Bearing (°)	Plunge (°)	Dip (°)	Extension X	Extension Y	Extension Z	Size X (m)	Size Y (m)	Size Z (m)
Yumpag	320,200	8,829,000	3,900	65	0	0	1500	330	600	3	3	3

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

¡Error! No se encuentra el origen de la referencia. shows that each structure is independent, so they can be worked as separate block models.

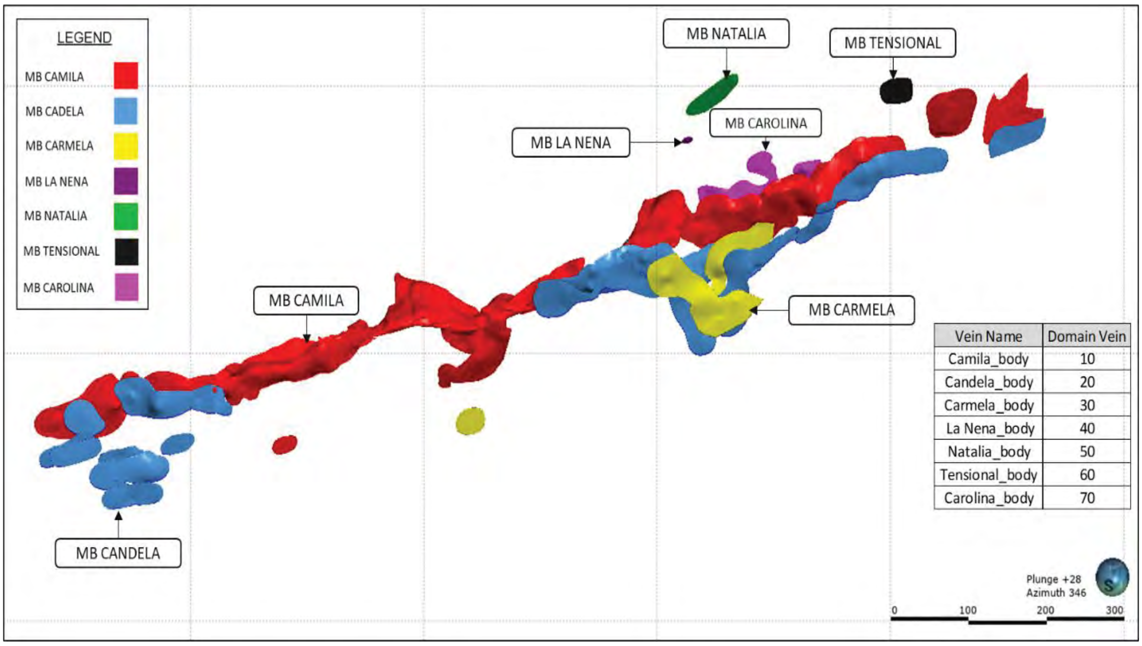


Figure 11-38: Distribution of Yumpag Block Models

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

11.11.6 Grade Interpolation

The methods used for estimation in the Yumpag Project include Ordinary Kriging (OK), Inverse Distance (ID3), and Nearest Neighbor (NN); the first two will be used to report resources and categorize them while NN, due to its characteristics, will be used to validate the interpolation of OK and ID methods.

Estimation Parameters

Parameters were derived from block size selection, search neighborhood optimization, and variogram modeling. Sample data were composited and, when required, capped prior to estimation.

Sample data and blocks were categorized into mineralized domains for estimation. Each block is discretized (a matrix of points to ensure that score variability is represented within the block).

The estimation plan was defined with 4 passes with incremental search radii with outlier restriction, minimum and maximum number of composites, minimum and maximum number of drillholes, and number of composites per drillhole/channel so that the interpolation of grades respects the composite information locally and globally. The fourth pass is to generate potential resources.

Table 11-32: Discretization parameters and number of samples per searches

Structure	Element	Unit	Discretization steps in X Dir	Discretization steps in Y Dir	Discretization steps in Z Dir	Min.Number of Samples per estimate	Max. Number of Samples per estimate	Octant -based search
PASS 1	Ag	oz	3	3	3	3	6	2
PASS 1	Fe, Mn	pct	3	3	3	3	6	2
PASS 1	Pb, Zn	pct	3	3	3	2	8	2
PASS 2	Ag	oz	3	3	3	3	8	2
PASS 2	Fe, Mn	pct	3	3	3	3	8	2
PASS 2	Pb, Zn	pct	3	3	3	3	12	2
PASS 3	Ag	oz	3	3	3	3	8	2
PASS 3	Fe, Mn	pct	3	3	3	3	8	2
PASS 3	Pb, Zn	pct	3	3	3	3	12	2
PASS 4	Ag	oz	3	3	3	1	10	2
PASS 4	Fe, Mn	pct	3	3	3	1	10	2
PASS 4	Pb, Zn	pct	3	3	3	1	12	2

*The information of selected structures was included.

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

11.11.7 Validation

Techniques to validate the estimation included visual inspection of the model, with plan, section, and 3D composites; cross validation; validation of global estimates through statistical comparison of average estimated values per domain between the Ordinary Kriging (OK) or inverse distance (ID) with the nearest neighbor (NN); and validation of local estimates through the generation of Swath Plots.

Cross Validation

When defining modeled variograms, estimation, and search neighborhoods, there is a range of potential values that can be set. In order to optimize these values, a cross validation was performed. This technique involves excluding a sample point and estimating a grade in its place using the remaining composites. This process is repeated for all compounds used for estimation and the estimated average grade is compared to the compounds' actual average grade.

By using this methodology in the Yumpag Project, a variety of estimation techniques, search neighborhoods, and variogram models were tested to establish the parameters that provided the most precise result.

Cross-validation results confirmed that ordinary kriging is a reasonable estimation method when sufficient data is available for variogram analysis. For veins with insufficient data, inverse power of distance proved to be a superior estimation technique. Cross validation also helped in adjusting the variogram and search neighborhood parameters as shown in **Figure 11-39**.

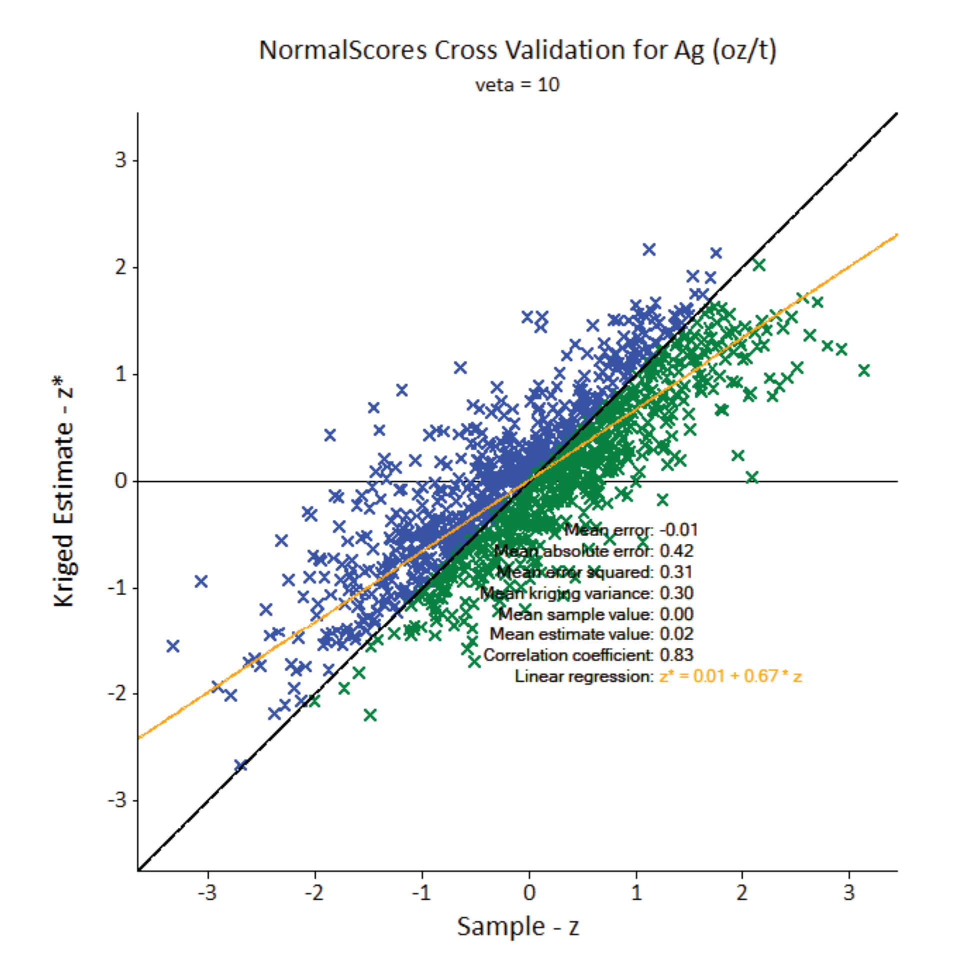


Figure 11-39: Cross validation for Camila structure's Domain 20410, showing a correlation coefficient of 0.83.

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

Visual Inspection

Visual inspections constitute an important tool to detect spatial artifacts and entails a visual comparison of composites and block grades. This step is also extremely useful to ensure that the block model respects the drillhole data and/or channel samples. Composite data, block model, and geological interpretations were considered for visual examination.

Both drillhole and block coding was checked during the visual inspection to ensure that the coding is appropriate and respects the interpretation. Additionally, the estimated grades show a reasonable correspondence between samples and blocks, where we have a fair population of drillholes. **¡Error! No se encuentra el origen de la referencia.** shows the variation of Ag grades both transversely and longitudinally.

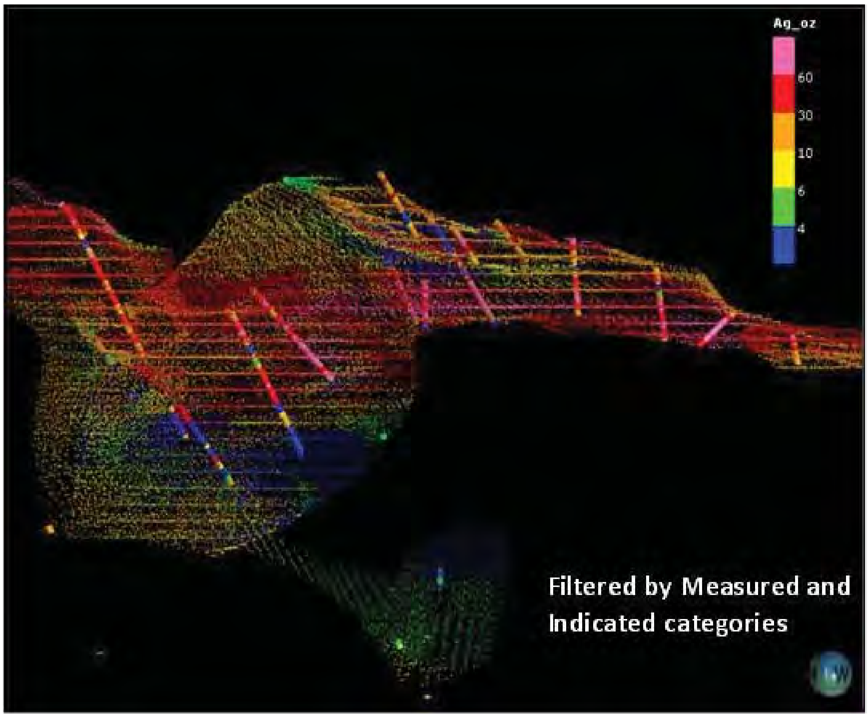


Figure 11-40: Camila structure - visual validation

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

Validation of the Global Estimate

Yumpag Project compared the model estimated with Ordinary Kriging or Inverse Distance vs. the Nearest Neighbor model. The estimation results are considered reasonable, with differences generally below 5%. Differences greater than 5% are due to overestimation of the Nearest Neighbor degree due to the presence of isolated high degree compounds or due to low overall grade concentrations or in areas classified as inferred resources.

Table 11-33 shows the overall validation results within the Measured and Indicated categories for Camila and Candela structures. It is evident that 80% of results are below ±10%. Upon closer examination, these structures contain isolated high grades in their domain, which have been restricted in the estimation. After the analysis, the estimation method with the lowest percentage difference for each vein was chosen.

Table 11-33: Global validation in Camila and Candela structures

Structure	Structure Code	Element	Unit	NN	Interpolate (OK)	% diff	Interpolate (ID)	% diff
Camila	10	Ag	oz/t	21.31	22.82	-7.08	22.83	-7.15
Camila	10	Pb	Pct	0.47	0.50	-6.30	0.50	-5.78
Camila	10	Zn	Pct	0.85	0.90	-6.28	0.90	-6.00
Camila	10	Fe	Pct	3.70	3.85	-4.01	3.86	-4.25
Camila	10	Mn	Pct	19.91	20.34	-2.14	20.56	-3.28
Candela	20	Ag	oz/t	17.83	18.20	-2.08	18.20	-2.08
Candela	20	Pb	Pct	0.33	0.31	4.38	0.32	1.30
Candela	20	Zn	Pct	0.46	0.49	-7.54	0.49	-7.06
Candela	20	Fe	Pct	2.53	2.62	-3.71	2.62	-3.71
Candela	20	Mn	Pct	18.02	18.09	-0.37	18.02	0.00

***The information of selected structures was included.**

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

Local Validation

Validations were generated using Swath Plots of blocks estimated by Ordinary Kriging (OK) and Inverse Distance (ID3) versus their respective Nearest Neighbor (NN) models, and declustered composites for each of the structures in the east, north, and elevation directions to validate the estimates on a local scale with an average bandwidth of 10 meters. Local estimate validation evaluates each model to ensure that the estimation process does not introduce excessive or conditional bias and that there is an acceptable level of score variation.

The plots show good continuity between Ordinary Kriging estimates and declustered nearest neighbor estimates, which indicates that the kriging is not overly smoothed. The areas that do not correlate well, generally at the extremes of veins, are related to areas with limited number of samples. Based on the above results, it was concluded that ordinary kriging was an adequate interpolation method and provided reasonable global and local estimates for all economic metals.

Figure 11-41 shows the swath plot of Camila structure (10) in 3 directions. Except for the peaks, which correspond to unconcentrated high grades, we observe that, on average, the estimates by Inverse Distance (n=3) and Ordinary Kriging remain below the average of composites.

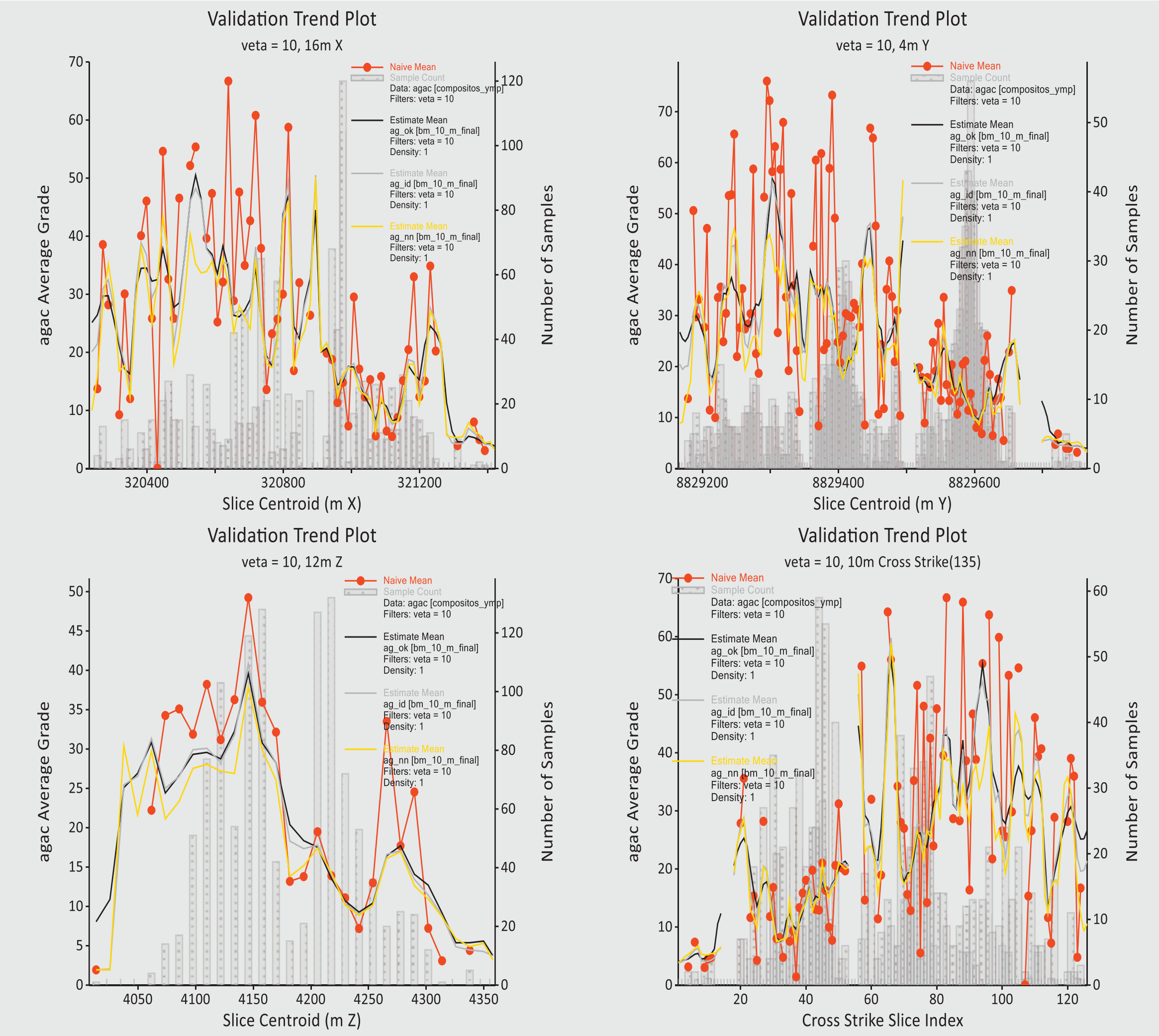


Figure 11-41: Yumpag, Swath plot - Ag (oz/t) analysis for the Camila (10) structure in directions X, Y, Z, and 135°

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

11.11.8 Bulk Density

Yumpag has performed a total of 189 density measurements; these density samples correspond to 3 structures. Outliers that are not representative of the sample population were discarded reducing the total density measurements used in the analysis to 180. The structures that have no density sample information were associated according to their mineralogical characteristics, location, structural family, and tectonic regime with veins that did have density samples.

The general statistics of density data were calculated (**¡Error! No se encuentra el origen de la referencia.**) and then an analysis was performed without considering samples above the mean ± 2 Standard Deviation (domain, lithology, alteration, etc.) and by domain (**¡Error! No se encuentra el origen de la referencia.**), which was finally used in the resource estimation.

Table 11-34 : General density (g/cm³) statistics for Yumpag

Descriptive Data		Statistic											
Structure	**Structure Code**	**# Data**	**Minimum**	**Maximum**	**Range**	**Mean**	**Median**	**Standard Deviation**	**Variance**	**CV**	**Standard Error**	**Skewness**	**Kurtosis**
Camila	10	141	2.19	4.28	2.09	3.26	3.32	0.474	0.225	0.15	0.0399	-0.0963	-0.647
Candela	20	42	2.43	3.83	1.4	3.34	3.41	0.378	0.143	0.11	0.0583	-0.946	0.373
Carmela	30	6	2.69	3.83	1.14	3.08	2.86	0.446	0.199	0.15	0.182	1.23	0.222

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

Table 11-35: Yumpag, Density (g/cm³) statistics with data filtered according to Mean ± 2SD

Descriptive Data		Statistic											
Structure	**Structure Code**	**# Data**	**Minimum**	**Maximum**	**Range**	**Mean**	**Median**	**Standard Deviation**	**Variance**	**CV**	**Standard Error**	**Skewness**	**Kurtosis**
Camila	10	136	2.37	4.19	1.82	3.27	3.32	0.44	0.194	0.135	0.0378	-0.0696	-0.839
Candela	20	38	2.91	3.83	0.92	3.43	3.46	0.266	0.0705	0.077	0.0431	-0.302	-0.964
Carmela	30	6	2.69	3.83	1.14	3.08	2.86	0.446	0.199	0.145	0.182	1.23	0.222

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

11.11.9 Resource Classification and Criteria

The Confidence Limits methodology was used to categorize the resources, where first of all, a panel to be evaluated is defined according to the production volume of a month (Table 11-36).

Table 11-36 : Defining the panel to be evaluated

Yumpag D1 Confidence Limits	
Tonnes per day	1,500.00
Tonnes per month	45,000
Tonnes per quarter	135,000
Volume per quarter (SG = 2.6)	13,636
Volume 50x50x10m block	12,500

Source: BVN

A fictitious drilling pattern is defined every 10 meters as shown in Table 11-37. Based on EDA and variography, the Kriging variance (OKV) and the Coefficient of variation (CV) of composites are determined. These two parameters are used to calculate the Relative Standard Error (RSE) and subsequently, the Confidence Limit at 90% for an annual production volume (A90%), and the Confidence Limit at 90% for a quarterly production volume (Q90%).

Table 11-37: Calculation of A90% and Q90%, based on OKV and CV for each spacing

				Ind.	Meas.			
Spacing	**CV Comp**	**OKV**	**RSE**	**A90%**	**Q90%**	**Slope**	**BDV**	**KV/BDV**
80x80	0.990	0.1071	0.32	16%	31%	0.88	0.170	0.63
60x60	0.990	0.1043	0.32	16%	31%	0.91	0.170	0.61
50x50	0.990	0.0951	0.31	15%	29%	0.92	0.170	0.56
40x40	0.990	0.0812	0.28	14%	27%	0.95	0.170	0.48
30x30	0.990	0.0542	0.23	11%	22%	0.98	0.170	0.32

KV = Kriging Variance for the estimation of a Monthly volume

RSE = Relative Standard Error = CVComps x √KV

Q90% = Confidence Limit at 90% for a Quarterly Volume = (1.645 x RSE) / √3

A90% = Confidence Limit at 90% for an Annual Volume = (1.645 x RSE) / √12

BDV = Block Dispersion Variance

Source: BVN

A90% and Q90% values are plotted on a graph versus spacing in Figure 11-42.

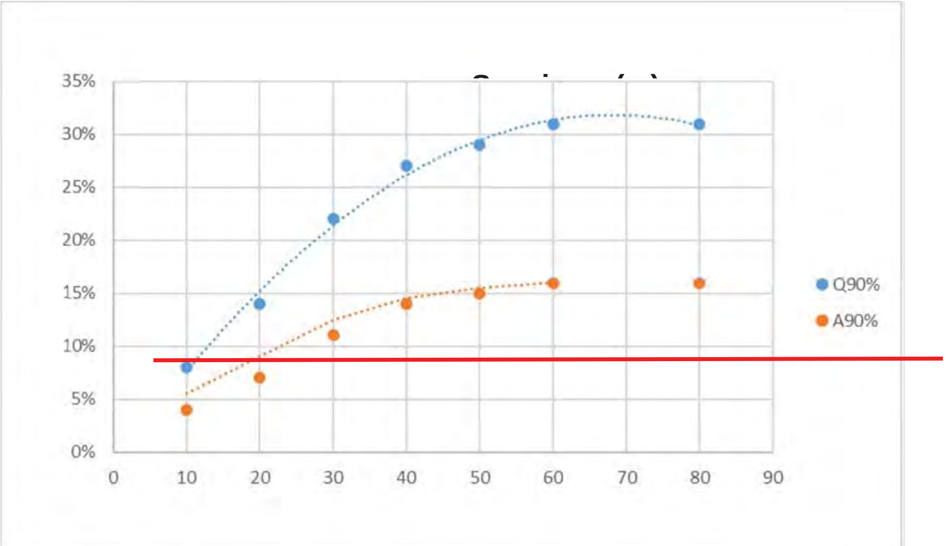


Figure 11-42: Yumpag, Spacing vs. error graph

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

Finally, Measured Resource is represented by spacing with a margin of error less than or equal to 15% at Q90% while the Indicated Resource is represented by spacing with a margin of error less than or equal to 15% at A90%. These values are calculated from the graph in Figure 11-42.

The variable "d3h_avgdist_anisot" was calculated as the average anisotropic distance of the three closest drillholes. Based on this variable and number of holes involved in the block estimation, categorization was performed according to Table 11-38: .

Thus, estimation parameters have been simplified in the Yumpag Project, considering:

- Measured resource, when there are 3 to more drill holes within a 10 m search radius.
- Indicated resource, when there are 2 or more drill holes within a 28 m search radius.
- Inferred resource, when there is 1 or more drill holes within a 60 m search radius.

In addition to the process described above, a procedure for smoothing the categorization has been defined in order to eliminate any risk of generating the "spotted dog" effect. Yumpag Project generated polygons based on the initial categorization in measured and indicated resources that allows to adequately manage the distribution of resource categorization and its continuity. Table 11-38 below shows the summary criteria of distance between samples and number of drillholes for each category.

Table 11-38: Categorization summary table

Category	Distance(m)	Pass	No. of Drills
Measured	0 to 10	<=3	>=3
Indicated	0 to 10	<=3	2
	10 to 20	<=3	>=2
Inferred	0 to 20	<=3	1
	20 to 60	<=3	>=1

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

In addition to the described procedure, a number of aspects affecting confidence in the estimate were considered for resource classification in the Yumpag Project, such as:

- Geological continuity (including geological understanding and complexity).
- Data density and orientation
- Data accuracy and precision
- Grade continuity (including spatial continuity of mineralization)
- Density sampling

Geological continuity

Substantial geological information exists to support a good understanding of the geological continuity on Yumpag Project's property. Detailed surface mapping identifying vein structures is supported by extensive exploration drilling.

Yumpag Project's exploration geologists record drill cores in detail, including textural, alteration, structural, geotechnical, mineralization, and lithological properties, and continue to develop a detailed understanding of the geological controls on mineralization.

Understanding of vein systems is greatly enhanced by the presence of extensive underground workings that allow for detailed geology mapping.

Data density and orientation

The estimation is made using diamond drilling data. Yumpag Project has explored the structures using a drilling pattern spaced approximately 60 m apart along strike. Each drillhole is intended to intercept the structure perpendicular to the mineralization strike, but in most intercepts the actual intercept angle is between 75 and 90 degrees.

Geological confidence and quality of estimation are closely related to data density, and this is reflected in the classification of resource confidence categories.

Data accuracy and precision

Resource confidence classification is also influenced by the accuracy and precision of available data. The accuracy and precision of data can be determined by QAQC programs and an analysis of the methods used to measure data.

SRK has found the accuracy and precision results to be acceptable; however, control sample insertion rates are low. SRK recommends improving the incorporation of duplicate and standard samples in the batches sent to laboratories in the future.

Spatial Continuity

Spatial continuity of values, as shown in the variogram, is an important consideration when assigning resource classification. The variogram characteristics greatly influence estimation quality parameters such as kriging efficiency and slope of regression.

The nugget effect and short-range variance characteristics of the variogram are the most important measures of continuity. For Yumpag structures, the variogram nugget variance for Ag is between 7% and 13% of the population variance, demonstrating the low variability of this precious metal. This shows that, in general, silver grades have good continuity over short distances, resulting in higher confidence in these estimated grades. The variogram nugget variance for Pb, Zn, Fe, and Mn is lower and is between 12% and 14%. This shows that, in general, lead, zinc, iron, and manganese grades also have good continuity over short distances, resulting in higher confidence in these estimated grades.

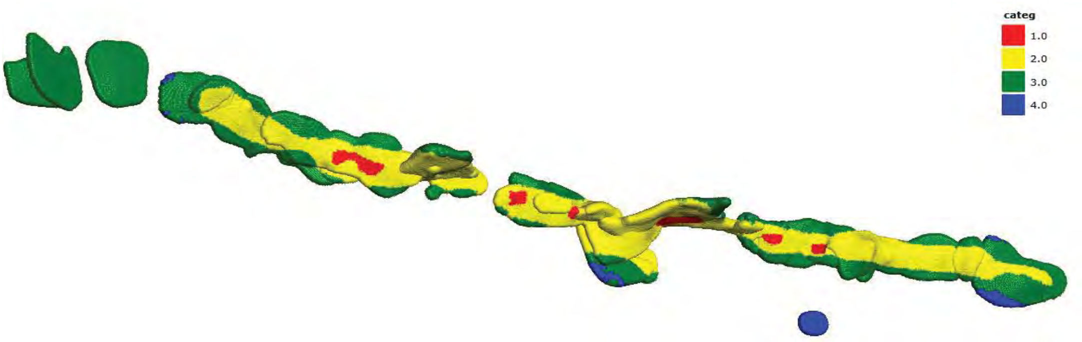


Figure 11-43: Camila structure blocks classification

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

11.11.10 Cut-Off Grade Estimates

The cut-off value used to report mineral resources is based on the cost estimated in the PFS study developed by Agnitia consultants for Yumpag Project (mining cost) and the historical cost database of the period 2018-2020 (processing cost and G&A).. There are three extraction methods (Bench & Fill, Ascending Sublevels with cemented fill SARC and ODF), shown in Table 11-39, that were taken into account to determine the cut-off value of Mineral Resources during 2021.

The veins selected by the planning area for extraction with the Over Drift and Fill mining method for circuit 1 have a variable cost of US$/t 64.55 (Mining, processing and off-site costs). Taking into account a contingency on mining and processing costs a final NSR marginal cut-off value of US$/t 72.03 was defined for this method,

The veins selected by the planning area for extraction with the Bench & Fill mining method for circuit 1 have a variable cost of US$/t 58.14 (Mining, processing and off-site costs). Taking into account a contingency on mining and processing costs a final NSR marginal cut-off value of US$/t 65.62 was defined for this method.

The veins selected by the planning area for extraction with the Overhand Sublevel Stoping (SARC) mining method for circuit 1 have a variable cost of US$/t 56.11 (Mining, processing and off-site costs). Taking into account a contingency on mining and processing costs a final NSR marginal cut-off value of US$/t 62.81 was defined for this method.

Table 11-39: Cut Off grade calculation for Resources

	Variable Cost (US$/t) *		
Area	**ODF**	**BF**	**SARC**
Mine	35.43	29.02	26.99
Plant Circuit 1	27.86	27.86	27.86
Off-Site costs	1.26	1.26	1.26
Sub-Total Variable Costs	**64.55**	**58.14**	**56.11**
Contingency (10%-16%) **	7.48	7.48	6.70
Marginal Cut-Off Value * **	**72.03**	**65.62**	**62.81**

Source: Buenaventura

** For the Marginal cut off Value estimation was considered the variable costs*

*** Contingency is applied only on the mining and processing costs. For mining cost the contingency is variable between 13% to 16%. For processing cost the contingency is 10%*

**** Marginal cut-off value includes contingency*

A net smelter return (NSR) was calculated for each metal, which included the expected commercial terms for 2021, average metallurgical recovery, average grade in concentrate, and long-term metal prices. In this way, the value of all metals produced during the operation can be considered in the Mineral Resource report.

Metallurgical parameters and concentrate characteristics have been based on historical recoveries observed at the plant by Yumpag Project.

NSR (Net Smelter Return) calculation considers variable metallurgical recoveries according to grade ranges and metal prices (Table 11-40).

Table 11-40: NSR calculation formula

Unit	NSR Formula
Yumpag	Ag grade (oz/t/t)*18.6576650157041*Ag Recovery(oz/t/t)

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

It is the opinion of the QPs that by reporting resources based on actual mining, processing and smelting costs; actual metallurgical recoveries achieved at the plant; reasonable long-term metal prices; and the application of transparent court laws, mineral resources have "reasonable prospects for economic extraction."

11.11.11 Reasonable Potential for Economic Extraction (RPEE)

To prove reasonable perspectives for an economic extraction, Yumpag Project constructed restrictive conceptual stopes for the mineralized structures using Deswik Stope Optimizer ™; which included measured, indicated and inferred mineralized material; considered the structure width and the net smelter return (NSR); and was limited the differentiated Cut Off to limit the stopes generated.

- Stope height: 3.00 m
- Stope length: 3.00 m
- Minimum width: 0.75 m
- Optimization variable: NSR

- Optimization is performed following the azimuth of the vein, with a tolerance of 90°.
- Cut-Off: Differentiated by Mining Method
- Measured, Indicated and Inferred Resources are considered within the optimization in the same process.

Additional terms Deswik

- **Pillar Length: 0.01 m**

The information received from the Planning area includes the resource model, stope control surfaces and stope geometry controls; this information is crossed with the wireframe files, string files and the files are verified to obtain a detailed summary of resources, which is shown in Figure 11-44.

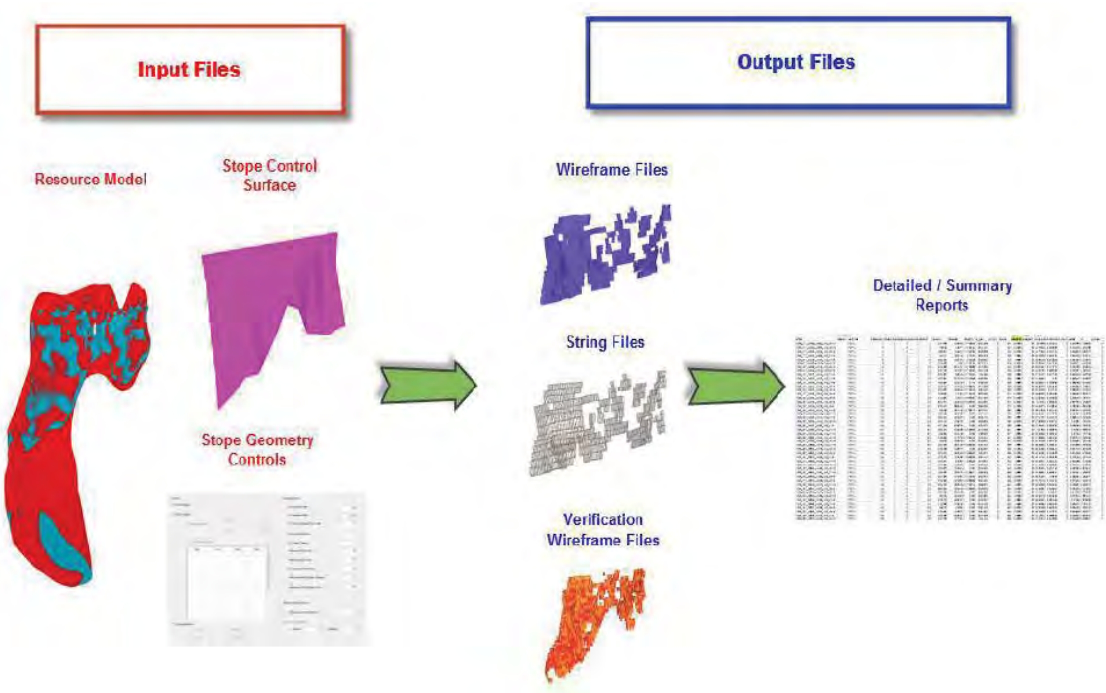


Figure 11-44: Input and output files after RPEE analysis

Source: Buenaventura Planning Area (Buenaventura, 2021)

11.11.12 Uncertainty

SRK evaluated the uncertainty of Mineral Resources considering the following items:

- Database and QAQC: the database is in an MsSQL engine, and the storage structure has been generated in Acquire software. For information management, an InHouse BVN implementation is used, which guarantees the traceability of information. In the case of QAQC, control samples generally identify problems mainly in accuracy.
- Density: only the 3 most important structures have been sampled to obtain density measurements. SRK has defined a methodology that facilitates assignments of density

values to unsampled structures based on a clustering by geological similarity to those 3 sampled structures.

- Geological model: the deposit has a lithological, mineralization, and structural (basic) model. Buenaventura has defined solids that represent the deposit's mineralized structures, which are prepared based on logging and drill hole sampling information. SRK reviewed the solids and believes they have been developed in a consistent manner.
- Resource Estimation: the process has been carried out following the Best Practices for Resource Reporting proposed by the CIM; each stage of the estimation process has been reviewed by SRK and in general, the results can be validated satisfactorily.
- Resource categorization: the criteria used consider the number of composites and the average distance of the three closest drillholes. In SRK's opinion, the categorization is appropriate for the Measured, Indicated, and Inferred Resource.

Based on the points assessed above, and in view of the questions raised regaring the quality of information used to estimate Mineral Resources, SRK believes that geological confidence has been substantiated with regard to all the points reviewed above and that uncertainty has been adequately defined through the categorization criteria applied.

11.11.13 Summary Mineral Resources

The fields used for reporting are shown in **¡Error! No se encuentra el origen de la referencia.**

Table 11-41: Report fields

Item	Description
Tonnes	Value of volume by density
Ag (oz/t)	Ag value ppm / 31.10348
Pb (pct)	Pb value in pct
Zn (pct)	Zn value in pct
Fe (pct)	Fe value in pct
Mn (pct)	Mn value in pct
NSR (US$/t)	Value in NSR of the resource (US$/t)

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

Table 11-42: Total Resource Report

Summary Excluded Mineral Resources

Zone	Category	Tonnes (000)	Ag oz/t	Pb pct	Zn pct	Fe pct	Mn pct	NSR US$/t	Width m
Yumpag	Measured	9	20.76	0.44	0.65	3.41	22.33	269.40	11.86
	Indicated	195	16.07	0.31	0.56	2.98	19.53	207.32	9.41
	Measured & Indicated	204	16.28	0.32	0.57	3.00	19.65	210.07	9.52
	Inferred	125	26.17	0.63	0.96	4.27	22.32	350.32	4.29
Total	Measured	9	20.76	0.44	0.65	3.41	22.33	269.40	11.86
	Indicated	195	16.07	0.31	0.56	2.98	19.53	207.32	9.41
	Measured & Indicated	204	16.28	0.32	0.57	3.00	19.65	210.07	9.52
	Inferred	148	27.18	0.65	1.07	4.35	22.83	363.25	4.44

Table 11-43: Summary excluded Mineral Resources

Classification	Tonnes	Ag	Pb	Zn	Fe	Mn	NSR
	(000)	oz/t	pct	pct	pct	pct	US$/t
Measured	9	20.76	0.44	0.65	3.41	22.33	269.40
Indicated	195	16.07	0.31	0.56	2.98	19.53	207.32
Measured & Indicated	204	16.28	0.32	0.57	3.00	19.65	210.07
Inferred	148	27.18	0.65	1.07	4.35	22.83	363.25

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

Notes on mineral resources:

- Mineral Resources are defined by the SEC Definition Rules for Mineral Resources and Mineral Reserves.
- Mineral Resources are exclusive of Mineral Reserves
- Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability
- Mineral Resources were estimated as of December 31, 2021 and reported as of August 31, 2021 taking into account production-related depletion for the period through December 31, 2021.
- Mineral Resources are reported above a differentiated NSR cut-off grade for structures based on actual operating costs
- Metal prices used in the NSR assessment are US$27.5/oz for silver, US$2,515/t for lead and US$2,624/t for zinc.
- Extraction, processing and administrative costs used to determine NSR cut-off values were estimated based on actual operating costs as of 2021
- Cesar Cerdan, Engineer. (AIG #7206) is the Qualified Person for the resources being an employee of SRK Consulting Peru.
- Tonnes are rounded to the nearest thousand
- Totals may not add due to rounding.

11.11.14 Mineral Resources Sensitivity

Factors that may affect estimates include metal price and exchange rate assumptions; changes in the assumptions used to generate the cut-off grade; changes in local interpretations of the geometry of mineralization and continuity of mineralized zones; changes in geological form and mineralization and assumptions of geological and grade continuity; variations in density and domain assignments; geometallurgical assumptions; changes in geotechnical, mining, dilution and metallurgical recovery assumptions; changes in design and input parameter assumptions pertaining to conceptual stope designs that constrain estimates; and assumptions as to the continued ability to access the site, retain title to surface and mineral rights, maintain environmental and other regulatory permits, and maintain the social license to operate.

There are no other known environmental, legal, title, tax, socioeconomic, marketing, political or other factors that could materially affect the estimate of Mineral Resources or Mineral Reserves that are not discussed in this Report.

A grade-tonnage curve was estimated for each mining method to show the effect of varying the NSR cut-off value in tons and the NSR value (**Figure 11-45** and **Figure 11-46**).

Bench & Fill Measured & Indicated Resources

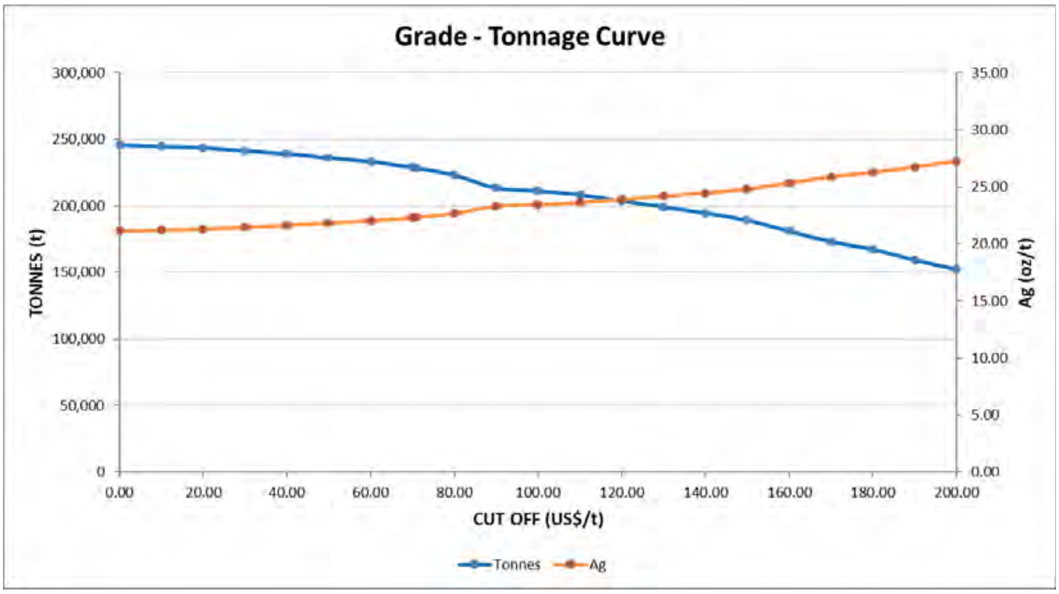


Figure 11-45: Grade-Tonnes curve for Bench & Fill

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

Ascending Sublevels with Cemented Fill Measured & Indicated Resources

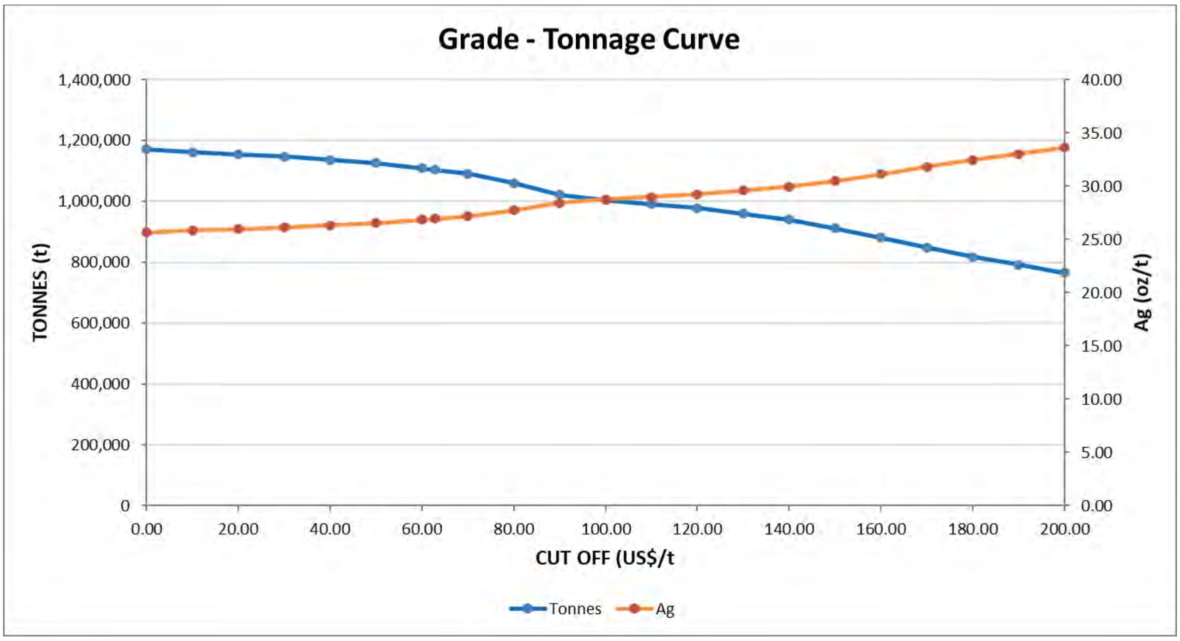


Figure 11-46: Grade-Tonnes curve for ascending sublevels with Cemented Fill

Source: Buenaventura Mineral Resources Area (Buenaventura, 2021)

11.11.15 Opinion On Influence for Economic Extraction

The QP is of the opinion that the Mineral Resources for the Yumpag Project, which have been estimated using core drill, have been performed to industry best practices, and conform to the regulations of SEC S-K 1300. The Mineral Resources are acceptable to support declaration of Mineral Reserves. Furthermore, it is the opinion of the QP that by Yumpag resource evaluation is based on actual mining, processing and smelting costs; test metallurgical recoveries, reasonable long-term metal prices; and the application of a transparent cut-off grade, the Mineral Resources have ‘reasonable prospects for economic extraction’.

12 Mineral Reserve Estimates

Uchucchacua is an operating mine that uses conventional underground methods to extract mineral reserves. The underground mining methods used are Bench & Fill (BF) and Cut & Fill (CF) in the Uchucchacua Zone; Over Drift & Fill (ODF), Bench & Fill (BF) and Overhand Sublevel Stoping (SARC) in the Yumpag Zone. The underground mining areas and its facilities are located entirely on land owned by Buenaventura or under surface use agreements with the owners. There are no royalties applicable on the reported mineral reserves areas.

Proven and probable mineral reserves are converted from measured and indicated mineral resources. Conversion is based on, mine design, mine sequence and economic evaluation. The in-situ value is calculated from the estimated grade and certain modifying factors.

The mine LoM plans and resulting mineral reserves stated in this report are based on pre-feasibility level studies.

Mineral reserves effective date is December 31st, 2021

12.1 Underground Mineral Reserves

12.1.1 Introduction

The underground mine was operated using two mining methods: Bench & Fill and Cut & Fill. Material is hauled by truck from the underground zone to an existing crusher facility located on processing plant zone. Currently the mine operations are stopped and planned to start in 2024 in the Uchucchacua Zone and additionally starting operations in the Yumpag Zone. Mineral reserve estimation is focused in both zones.

A block model cell size of 3 m x 3 m x 3 m is used for the underground mineral reserves estimation process. This block size is considered appropriate for the ore selectivity and mine design process. A dilution between 4% and 10% was introduced for the designed stope and an ore loss between 5% and 10% was considered for the ore materials depending of the mining method used. No further ore losses or ore dilution were applied.

12.1.2 Key Assumptions, Parameters, and Methods Used

The underground mineral reserves are reported within mine stopes designed using the software Deswik®. Stope design included an internal dilution sourced from inferred material and non-categorized material (hanging wall and footing wall).

Stope designs are generated automatically using the “Deswik stope optimizer” (DSO), which is a module of Deswik® software. Parameters for the application of DSO algorithm are according to the geotechnical evaluation detailed in Section 13.

The process to define mineral reserves was developed considering specific conditions of the mining method, which allow differentiated parameters and operating cost schemas. Mining methods considered are:

- Bench & Fill (Uchucchacua and Yumpag)
- Cut & Fill (Uchucchacua)
- Over Drift & Fill (Yumpag)
- Overhand Sublevel Stoping (Yumpag)

Designed stopes and their internal materials consider the following criteria:

- Characteristics of material inside stope wireframe are calculated considering it as a unique entity, including total tonnage, diluted grades and diluted NSR;
- The mineral resource category assigned to the whole material inside the wireframe corresponds to the lowest category existing inside the solid. Due to this process, part of material initially categorized as measured resources is reassigned to indicated resources and, as a consequence, becomes part of probable reserves;
- An additional dilution percentage was considered for external (or unplanned) dilution. This percentage is assigned evenly to the reported material inside designed stopes wireframes;
- Inferred and non-categorized material within the stope designed wireframes was treated as waste and given a zero value (grade and NSR).

For internal dilution purposes and according to geotechnical evaluation, the ELOS parameter used in the configuration of DSO for mine design stopes process is shown in Table 12-1.

Table 12-1: Deswik parameters

	ELOS parameter *	
Mining Method	**Hanging wall (m)**	**Footing wall (m)**
Uchucchacua Zone		
Bench & Fill	0.20	0.20
Cut & Fill	0.20	0.20
Yumpag Zone		
Over Drift & Fill (ODF)	0.20	0.20
Bench & Fill (BF)	0.30	0.30
Overhand Sublevel Stoping (SARC) **	0.00	0.00

Source: Buenaventura, SRK

* Parameter applied to configure the Deswik DSO® module used for stope design

** Overhand Sublevel Stoping with Cemented Backfill named as SARC by its Spanish acrony. It considers that diluting material adjacent to the stope is ore

Methodology Mineral Reserves Estimation

A 3D mine design was completed using Deswik® software and is the basis for the underground reserves.

The steps applied in the conversion process from mineral resources to mineral reserves included:

- Import resource block model;
- Assignment of metallurgical recoveries into an attribute of the block model;
- Compute NSR cut-off (economic and marginal);
- Compute economic revenue per block of the resource model (measured and indicated categories);
- Identify and analyze the economic envelope (revenue ≥ NSR cut-off);
- Identify the isolated and remote zones with regard to main operating zones or in relation to the principal zone defined as mineral resources;
- Design mine development, access and preparation headings for new mining areas;

- Set up Deswik® "Deswik Stope Optimiser" (DSO) module with mining unit dimension, mining dilution and NSR cut-off;
- Run Deswik® DSO module in the economic envelope. Review and adjust inputs as necessary, rerun Deswik DSO module in the economic envelope as needed;
- Validate the equipment fleet;
- Preliminary reserve confidence categories whereby measured and indicated mineral resource portions of stopes were modified to proven and probable mineral reserves respectively;
- Final operational and economic stope review (only stopes that have mineral reserves classified) to eliminate stopes that do not comply with the pre-set operational and economic criteria;
- Mine planning;
- Tabulate mineral reserves

12.1.3 Mining Dilution and Mining Recovery

Mining dilution and mining recovery for each stope were estimated taking into consideration the planned mining method and stope design.

Mining dilution is assumed to be from an inferred resource, non-categorized material or low-grade material entering the stope during mining, backfilling material and shotcrete. Mining dilution was incorporated considering two sources:

- Internal or planned dilution corresponds to material included as part of designed stopes that is different from measured or indicated mineral resources;
- External or unplanned dilution is generated by the impact of different activities of the mining cycle (blasting, loading, hauling, others). This material is included in the form of a percentage allowance of the in-situ estimated tonnage of the stope.

Mining dilution formula used for the mineral reserves estimation and calculations is:

$$\boldsymbol{dilution}(\%) = \frac{\boldsymbol{ore}}{\boldsymbol{ore} + \boldsymbol{waste}}$$

Mining recovery was defined on the basis of historical topographic records.

Consolidated values for mining recovery and mining dilution are shown in Table 12-2.

Table 12-2: Underground dilution percentages

Mining Method	Dilution	Recovery
Uchucchacua Zone		
Bench & Fill	10%	90%
Cut & Fill	4%	95%
Yumpag Zone		
Over Drift & Fill (ODF)	4%	95%
Bench & Fill (BF)	10%	90%
Overhand Sublevel Stoping (SARC) **	4%	95%

Source: Buenaventura, 2021 (reviewed by SRK)

** Overhand Sublevel Stoping with Cemented Backfill named SARC by its Spanish acronym. It considers that diluting material adjacent to the stope is ore

12.1.4 Cut Off Grades

An NSR cut-off was used rather than a grade cut-off, considering that Uchucchacua is a polymetallic mine that sells a different type of concentrates. Valuable contents are: silver, lead and zinc.

Cut-off grades definition are based on the historical cost of the last three years (2018-2020) and consider a detailed analysis process including:

- Analysis of the complete operating cost database managed through SAP System (Datamart);
- Analysis of Buenaventura corporative and headquarters costs (Uchucchacua is 100% owned by Buenaventura);
- Comparative analysis of Buenaventura costs reported in public domain sources;
- Identification of the one-off costs and other expenses non-related to mine operations;
- Estimation of sustaining CAPEX;
- Assessment of current and future conditions of mine operations.

For Uchucchacua underground mine, three variances of mining method were considered and for each mining method, two NSR cut-off values were defined:

- Economic cut-off: including fixed and variable costs for mining, processing plant and administrative costs;
- Marginal cut-off: including only variable cost.

Mineral reserves were stated using the marginal NSR cut-off value.

Inputs for NSR cut-off calculation and estimated NSR cut-off are listed in Table 12-3 and Table 12-4.

Table 12-3: UG NSR cut-off Input parameters for underground operations

		Uchucchacua Zone *		Yumpag Zone *		
Item	**Unit**	**Bench & Fill**	**Cut & Fill**	**Over Drift & Fill**	**Bench & Fill**	**SARC ****
Mining cost	US$/t ore	60.60	69.09	44.58	37.46	41.21
Process cost						
Plant - Circuit 1 ***	US$/t processed	30.54	30.54	30.65	30.65	30.65
Plant - Circuit 2	US$/t processed	13.56	13.56			
General and Adm. costs	US$/t processed	25.15	25.15	25.54	25.54	25.54
Sustaining capital cost	US$/t processed	5.45	5.45	5.45	5.45	5.45
Off site cost (corporate)	US$/t processed	7.11	7.11	7.11	7.11	7.11

Source: Buenaventura, 2021 (compiled by SRK)

* Costs listed include a contingency percentage
10%: Mining (except Yumpag), processing, general and administrative and sustaining
Average15%: Mining costs of Yumpag (considering the status of a project)

** Overhand Sublevel Stoping with Cemented Backfill named SARC by its Spanish acronym

*** Portion of concentrate produced in Circuit 1 is sent to Rio Seco plant

Table 12-4: UG NSR cut-off value for underground operations

		Uchucchacua Zone*		Yumpag Zone *		
Item	**Unit**	**Bench & Fill**	**Cut & Fill**	**Over Drift & Fill**	**Bench & Fill**	**SARC ******
NSR Economic cut-off						
Plant - Circuit 1 ***	US$/t processed	128.85	137.34	113.33	106.21	109.96
Plant - Circuit 2	US$/t processed	111.87	120.36			
NSR Marginal cut-off						
Plant - Circuit 1 ***	US$/t processed	74.99	83.48	72.03	65.62	62.81
Plant - Circuit 2	US$/t processed	58.01	66.51			

Source: Buenaventura, 2021 (compiled by SRK)

** Overhand Sublevel Stoping with Cemented Backfill named SARC by its Spanish acronym

*** Portion of concentrate produced in Circuit 1 is sent to Rio Seco plant

12.2 Metallurgical Recovery

Uchucchacua operates one plant and produces three types of products:

- Lead-silver concentrate;
- Zinc concentrate;
- Pyrite concentrate.

Part of lead-silver concentrates (with high manganese content) are processed in the Rio Seco plant.

Metallurgical recoveries were estimated considering operational conditions and were assigned to the block model as an attribute.

Recovery percentages are defined using formulas and grade range of application (when it applies). These formulas were developed based on:

- Analysis of the last three years of statistical data and metallurgical performance of the plant;
- Historical metallurgical testing results, and the latest results (2021) from the metallurgical testing campaign using representative samples collected from the mineral reserve sectors.

Using the available information from the mining metallurgical disciplines, SRK developed specific mathematical expressions for the metallurgical recovery. Data support and details of analysis (formulas and graphic representation) are included in chapters 10 and 14.

SRK considers that there are significant room to improve the accuracy of the mathematical expressions, and strongly recommends continuing efforts to collect detailed operational data as well as executing metallurgical tests to increase the accuracy of the Reserves & Resources estimates.

Curves and formulas are shown as follows by element according to products and recoverable elements showed in Table 12-5.

Table 12-5: Uchucchacua processing plants and products

Plant	Throughput (tpd)	Processed Ore *	Products
Circuit 1	3,000	Ore Pb-Zn-Ag (high Mn)	Concentrate Pb-Ag
			Concentrate Zn-Ag
			Concentrate Py
Circuit 2 **	1,200	Ore Pb-Zn-Ag	Concentrate Pb-Ag
			Concentrate Zn-Ag

Source: Buenaventura, 2021 (compiled by SRK)

* Circuit 1 preferably treats the material with high manganese contents

** Some concentrates from Circuit 2 can be sent to Rio Seco plant to complete its capacity (36,000 t/year)

For material processed through processing plant, functions are detailed in Table 12-6 and graphs are shown in **¡Error! No se encuentra el origen de la referencia.**, **¡Error! No se encuentra el origen de la referencia.** and **¡Error! No se encuentra el origen de la referencia.**, differentiated by metal and grade ranges.

Table 12-6: Metallurgical recovery functions

Metal	Applicable Grade Range	Metallurgical Recovery function *
Pb	0.00 < Pb Grade (%) <= 0.40	2.28290 * Pb Grade (%)
	0.40 < Pb Grade (%)	0.0024 * Pb Grade (%) + 0.9122
Zn	0.00 < Zn Grade (%) <= 0.55	1.11224 * Zn Grade (%)
	0.55 < Zn Grade (%)	0.1172 * Ln [Zn Grade (%)] + 0.6818
Ag	0.00 < Ag Grade (oz/t) <= 2.80	0.28877 * Ag Grade (oz/t)
	2.80 < Ag Grade (oz/t)	0.0422 * Ln [Ag Grade (oz/t)] + 0.7651

Source: SRK, 2021

* Grades expressed as a percentage must be considered in the same units in the recovery functions

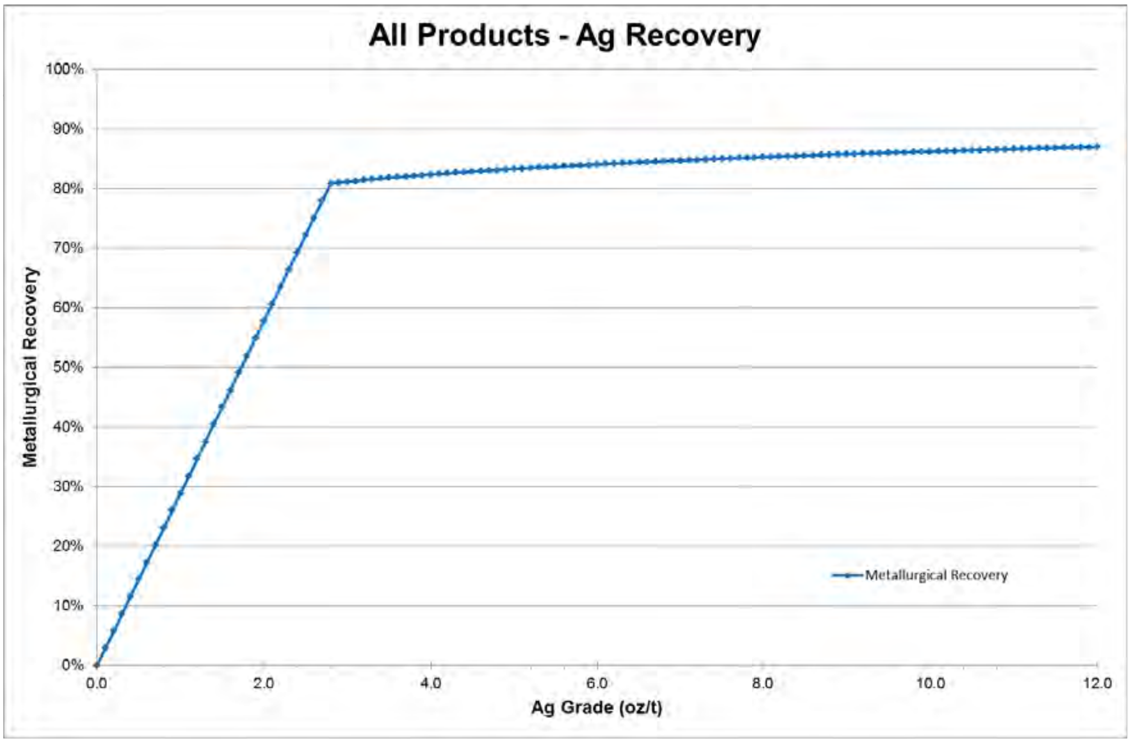


Figure 12-1: Ag recovery

Source: SRK, 2021

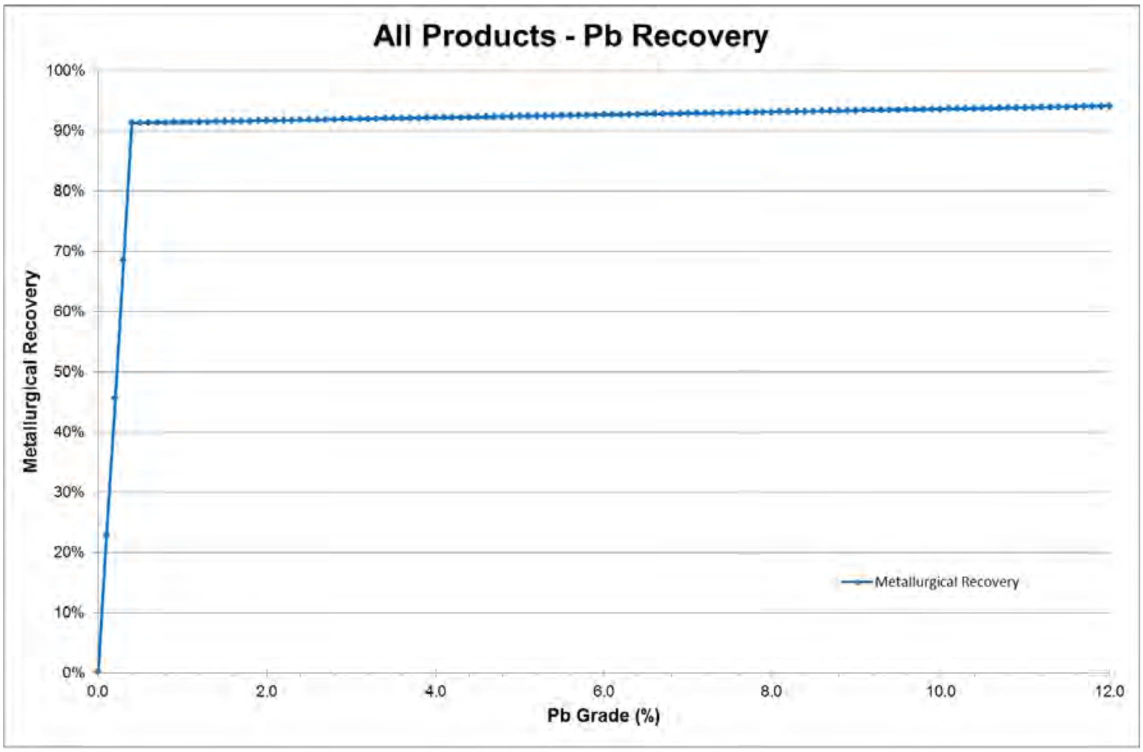


Figure 12-2: Pb recovery

Source: SRK, 2021

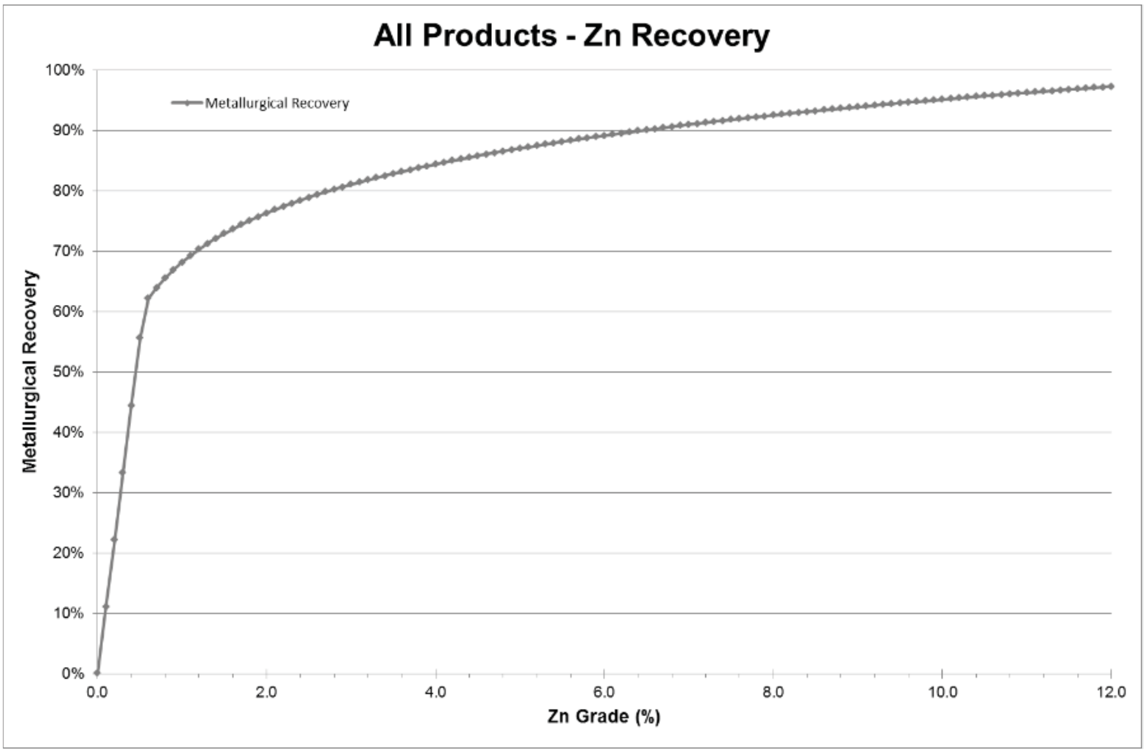


Figure 12-3: Zn recovery

Source: SRK, 2021

12.3 NSR Block value

Uchucchacua is a polymetallic mine operation, producing three types of products with three payable elements. Accordingly, the mineral reserves were estimated under the concept of multiple commodity ore.

NSR block value estimation considers the contribution of the different elements that generate value in the sale of products, taking into consideration the following aspects:

- Metal prices;
- Metallurgical recovery, included as an attribute in the block model;
- Payable contents in the saleable product;
- Commercial deductions, as such: RC, TC, penalties
- Selling expenses, as such: transport, insurance, supervision, sampling, logistic costs.

NSR value calculation uses a serie of “unit values” calculated for each metal, which contributes to the saleable products' value. The “unit value” consolidates the following aspects into a unique factor: payable contents, commercial deductions and selling expenses

Metal prices were stated by Buenaventura, based on market study and long-term consensus sources. Metal prices are listed in Table 12-7 and are coherent with the results of Market Study (Chapter 16) carried out by CRU Group.

Table 12-7: Metal Prices for mineral reserves definition

Metal and Units	Price
Silver (US$/oz)	25
Lead (US$/t)	2,286
Zinc (US$/t)	2,385

Source: Buenaventura

Currently, Uchucchacua has eight active contracts (six for lead concentrate) with different traders with terms between one to three years.

Most of the terms and conditions of the contracts between Buenaventura and traders are covered by confidentiality clauses. Notwithstanding, SRK has had access to the contracts and commercial clauses stated in each and confirmed that these parameters were used to define each “unit value”.

Unit values calculated used to determine the NSR block value are shown in Table 12-8.

Table 12-8: Estimated unit value by metal and type of concentrate

Saleable product	Unit value by Metal (US$ / unit of grade) *		
	Ag	Pb	Zn
All	16.84	10.10	9.24
Grade units **	Ag (oz/t)	Pb (%)	Zn (%)

Source: Buenaventura (compiled and verified by SRK)

* Unit value is used as a factor (multiplied by recoverable content) to calculate the value contribution (US$/t)

** Grades must be expressed in the indicated units to use the formula

12.4 Material Risks Associated with the Modifying Factors

SRK has identified the following material risks associated with the modifying factors:

Mining Dilution and Mining Recovery:

The mining dilution estimate depends on the accuracy of the resource model as it relates to internal waste. SRK considers that dilution and mine recovery assumed is reasonable but requires deeper analysis, and it represents a risk that could impact grades and tonnage of Run of Mine ore.

Impact of Currency Exchange Rates on Production Cost:

The operating costs are modeled in US Dollars (US$) within the cash flow model. The foreign exchange rate profile has not been analyzed in detail. Considering that only a portion of the cost and expenses are in local currency (Peruvian Soles), and given the high variability of the exchange rate over the last two years, the operating cost could be impacted.

Additionally, inflation rates, which were very stable in Peru over the ten years prior to 2021, have started to show variations and their evolution down the line is unpredictable.

Geotechnical Parameters:

Geotechnical parameters used to estimate the mineral reserves can change as mining progresses.

Mine stopped:

Currently, the mine is stopped and there is a structured plan to re-start the operation during 2024, including the zone named Yumpag. Mineral reserves were estimated under the assumption of re-start success. Any issue in the process could impact the mineral reserves estimation, including mine plan and financial results.

Metallurgical aspects:

SRK considers that some metallurgical aspects can have an impact in the results of mineral reserves estimation and must be adequately monitored and supported:

- Support for silver recovery in the different products.
- Incorporate performance and results of Rio Seco as part of Uchucchacua evaluation, considering that Rio Seco is dedicated to treat only materials from Uchucchacua
- Improvements in the assignment of destination (circuit 1 and 2) for in situ material

Commercial aspects:

Changes in the traceability and assignment of commercial conditions into the different saleable products could impact in the value assignment and mineral reserves estimation.

Lack of reconciliation:

The modifying factors require adequate feedback from operational results, which helps ensure that said factors are representative of current operations. This must be based on a systematic reconciliation process that is not available for Uchucchacua. Inconsistencies in the general mass balance and fine content traceability force would cause an impact in the mineral reserves estimation.

Political situation:

Uncertainty in the local political situation can generate impacts on the cost, facilities, or conditions to operate the mining unit, subsequently impacting mineral reserves.

12.5 Mineral Reserves Statement

The conversion of mineral resources to mineral reserves has been completed in accordance with CFR 17, Part 229 (S-K 1300). The reserves are based on underground operations. Appropriate modifying factors have been applied as previously discussed. The positive economics of the mineral reserves have been confirmed by LoM production scheduling and cash flow modeling as discussed in sections 13 and 19 of this report, respectively.

The reference point for the mineral reserve estimate is the point of delivery to the process plant. The Qualified Person Firm responsible for the estimate is SRK consulting (Peru) SA.

In the QP’s opinion, the mineral reserves estimation is reasonable in the context of the available technical studies and information provided by Buenevantura.

Table 12-9 shows the Uchucchacua mineral reserves as of December 31st, 2021.

Table 12-9: Uchucchacua Underground Summary Mineral Reserve Statement as of December 31st, 2021

Mining Method	Confidence category	Tonnage (kt)	Silver Grade (gr/t)	Lead Grade (%)	Zinc Grade (%)	Manganese Grade (%)
Uchucchacua Bench & Fill	Proven	513	213.55	1.27	2.18	4.75
	Probable	3,662	220.54	1.34	2.22	4.72
	Sub-total Proven & Probable	4,175	219.68	1.33	2.22	4.72
Uchucchacua Cut & Fill	Proven	70	234.06	1.45	3.22	1.74
	Probable	355	300.66	1.17	2.24	2.69
	Sub-total Proven & Probable	425	289.68	1.22	2.40	2.53
Yumpag Over Drift & Fill	Proven	19	451.87	0.24	0.29	17.59
	Probable	544	545.05	0.39	0.75	16.72
	Sub-total Proven & Probable	562	541.97	0.39	0.73	16.75
Yumpag Bench & Fill	Proven	3	1,104.34	1.02	1.95	15.47
	Probable	857	640.24	0.51	0.93	16.45
	Sub-total Proven & Probable	860	641.95	0.51	0.93	16.45
Yumpag SARC **	Proven	0	0.00	0.00	0.00	0.00
	Probable	96	613.65	0.41	0.84	17.31
	Sub-total Proven & Probable	96	613.65	0.41	0.84	17.31
TOTAL	Proven	605	227.93	1.26	2.24	4.85
	Probable	5,514	329.78	1.09	1.85	7.82
	Total Proven & Probable	6,119	319.72	1.11	1.89	7.52

Source: SRK, 2021

(1) Buenaventura's attributable portion of mineral resources and reserves is 100.00% (Amounts reported in the table corresponds to the total mineral reserves)

(2) The reference point for the mineral reserve estimate is the point of delivery to the process plant.

(3) Mineral reserves are current as of December 31th, 2021 and are reported using the mineral reserve definitions in S-K 1300. The Qualified Person Firm responsible for the estimate is SRK Consulting (Peru) SA

(4) Key parameters used in mineral reserves estimate include:

Mining Method	Confidence category	Tonnage (kt)	Silver Grade (gr/t)	Lead Grade (%)	Zinc Grade (%)	Manganese Grade (%)

(a) Average long term prices of silver price of 25.00 US$/oz, lead price of 2,286 US$/t, zinc price of 2,385 US$/t

(b) Variable metallurgical recoveries are accounted for in the NSR calculations and defined according to recovery functions, that average 83% for silver, 64% for lead and 44% for zinc

(c) Mineral reserves are reported above a marginal net smelter return cut-off of:
Uchucchacua Zone (Circuit 1): 74.99 US$/t for bench & fill and 83.48 US$/t for cut & fill mining methods;
Uchucchacua Zone (Circuit 2): 58.01 US$/t for bench & fill and 66.51 US$/t for cut & fill mining methods;
Yumpag Zone: 72.03 US$/t for over drift & fill, 65.62 US$/t for bench & fill and 62.81 US$/t for overhand sublevel stoping mining methods.
.

(d) Ore from Uchucchacua Zone is scheduled to be processed throught circuit 1 and circuit 2.
Ore from Yumpag Zone is scheduled to be processed throught circuit 2.

(5) Mineral reserves tonnage, grades and contained metal have been rounded to reflect the accuracy of the estimate, and numbers may not add due to rounding

13 Mining Methods

It should be noted that the Uchucchacua MU considers, within its scope as a mine, the Yumpag project located 1 km north-east of its operations. Mining method selection considerations for both Uchucchacua and Yumpag are independent of each other. Both will be mentioned and detailed in the following paragraphs.

Uchucchacua is a polymetallic deposit associated with replacement bodies and veins containing Ag, Zn, Pb, Fe, and Mn. The mineralization processes at Uchucchacua have been complex and multiple, therefore its mineralogy is unusually varied. Among the main mineral groups are: Oxides, Silicates, Carbonates, Sulfides and Sulfosalts. The style of mineralization, in general, is given by fracture filling and metasomatic replacement. The following figure shows the configuration of mineralized structures and the current zoning of the mine:

- Socorro Zone: mineralization mainly in the form of veins.
- Carmen Zone: veins and bodies in the form of sills and replacement raises.
- Huantajalla Zone: veins and replacement raise
- Casualidad Zone: veins

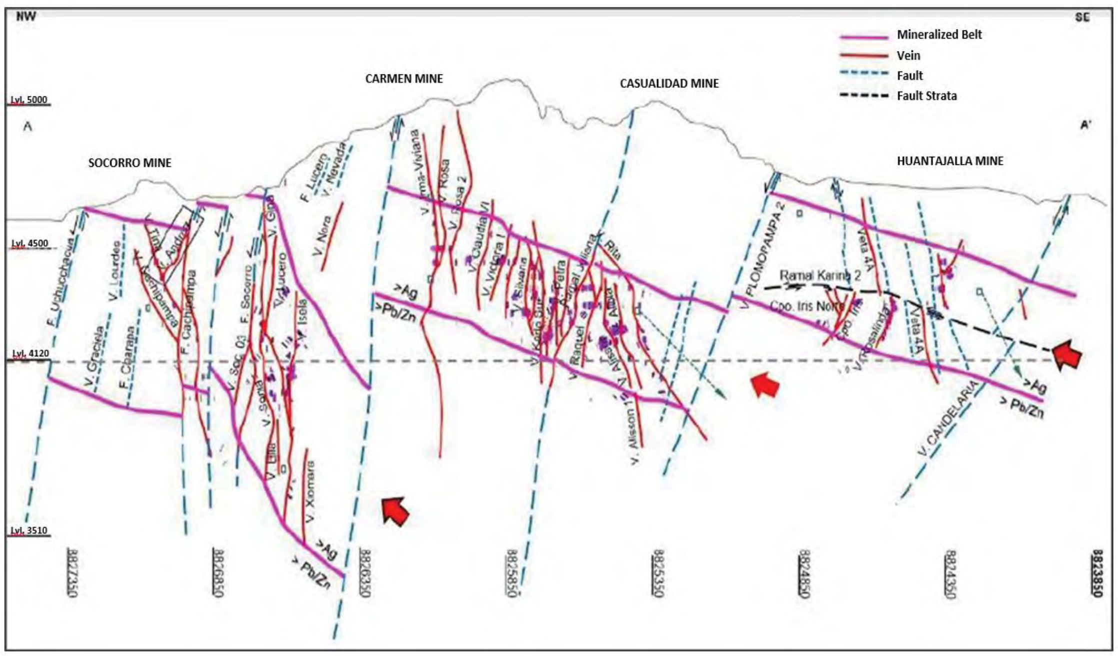


Figure 13-1: Cross section of Uchucchacua Mine.

The Uchucchacua mine veins are located in three main systems:

- NW-SE system, which generally predominates in the Socorro area, bounded by the Uchucchacua and Cachipampa faults.
- E-W system with N 80° to E-W strike and quasi-vertical dips.
- NE-SW system dominating the entire southern part of the deposit.

Mineralized structures are mostly between 1 and 4 meters thick, with occurrences in some sectors with thicknesses in the order of 15 meters.

At the operational level, the Uchucchacua mining unit is divided into five sectors, which are listed below:

- Socorro (Alto)
- Socorro (Bajo)
- Casualidad
- Huantajalla
- Carmen

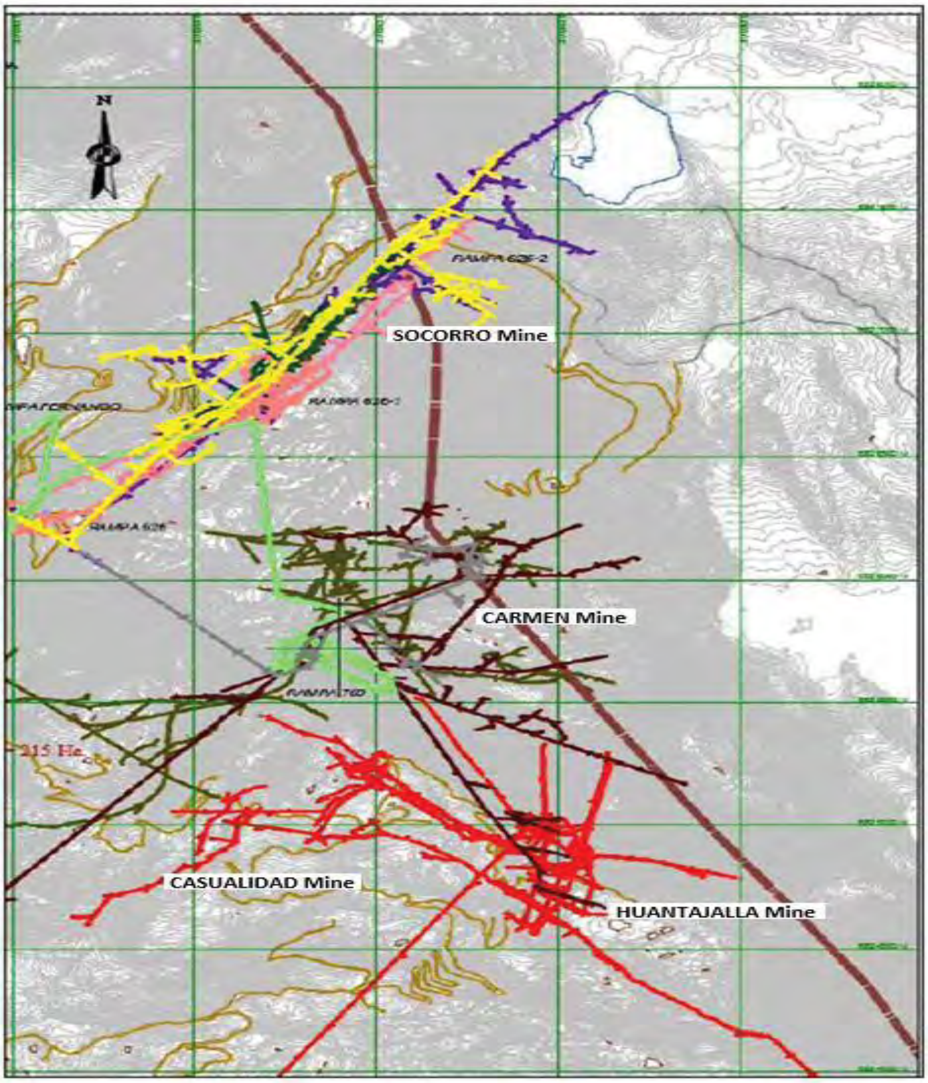


Figure 13-2: Uchucchacua mining areas

Source: BVN

Since the beginning of the Uchucchacua operation, the mining method applied has been Cut and Fill. In recent years, a variant of the OCF has been applied to all sectors of the mine– the Bench and Fill (B&F) method– which was mainly used in the Socorro Bajo sector, where this method is 100% applied. This has allowed productivity and production levels to rise.

The Uchucchacua mining unit applies two underground mining methods:

- Bench & Fill with long holes. This method corresponds to an adaptation of sublevel stoping (SLS).
- Overhand Cut & Fill (OCF) with stoping-like vertical raiseboring

A. Bench & Fill (B&F)

Bench & fill entails longitudinal mining of the vein. A lower and upper sublevel are built, and leaving an ore bench between them, which is mined by long-hole drilling. As the ore is broken from the bench on one face and the ore is cleaned from the lower sublevel, the stope is backfilled from the upper sublevels with detrital fill.

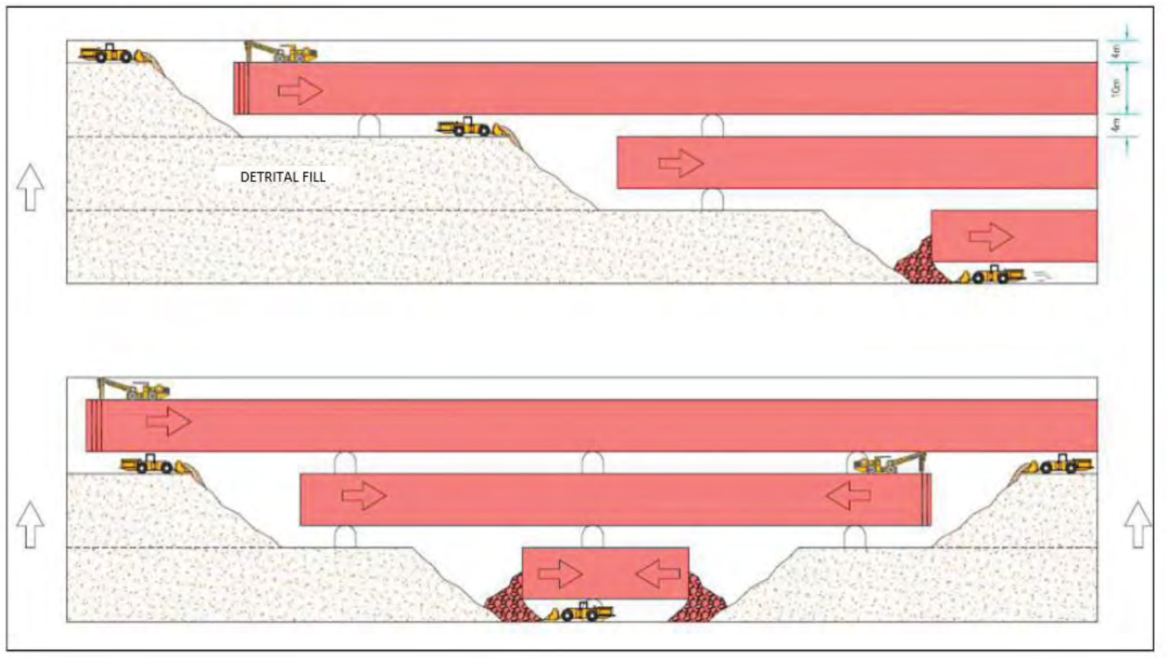


Figure 13-3: B&F mining diagram

Source: BVN

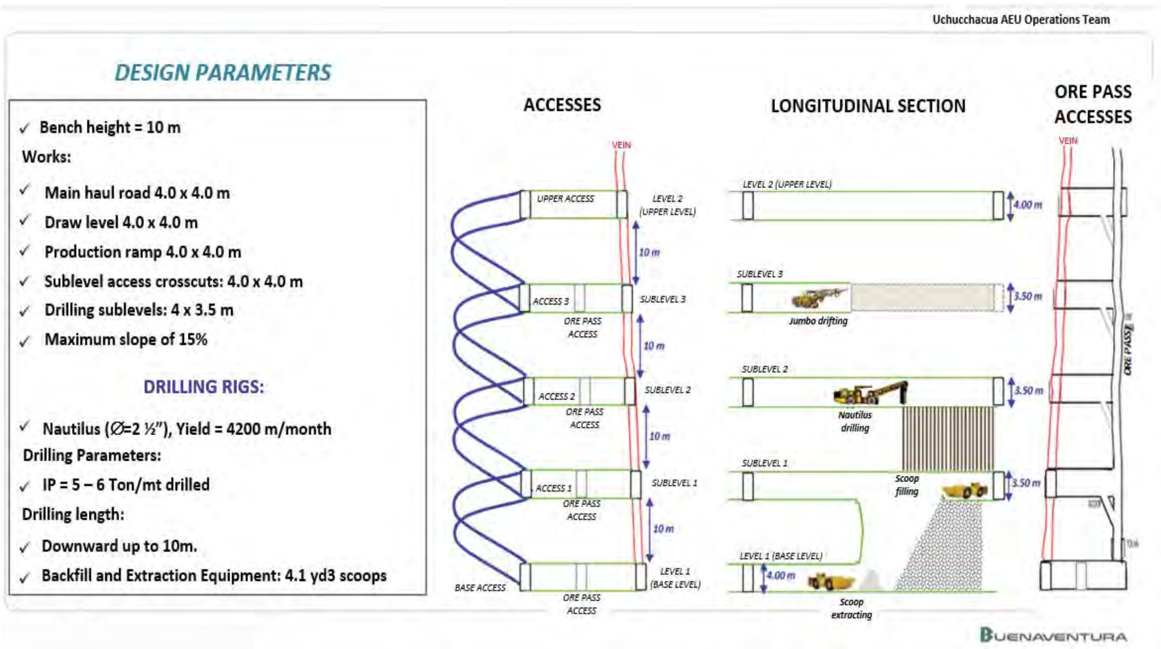


Figure 13-4: Bench & Fill method at Uchucchacua: Sequence

Source: BVN

B. Overhand Cut and Fill (OCF)

Overhand Cut and Fill basically involves two activities:

- Stoping: sub-vertical drilling
- Backfill: 80% of the backfill is detrital fill from development/preparations and 20% is hydraulic fill.

In this method, the ore is fragmented in horizontal strips starting at the bottom of the stope. When a complete horizontal strip has been mined, the stope is backfilled with 80 and 20% detrital material and hydraulic fill, respectively. This backfill serves as a work floor for overhand mining. In each ore cut, support work must be done to ensure the stability and safety of personnel and equipment, as this method requires that personnel enter the area.

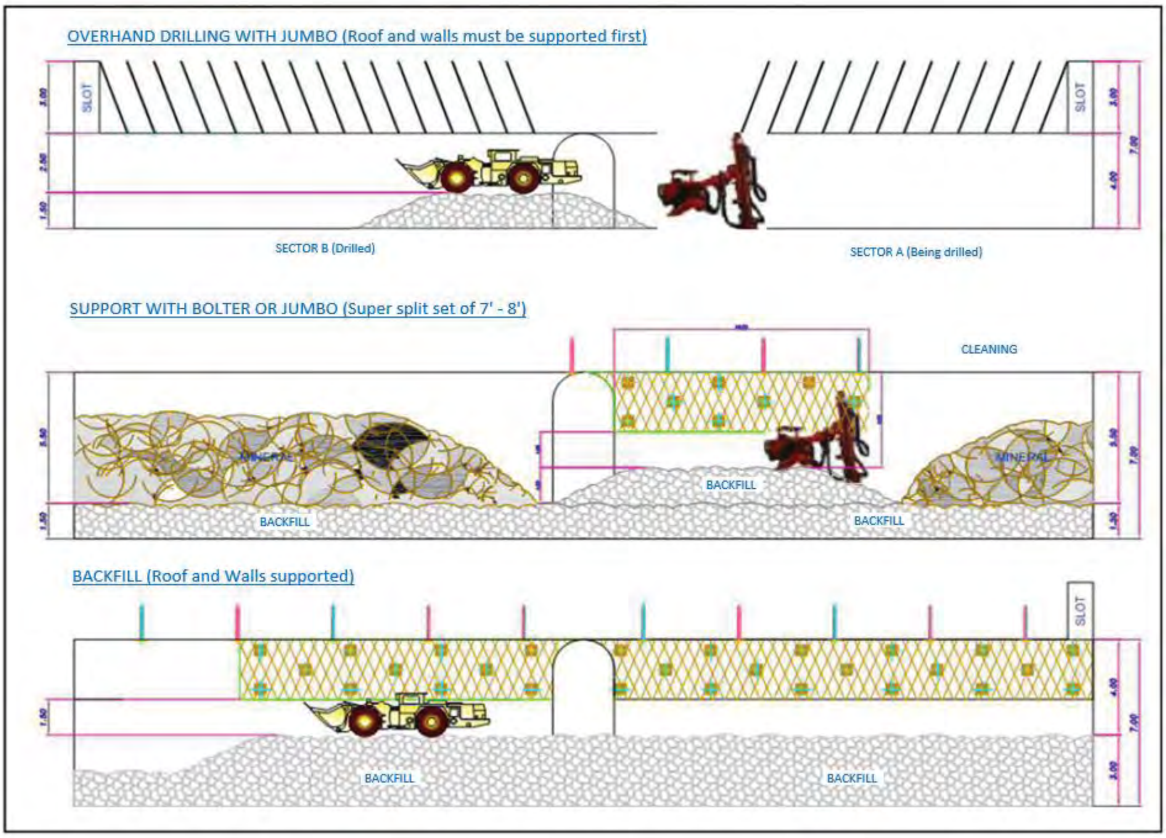


Figure 13-5: OCF mining cycle.

Source: BVN

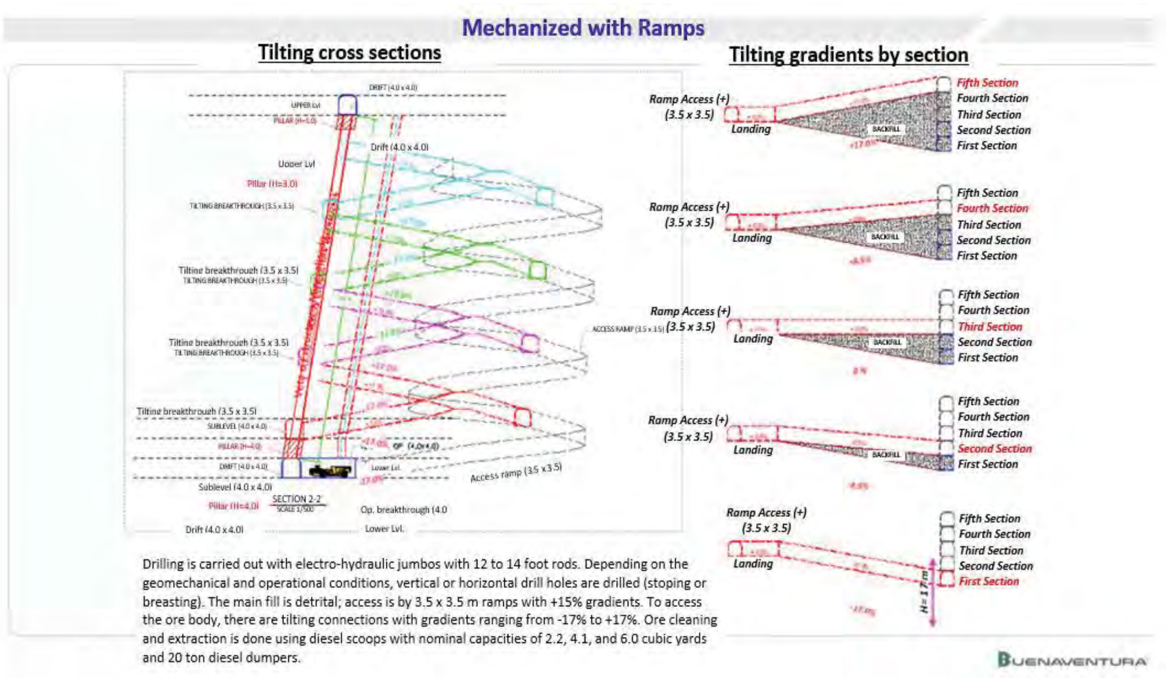


Figure 13-6: Mechanized Overhand Cut and Fill method at Uchucchacua: Sequence

Source: BVN, modified by SRK

The table below shows the distribution of reserves according to mining methods at the Uchucchacua mining unit; this information corresponds to the mineral reserves for the year 2021.

Table 13-1: Distribution of UCH ore reserves according to mining methods applied.

Mining method	Tonnes (t)	Share (*)
Bench & Fill	4,629,176	91%
Overhand Cut & Fill	435,955	9%
TOTAL	5,065,131	100%

***Includes 2021 Reserves**

Source: BVN

In turn, based on the same distribution of reserves according to mining method, the share of each method in each zone and sector is detailed:

Table 13-2: Distribution of ore reserves according to mining methods applied by Sector

Zone	Sector	Mining method	Tonnes (t)	Participation (*)
1	Socorro Bajo	Bench & Fill	1,063,492	21%
	Socorro Alto	Bench & Fill	2,244,161	44%
		Overhand Cut & Fill	256,307	5%
2	Casualidad	Bench & Fill	210,374	4%
		Overhand Cut & Fill	13,214	1%
3	Huantajalla	Bench & Fill	151,658	3%
		Overhand Cut & Fill	105,360	2%
4	Carmen	Bench & Fill	959,491	19%
		Overhand Cut & Fill	61,074	1%
TOTAL			5,065,131	100%

*Includes 2021 Reserves

Source: BVN

The YUMPAG project seeks to mine mainly Ag, Pb, Zn, and Mn. The selected mining methods are Bench&Fill (B&F), Overhand Drift & Fill (ODF), and SLS in its variant Overhand Sublevel Stoping with Cemented Backfill (SARC). These mining methods have been defined based on the thickness of structures:

- Thicknesses greater than 10 m: The mining method has been defined as the crosscutting sublevel stoping (SLST) through primary and secondary stoping, with the use of cemented backfill or alternatively the Drift and Fill (ODF) method by panels for Mantos.
- Thicknesses less than 10 m: Bench & fill method with the use of detrital fill has been defined.

A. Overhand Drift & Fill (ODF)

The Overhand Drift & Fill method is described below:

The mining block will be accessed perpendicularly from the main ramp accesses. Once reached, entry will be made by developing a working sublevel. If the ore body extension is sufficient, two working sublevels will be developed, starting from the center with one to the left and the second to the right.

Due to the morphology of the body and to exploit as many panels as possible simultaneously, said panels have been classified as primary and secondary and are situated in an intercalated manner.

The explotation sequence is subdivided into two stages

- The first stage corresponds to the exploitation of primary panels, using the secondary panels as temporary natural pillars to ensure the stability of the production area. The mining sequence in the primary panels involves exploiting the panels on one side of the working sublevel before moving to the other side. Additionally, panels are mined from the ends to the center of the block. The cycle of a mining panel includes immediate backfilling at the end of exploitation; this ensures that the smallest possible number of cavities are open simultaneously. The backfill will be cemented.
- For the second stage, it is expected that the primary panels are duly filled and set prior to beginning exploitation of secondary panels. This will be carried out using the same methodology as for the primary panels. The backfill will be detrital.

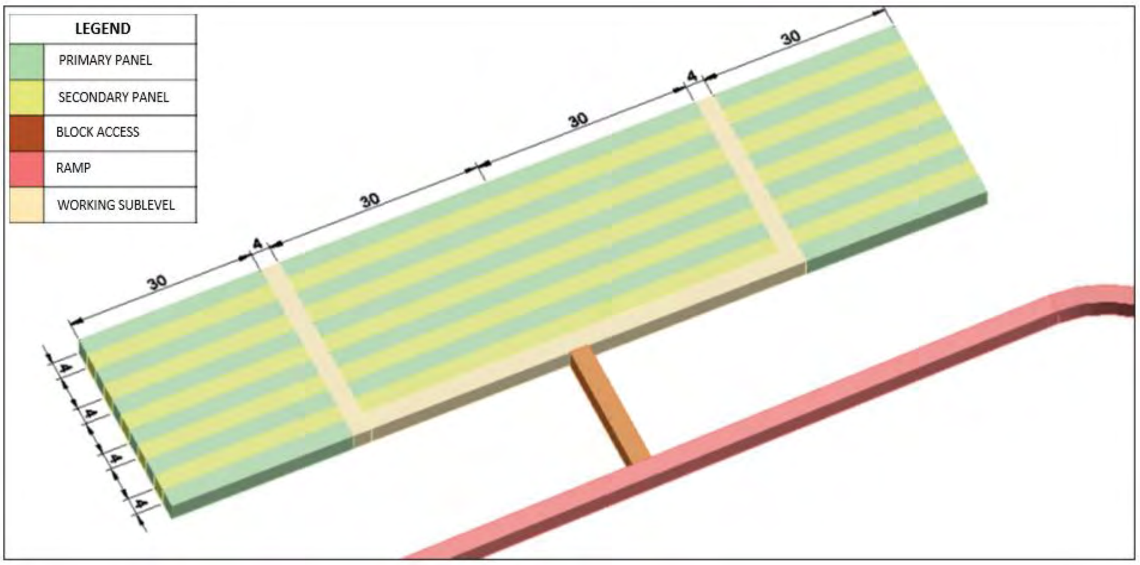


Figure 13-7: OCF mining method diagram.

Source: BVN

B. Bench & Fill (B&F)

As in Uchucchacua, this method does not consider primary or secondary stopes and is for maximum thicknesses of 10m. The mining block will be accessed through two accesses from the main ramp (which will have a perpendicular orientation to that of the mining panels), one upper and one lower. When the mining block is reached, drilling and hauling sublevels will be developed starting from the accesses. The backfill will be detrital.

C. Overhand Sublevel Stoping with Cemented Backfill (SARC)

The mining block will be accessed through two accesses from the main ramp, which will have a parallel orientation to the direction of the mining panels: one upper and one lower. When the mining block is reached, drilling and hauling sublevels will be developed.

Due to the morphology of the body and to exploit as many benches simultaneously as possible, the blocks have been classified into primary and secondary and are situated in an intercalated manner.

As in the ODF method, the mining sequence is repeated in two stages:

- Initial mining of primary panels, where secondary panels act as temporary natural pillars. Once mined, immediate backfilling is carried out, thus generating the least number of open cavities at the same time. The backfill will be cemented.

- For the second stage, once the primary panels are duly filled and cemented, exploitation of secondary panels begins. This will be carried out using the same methodology as that employed for the primary panels. The backfill will be detrital.

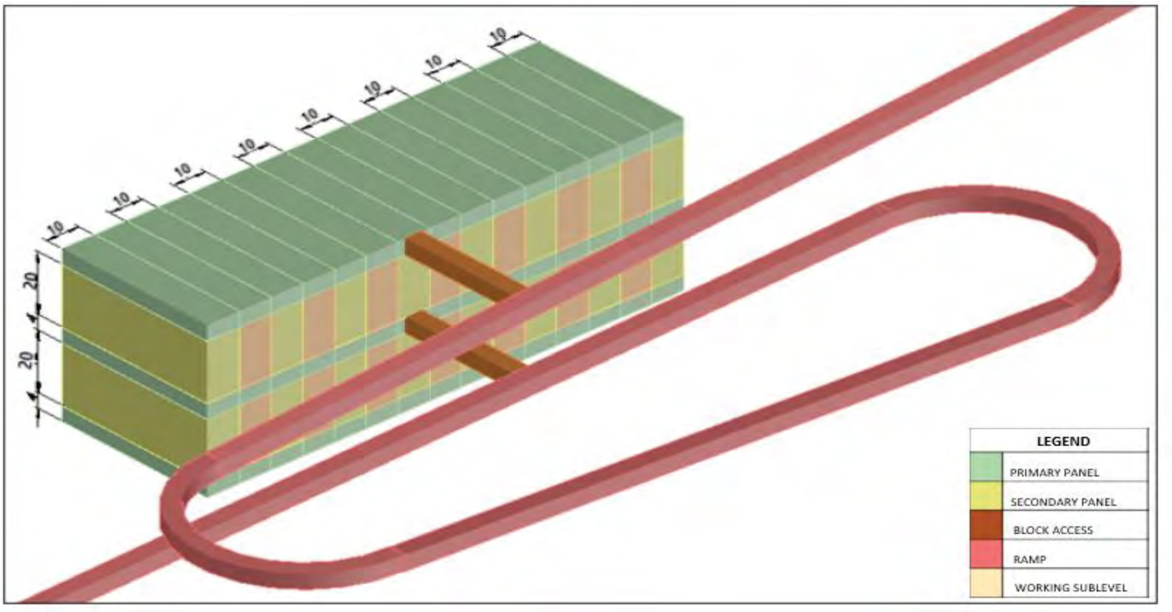


Figure 13-8: SARC mining method diagram.

Source: BVN

The table below shows the distribution of reserves according to mining methods at the Yumpag project; this information corresponds to the mineral reserves for the year 2021.

Table 13-3: Distribution of YPG ore reserves according to mining methods applied.

Mining method	Tonnage (t)	Share (*)
Overhand Drift & Fill	52,641	3%
Bench & Fill	605,735	40%
SARC	860,224	57%
TOTAL	1,518,600	100%

*Includes 2021 Reserves
Source: BVN

13.1 Parameters Relevant to Mine Designs and Plans

13.1.1 Geotechnical

The Uchucchacua mine database has 62 drillholes with geomechanical information (6708 linear meters) and 16 drillholes (4340 linear meters) in the Yumpag sector and 62 geomechanical stations distributed in the hanging wall, footwall, orebody, and distant wall domains of the different veins; at each station, the characteristics of the main discontinuity families were identified and quantified (orientation, spacing, persistence, roughness, wall strength, opening, filling, degree of weathering and presence of water). In addition, there are 28 simple compression tests, 15 triaxial tests, and 20 physical property tests. Additional information from geomechanical zoning plans by levels, developed by Uchucchacua, was reviewed and incorporated. Figure 13-9 and 13-10 shows the distribution of drillholes with geotechnical information for Uchucchacua and Yumpag respectively.

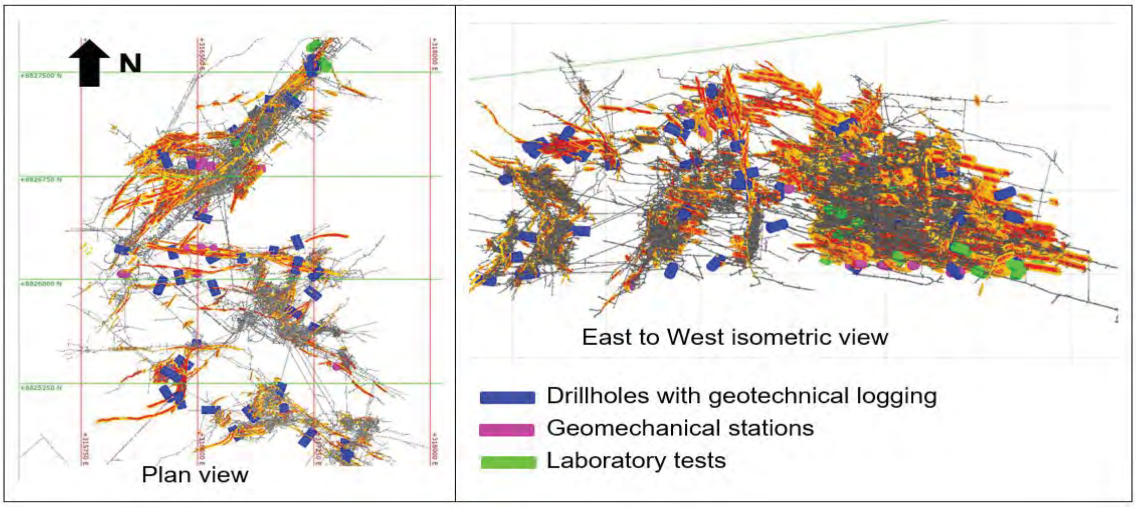


Figure 13-9: Distribution of drillholes and mapping with geotechnical information at the Uchucchacua mine.

Source: BVN

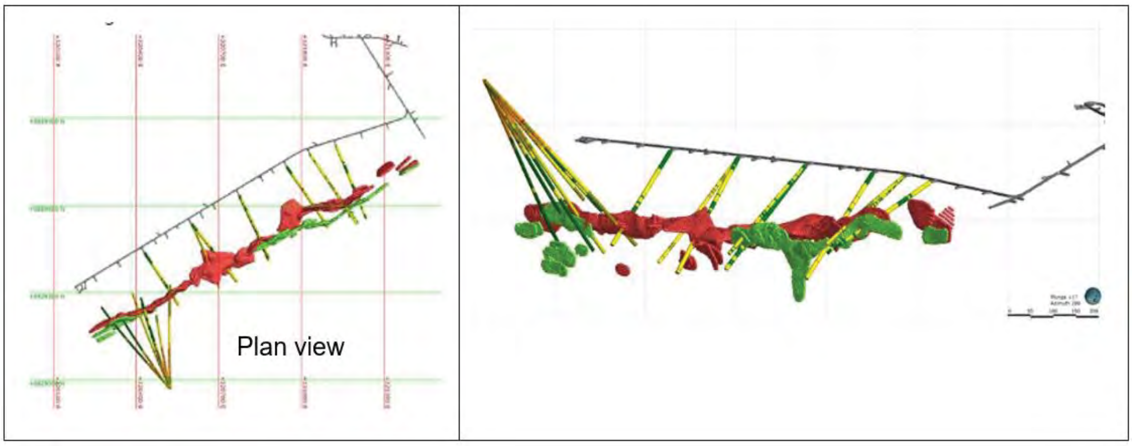


Figure 13-10: Distribution of drillholes and mapping with geotechnical information at the Yumpag mine

Source: BVN

13.1.2 Geomechanical characterization

From the geotechnical investigations carried out at Uchucchacua for all structures, it has been found that the frequency of fractures in the rock mass generally varies between 2 to 6 F/m (fractures per meter), and RQD indices indicate a fair to good rock quality (RQD = 60 to 90%). Localized zones with low RQD (RQD = 10 - 40) are associated with zones of altered rock and weak geologic structures such as faults. Table 13-4 summarizes the uniaxial strength of intact rock, "mi" values obtained from triaxial tests, and rock density for each sector. In general, the intact rock strength for Uchucchacua is in the range of 50 to 75 MPa conformed by limestones and for Yumpag; the walls exhibit values of around 100 MPa.

Table 13-4: Summary of intact rock compressive strength and "mi" values by domain and sector

Sector/Zone	Domain	Density (KN/m³)	UCS (MPa)	mi
Socorro	HW	26.4	62	9
	Vein	34.6	66	15
	FW	27.1	63	9
Casualidad	HW	27.1	68	9
	FW	27.3	60	6
Carmen	HW	26.8	61	11
Huantajalla	HW	27.0	63	6
Yumpag	HW	27.0	104	11
	FW	26.7	105	13

Source: BVN

In general, vein rock quality in the RMR76 classification system for the hanging wall ranges from 41 to 65. In the footwall and mineralized structure, RMR76 values range from 40 to 70. Table 13-5 summarizes the average geomechanical classification values in the RMR76 System for the host rock and mineralized structure for the main veins in each zone; additionally, RMR values have been determined by calculating the mean minus 50% of the standard deviation. For the body and vein at Yumpag, the ore RMR has been found to vary between 38 to 42 and the host rock RMR between 38 to 46. The main discontinuities system presents a sub-parallel orientation along the bodies and veins.

Table 13-5: Summary of rock quality by sector and mineralized structure at Uchucchacua from logging and geomechanical mapping

Zone	Structure	RMR´$_{76}$				
		DFW	CFW	Vein	CHW	DHW
Socorro	1060 V Cachipampa	53	57	55	53	58
	1130 V_Gina	49	44	46	48	52
	1151 V_Marisol	43	46	40	43	44
	1250 V_Luz	48	38	41	41	53
	1291_V_system_Maricela	57	47	53	48	63
	1362 V_Sonia	61	68	68	66	52
	1390 V_Vanessa	53	65	47	48	55
Carmen	2300 V_Rosa	57	40	-	-	56
	2400 Verónica	63	64	60	-	52
Huantajalla	3010 Vein 3A	59	61	-	-	57
	3020 V_4A	55	43	52	63	55
	3030 Vein 7A	61	63	65	65	60
	3130 V Eugenio	63	63	63	63	-
	3320 V Sarita	52	50	-	63	59
Casualidad	4070 V_Jacqueline	59	50	51	52	57
	4110 v_Sandra	60	49	56	56	61
	4120 v_Violeta	65	70	70	65	55
	4151 v_Plomopampa	62	55	56	67	59
Yumpag	Body	41	43	40	46	40

Zone	Structure	RMR´76				
		DFW	CFW	Vein	CHW	DHW
	Mantle	41	36	42	38	42
	Vein	45	38	38	42	43

Source: BVN

The discontinuity systems of the close wall and mineralized structure at Uchucchacua present a sub-parallel to parallel orientation to the mineralized structures, so the workings or stopes along these veins will present an unfavorable structural control, which will have a relevant incidence for the stability of the stopes' hanging wall in the bench & fill mining method.

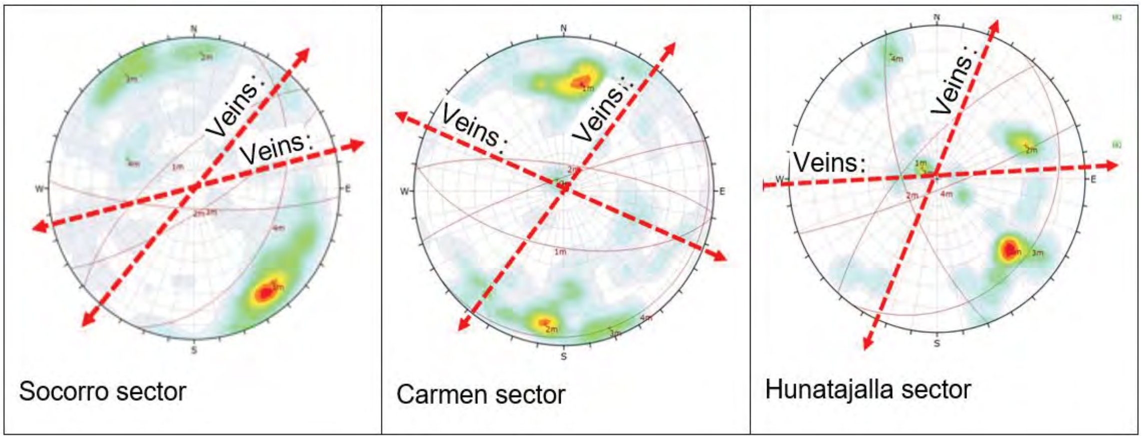


Figure 13-11: Stereographic analysis of discontinuities by sector

Source: BVN

13.1.3 In situ and induced stress condition

A program of in situ stress measurements was performed at three mine locations using the CSIRO Hollow Inclusion methodology. Point P1 (Lvl 4120) was measured at a depth of 430 m from surface where a major principal stress (σ1) with magnitude between 22 to 24 MPa, an average azimuth of N110°, and an inclination varying between -7 to -7.6° was obtained. Point 2 (Lvl 3850) was taken at a depth of 640 m with a major principal stress (σ1) between 25 to 28 MPa, with an azimuth of 185°, and an inclination between 31 to 34°. Point 3 (Lvl 3610) was measured at a depth of 1200 m with a major principal stress in the order of 40 MPa, with an azimuth between 300 to 340°, and an inclination between -60 to -80°. The following table shows the results of stress measurements.

Table 13-6: Results of in situ stress measurements performed at Uchucchacua mine

LVL 4120 (P1) Principal stresses measured at 430 m depth								
σ_1 (MPa)	AZ_1 (º)	I_1 (º)	σ_2 (MPa)	AZ_2 (º)	I_2 (º)	σ_3 (MPa)	AZ_3 (º)	I_3 (º)
23.4	110.6	-7.6	18.8	246.2	-79.5	7.7	19.6	-7.3
24.4	106.9	-6.8	23	296.7	-83.1	13.3	197.0	-1.2
LVL 3850 (P2) Principal stresses measured at 640 m depth								
σ_1 (MPa)	AZ_1 (º)	I_1 (º)	σ_2 (MPa)	AZ_2 (º)	I_2 (º)	σ_3 (MPa)	AZ_3 (º)	I_3 (º)
25.2	185	-31.8	18.7	84	-17.1	5.2	330	-52.9
28.3	21.6	-34.8	21.9	181.6	-53.5	7.1	284.8	-9.6

LVL 3610 (P3) Principal stresses measured at 1200 m depth								
σ_1 (MPa)	AZ_1 (º)	I_1 (º)	σ_2 (MPa)	AZ_2 (º)	I_2 (º)	σ_3 (MPa)	AZ_3 (º)	I_3 (º)
40.3	344.2	-78.4	23.7	119.6	-8.3	17.9	210.8	-8.0
39.5	301.9	-59.0	21.8	151.0	-27.7	11.6	54.2	-12.8

Source: BVN

Figure 13-12 shows the stereographic projection of the in-situ principal stress orientations. The first test in Lvl 4120 at a depth of 432 m shows that the principal stress orientation is distinctly horizontal in the NW direction, and in the last test in Lvl 3610 at 1220 m depth the major principal stress orientation is found to be sub vertical. The stress distribution constant below 600 m varies between 1 to 1.2 and for deep zones greater than 600 m the constant is around 0.5 to 0.6.

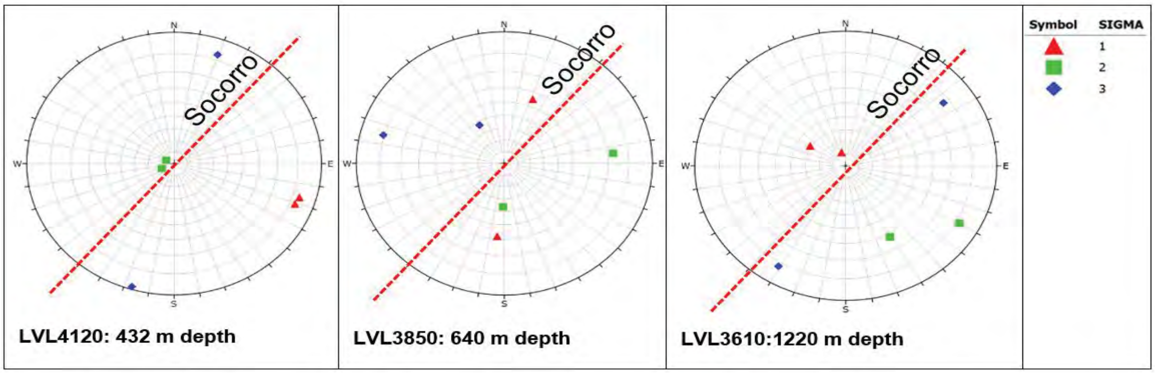
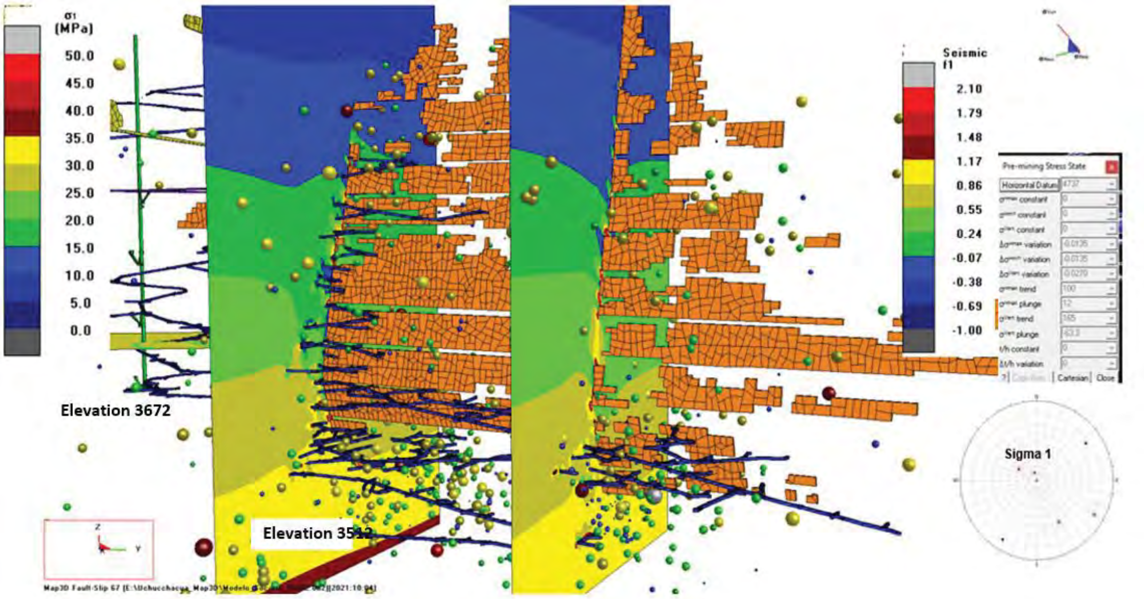


Figure 13-12**: Orientation of in situ stresses measured at Uchucchacua**

Source: BVN

The levels of induced stresses in the boundary of underground workings have been determined by using three-dimensional numerical modeling tools with the boundary element program Map 3D Fault slip vs 63. The model considered the old, exploited zones, infrastructures such as main ramps, shafts, and others. The stress levels induced in the perimeter of linear workings, between elevations 3600 to 3800, have determined principal stress magnitudes up to 45 MPa and minor principal stress up to 15 MPa. The major principal stress levels are lower than the simple compressive strength. The σ1/UCS ratio in the periphery of linear workings is between 0.4-0.6, which indicates that in some sectors there could be a spalling of the excavation walls, so that a support formed by hydrabolt + double metallic mesh in the most critical and deepest zones could absorb this energy originated by the over stresses in the periphery of workings.

Figure 13-13: Isovalues of induced stresses at Socorro mine



Source: BVN

13.1.4 Seismic conditions

The microseismic database recorded by Uchucchacua contains the record of seismic events from 2019 to 2021; each seismic event includes the hypocentral location, date, moment magnitude (Mw) and focal energy. However, important seismic events originating in previous years have also been documented, such as the event of August 5, 2017, with a magnitude of 3.5 Mw, which caused considerable damage to the workings walls between levels 3710 and 3780 with fault thicknesses of about 1 m in the perimeter of the workings.

In the seismic history between 2019 and 2021, a concentration of events has been found between levels 3600 to 3800, which are correlated with the current exploitation activities. A statistical analysis of the events recorded between 2019 to 2021 indicate an incidence of 39% for events with negative magnitudes, 41% of events with magnitudes between 0 to 0.5 Mw, 17% of events between 0.5 to 1Mw, 2.6% for events between 1 to 1.5 Mw, and only 0.4% of events between 1.5 to 2 0 of Mw. It can be deduced that in 2019-2021, seismic events greater than 1.0 Mw have been controlled, since events with magnitudes greater than 1.0 Mw could cause significant damage to the workings. Regarding the influence of blasting on seismic activity, the cumulative of seismic events in a 24-hour period has been plotted, showing a concentration of seismic events in the post-blasting hours. Blasting may be inducing the generation of microseismic events, so it is important to control or reduce the working charge in order to reduce the seismic magnitudes caused by blasting.

13.1.5 Dimensioning of SLS stopes for Uchucchacua Mine

The recommended mining method for Uchucchacua is bench & fill with detrital fill. This method involves mining from two sublevels and the use of detrital fill. The backfill must be deposited in a continuous manner starting from a mining sublevel. Stope stability for narrow veins is controlled by the dimensions of the exposed stope face (inclined height and stope length), which is represented by the hydraulic radius (HR). Increasing the hydraulic radius of walls has a direct link to waste rock slough, which means an increase in dilution.

13.1.6 Vein geometry

As part of the definition of mining method and stope sizing, it has been possible to determine the incidence of horizontal width and dip of the mineralized structures. From the results, it has been observed that the veins belonging to Socorro, Carmen, Huantajalla, and Casualidad zones present widths between 1.7 to 2.6 m, averaging 2.3 m; additionally, vein dips present angles between 70 to 90°, with the exception of Casualidad, where dips of less than 60° have been found. Table 13-7 shows a summary of the widths and dips of each structure.

Table 13-7: Incidence of horizontal width and dip of mineralized structures.

Zone	Vein	% Incidence Width (m)						% Incidence Dip				
		<2	2-4	4-6	6-8	8-10	>10	<50°	50-60°	60-70°	70-80°	80-90°
Socorro	1060 V Cachipampa	52	32	9	5	2			8	2	67	23
	1130 V_Gina	84	14	2						7	56	37
	1151 V_Marisol	79	18	3							30	70
	1250 V_Luz	100							6	12	43	39
	1291_V _Maricela	60	18	9	4	6	3			11	74	15
	1362 V_Sonia	74	15	3	2	2	4			2	53	45
	1390 V_Vanessa	66	31	3						4	32	64
Carmen	2300 V_Rosa	100								16	43	41
	2400 V_Veronica	98	2								1	99
Huantajalla	3010 Vein 3A	97	3								17	83
	3020 V_4A	99	1						5	2	8	85
	3030 Vein 7A	92	8						4	6	44	46
	3130 V Eugenio	36	61	3						6	24	70
	3320 V Sarita	85	15						2	8	14	76
	3371 Cpo Edith	76	18	6				14	63	21	2	
Casualidad	4070 V_Jacqueline	97	3					100				
	4110 v_Sandra	86	14					56	26	18		
	4120 v_Violeta	100						45	52	3		
	4151 v_Plomopampa	100						47	53			

Source: BVN

13.1.7 Retro-analysis of stope sizing

In order to know the degree of stope wall sloughing, SRK proceeded to estimate the overbreak in the stope walls, using the ELOS (Equivalent Linear Overbreak) criterion, which is based on the calculation of sloughed volume and exposed area of the planned stope wall. The calculation of volume and exposed area was determined from the planned stope and the exploited stope measured with the optech scanner.

Table 13-8 details the ELOS calculation for the walls of 10 typical stopes using the Cavity Monitoring System CMS). An ELOS of 0.2 and 1.14 m was obtained for both walls respectively in the TJ6790_B0_SW stope with a length of 30 m, an ELOS of 0.23 to 0.37 m was obtained for the TJ186_B1 stope, and an ELOS of 0.22 to 0.3 m for the TJ051_NE_B1 stope. In summary, the stopes with lengths between 20 to 45 m have an average ELOS of 0.3 m per wall.

Table 13-8: ELOS results for stopes TJ6790_B0_SW, TJ186_B1, and TJ051_NE_B1.

Pit	Wall	Stope Geometry			Area with sublevel (m^2)	HR (m)	Broken volume (m^3)	ELOS (m)
		Width (m)	Inclined height (m)	Length (m)				
TJ 6790_B0_SW	West	1.9	14	30	417.7	4.8	83.3	0.20
	East				417.7	4.8	474.2	1.14
TJ 186_B1	North	2	12	45	550.8	4.8	125.7	0.23
	South				550.8	4.8	201.1	0.37
TJ 6048-1 N_B2	West	2	11	11	122.9	2.8	5.88	0.05
	East				122.9	2.8	46.5	0.38
TJ 6191_B0	North	2	16	11	181.5	3.3	1.27	0.01
	South				181.5	3.3	94.57	0.52
TJ 6432_NE_B0	South	3	10	23	232.6	3.5	5.3	0.02
	North				232.6	3.5	1.35	0.01
TJ 051_NE_B1	North	2	12	45	550.8	4.8	123.1	0.22
	South				550.8	4.8	157.3	0.30
TJ 051_B1_SW	North	2	14	17	244.3	3.9	23.1	0.10
	South				244.3	3.9	32.3	0.13
TJ 6490_B1_SW	West	1	12	6	73.4	2.0	22.98	0.31
	East				73.4	2.0	25.33	0.34
TJ 110_B0	North	1	14	4	57.5	1.6	7.01	0.12
	South				57.5	1.6	15.36	0.27
TJ 273_B3	West	3	10	14	141.6	2.9	23.8	0.17
	East				141.6	2.9	9.52	0.07

Source: BVN

Figure 13-14 shows a longitudinal scheme of the bench & fill mining method with detrital fill and for a bench height of 10m. Table 13-9 shows the calculation of the stope's top and bottom length for a total ELOS of 0.4 (hanging wall + footwall) as well as the acceptable hydraulic radius according to the depth and quality of the rock. Additionally, SRK recommends installing a bolting cable in the walls to control resuing in critical sectors, which occurs when the mining width is narrower than the sublevel width.

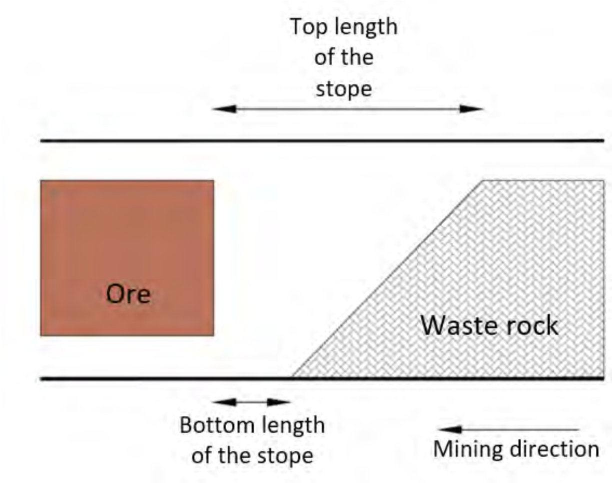


Figure 13-14: Bench & fill longitudinal mining diagram

Source: BVN

Table 13-9: Top and bottom length of bench and fill stopes recommended for Uchucchacua with an ELOS of 0.4 m

Depth	RMR	Q´	A	B	C	N´	Total ELOS: footwall + hanging wall	HR (m)	Top length (m)	Bottom length (m)	Additional support recommended
< 600 m	> 50	1.95	0.8	0.3	6.5	3	0.4 m	4.5	35	12	Bolting cable to the walls
600-1200 m	> 50	1.95	0.5	0.3	6.5	2.1	0.4 m	4.0	30	7	Bolting cable to the walls
-	< 50	1.0	0.8	0.3	6.5	1	0.4 m	3.5	26	4	Bolting cable to the walls

Source: BVN

13.1.8 Dimensioning of stopes for Yumpag Mine

Based on the geometric characteristics and rock quality at Yumpag, the bench and fill (B&F) mining method has been considered for veins with widths under 10 m. For mining widths greater than 10 m, SRK recommends using the transverse sublevel stoping with cemented backfill (SLST); additionally, for bodies or mantles, the method of drift and fill (D&F) in panels could be an alternative. The following table shows the recommended lengths for bench & fill for a 12 m high bench and a total ELOS of 0.6 m (hanging wall and footwall).

Table 13-10: Top and bottom length of bench and fill stopes recommended for an ELOS of 0.6m

Mining width	RMR	Q´	A	B	C	N´	Total ELOS: footwall + hanging wall	HR (m)	Top length of the stope (m)	Bottom length of the stope (m)	Additional support recommended
< 6 m	42	0.8	1	0.3	8	2.0	0.6	4.0	25	5	-
6 - 10 m	42	0.8	1	0.3	8	2.0	0.6	4.0	30	10	Bolting cable to the hanging wall and stope walls

Source: BVN

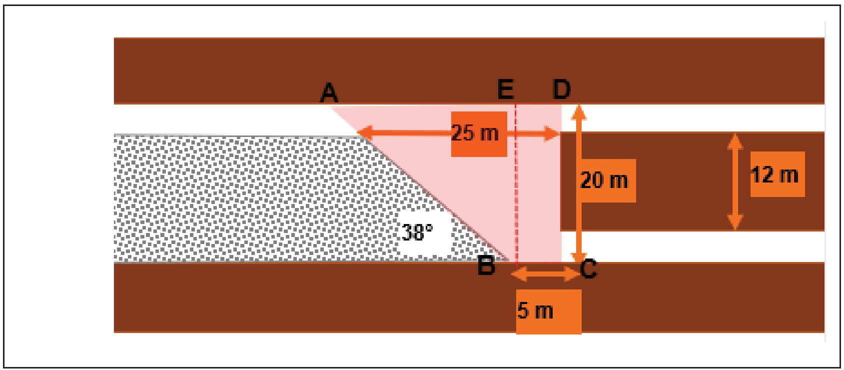


Figure 13-15: Longitudinal bench & fill mining scheme for a bench height of 12 m.

Source: BVN

For transverse sublevel stoping, mining widths of 10 m and bench heights of 12 and 16 m have been considered; additionally, considering an acceptable ELOS of 0.6 m, a stope length of 20 m for a 12 m bench and a length of 17 m for a 16 m bench are obtained. The use of bolting cable is recommended to maintain the stability of the stopes dome. The cemented backfill should reach a strength of 0.6 MPa after 28 days.

Table 13-11: Recommended stope length for transverse sublevel stoping with an ELOS of 0.6m

Bench height	RMR	Q´	A	B	C	N´	Total ELOS: footwall + hanging wall	HR (m)	Stope length (m)	Additional support recommended
12 m	40	0.64	1.0	0.6	8.0	3.0	0.6 m	5.0	20	Bolting cable to the hanging wall
16 m	40	0.64	1.0	0.6	8.0	3.0	0.6 m	5.0	17	Bolting cable to the hanging wall

Source: BVN

For the Overdrift and fill (ODF) method alternative, panels may be 4.5 x 4.5 m and must be supported with 7 ft. systematic hydrabolt plus a 2" shotcrete layer. Mining starts with primary panels in retreat from the hanging wall to the footwall, followed by secondary panels once the primary panels have been backfilled. For the primary panels, cemented paste backfill with a strength of 0.3 MPa is used. In this case, the backfill should be topped on the hanging wall to improve stability.

Figure 13-16 on the left shows a schematic of the transverse sublevel stoping mining method (SLST) and the image on the right shows the overdrift and fill (ODF) method by panels.

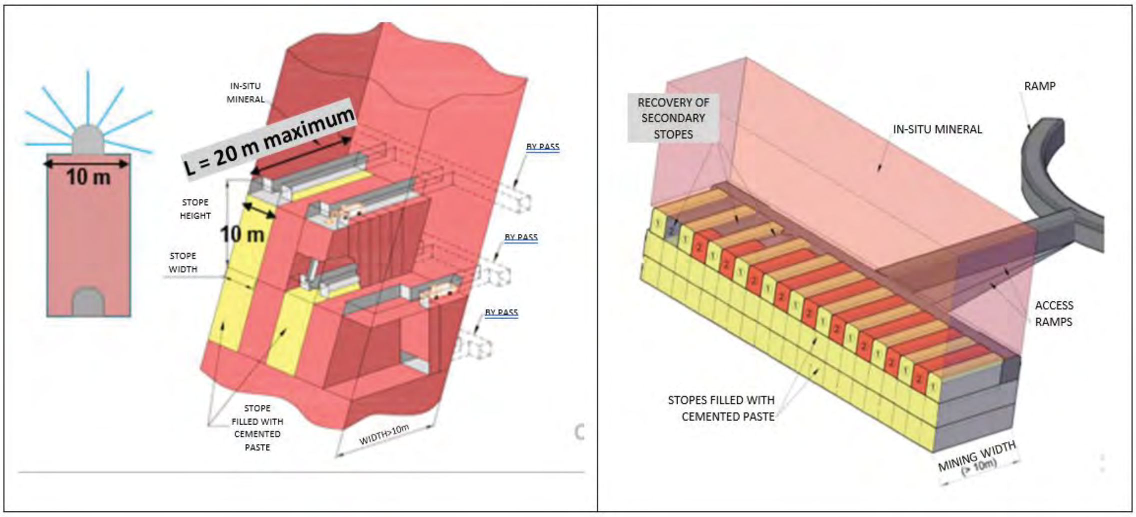


Figure 13-16: Diagram of the transverse sublevel stoping (SLST) on the left and drift and fill (D&F) on the right

Source: BVN

13.1.9 Hydrogeological

In-mine water management system - Uchucchacua A.E.U.

Uchucchacua A.E.U. currently has an underground pumping system of 1350 L/s through two (02) main stations located at the Socorro (level 3850) and Carmen (level 3970) mines, which receive the water coming from the drifts (lower and upper levels) and discharge it to the Patón tunnel (level 4120). The water above level 4120 is conveyed by gravity also to the Patón tunnel. (Figure 13-17).

There is a main pumping station at the Socorro mine at level 3850, which has a storage capacity of 2300 m³ and a pumping capacity of 750 L/s and is equipped with three (03) pumping lines (250 L/s and 500 HP guide pumps). This station receives water from Ramps 626-1 and 626 and pumps approximately 400 L/s and 750 L/s, respectively.

Carmen mine has the second main pumping station, located at level 3970, with a storage capacity of 2,400 m³ and a pumping capacity of 1,350 L/s, equipped with 04 Goulds 250 l/s 500 HP pumps, 02 Hidrostal pumps, and 03 Tsurumi 150 HP pumps. This main station receives waters coming from the Socorro main station and from Ramp 760 (whose pumping flows are unknown) to then evacuate to level 4120 (Patón tunnel), where the waters are evacuated by gravity along with the flows from the upper levels to the surface with approximate flows of 1665 to 2500 L/s (See Figure 13-18, which shows the Patón tunnel discharge record for 2014 and 2018). The distribution of seepages inside the mine shows that approximately 46% of the average drained flow comes from a zone above level 4120 and is conveyed by gravity. For this reason, the 1350 L/s of pumping capacity would be sufficient for current mine conditions. However, given the significant seasonal effect of drainage flows and the high flows recorded, a more detailed water balance by level is recommended to verify the adequacy of the current pumping capacity should high flow peaks occur.

The Uchucchacua A.E.U. currently has a pumping capacity of 1,350 l/s from the depths of the underground drifts; however, BVN plans to expand it to 1,500 l/s (Figure 13-19) , but according to the conceptual groundwater balance that was carried out, it was observed that at maximum pumping capacities carried out in the underground works, there would be a storage of 4,708 l/s in the underground aquifer that could cause the flooding of some underground workings. Therefore, an update of the groundwater balance must be carried out, taking into account the current underground seepage. SRK also recommends instrumenting the Patón tunnel outlet channe to obtain a continuous and reliable record of the variation of evacuated flows.

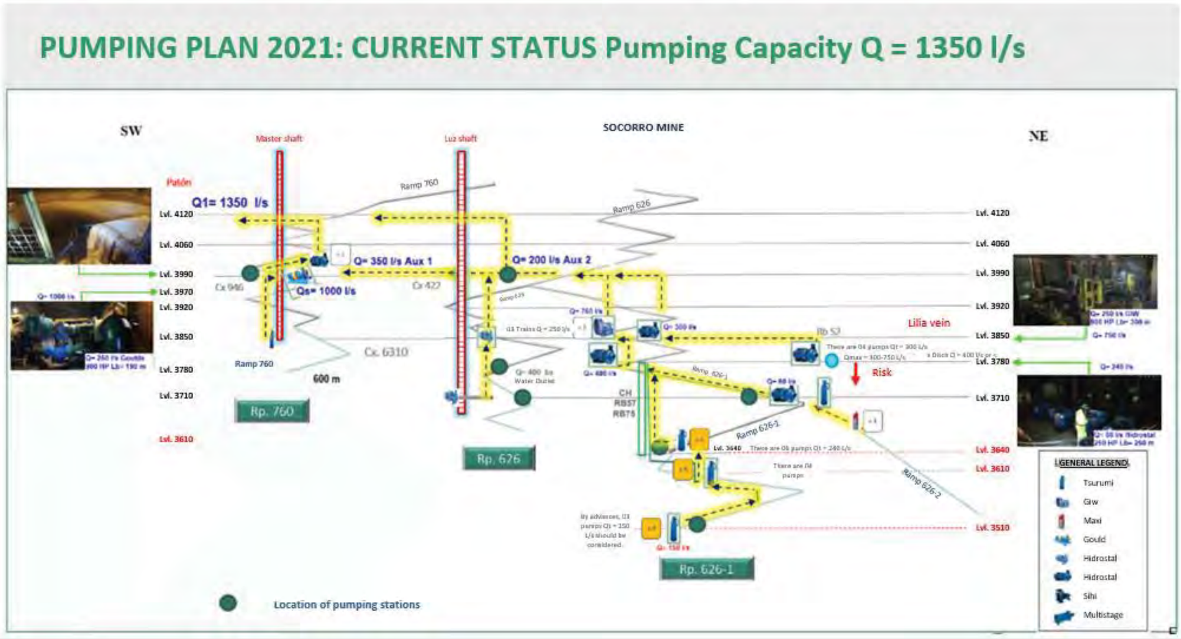


Figure 13-17: Current pumping system of Uchucchacua A.E.U.

Source: BVN

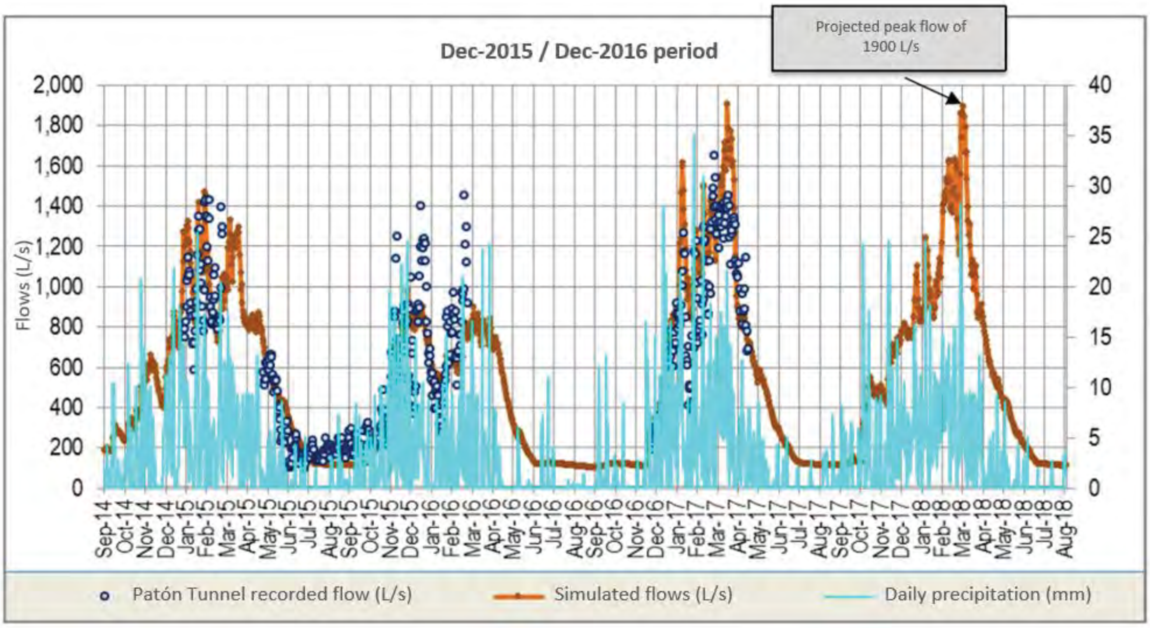


Figure 13-18: Paton tunnel discharge record (2014 - 2018)

Source: Hidroandes (2014) and WSP (2017)

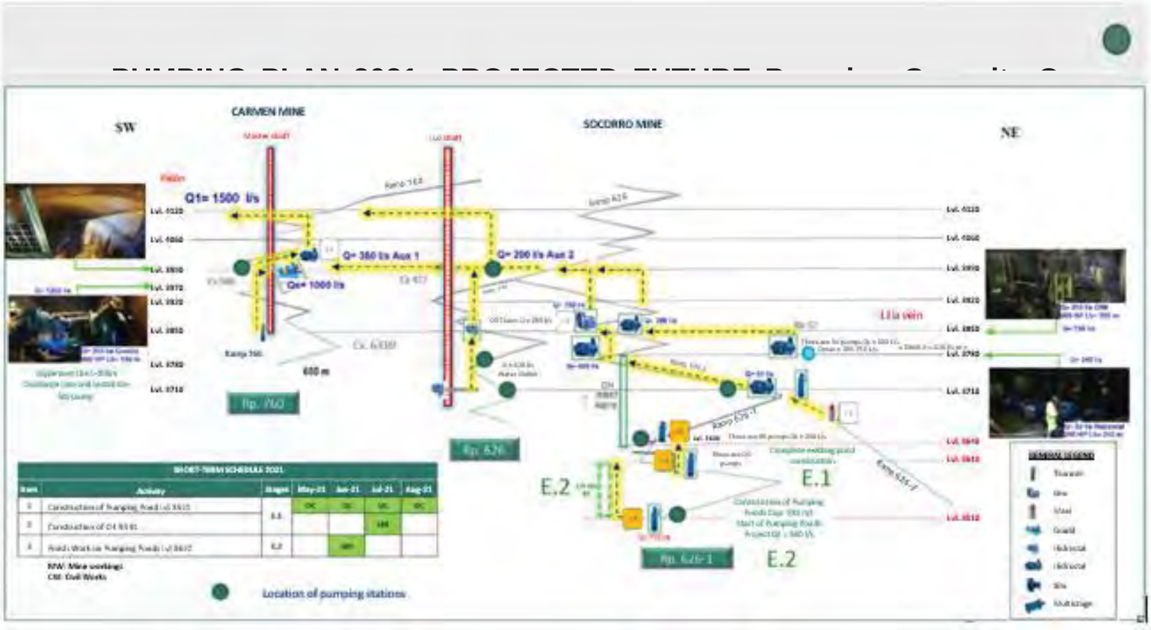


Figure 13-19: Projected future pumping system of the Uchucchacua A.E.U.

Source: BVN

In-mine water management system - Yumpag Project

The Yumpag project has a pumping system that evacuates an effective flow of 38.98 L/s (Figure 13-19). This pumping system consists of five (05) ponds distributed at different levels of the underground workings.

- Pond 05 is located at Lvl. 4212 in the "Tope Rampa" zone, which evacuates an effective flow of 36.50 L/s, of which a flow of 19.52 l/s is evacuated to pond 03 and the remaining flow of 16.98 l/s to pond 04.
- Pond 04 is located at Lvl 4244 and has a storage capacity of 50.66 m³ and evacuates a flow of 41.60 L/s to pond 02 through 8" diameter pipes.
- Pond 03 is located at Lvl 4266 and has a storage capacity of 89.87 m³ and evacuates an effective flow of 37.10 l/s.
- Pond 02 is located at Lvl 4320 and has a storage capacity of 80.59 m³ and evacuates an effective flow of 41.11 l/s to pond 01 through 4” and 8” pipes.
- Pond 01 is located at Lvl 4404, has a storage capacity of 102 m³, and evacuates an effective flow of 38.98 l/s to the surface through 8" diameter pipes. The water that reaches the surface is evacuated to two (02) ponds with capacities of 510 and 560 m³.

It is not known if BVN has a medium and long-term pumping plan. Therefore, SRK suggests using the groundwater balance of underground workings on the Yumpag project to determine adequate sizing when developing pumping plans.

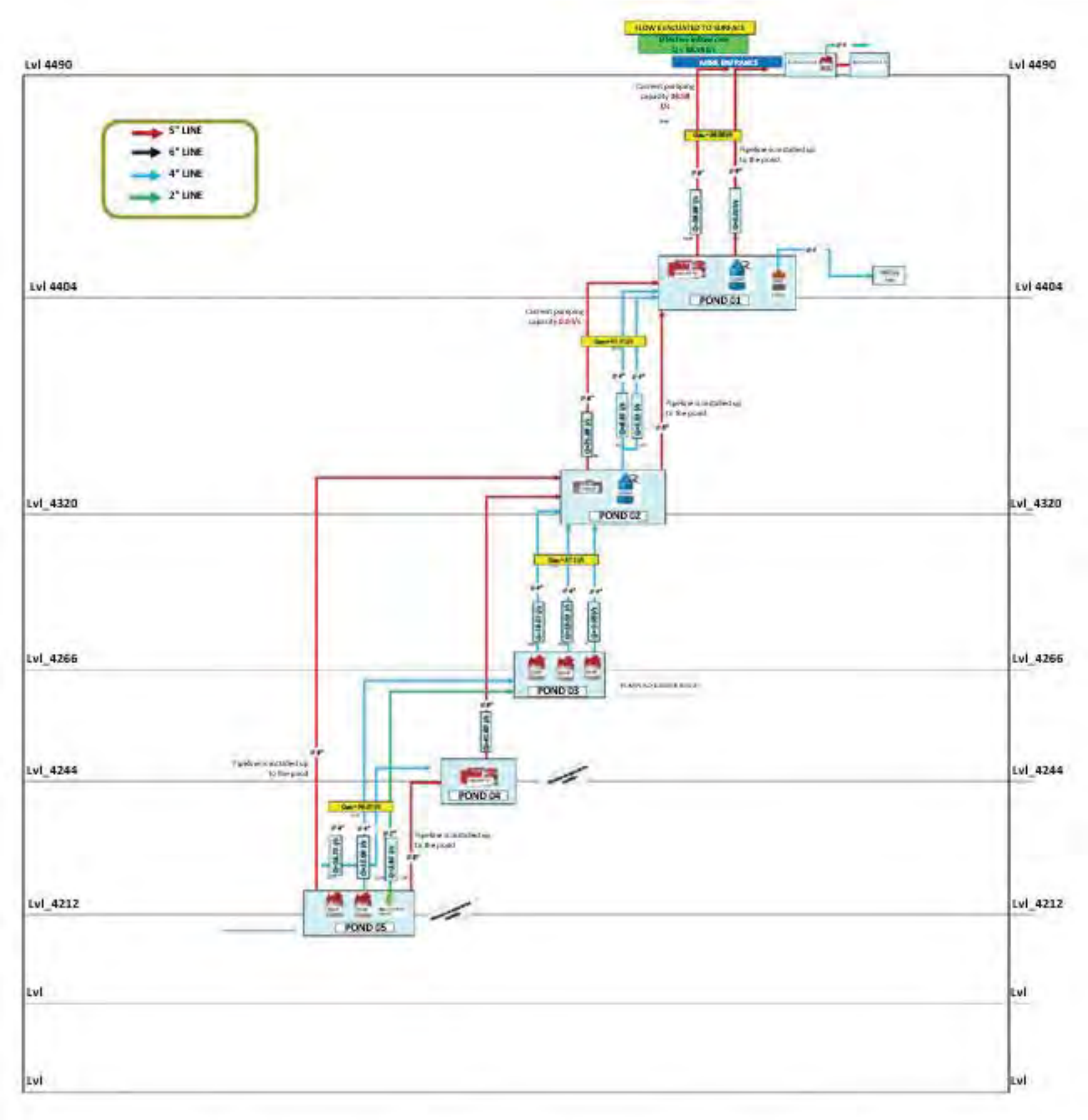


Figure 13-20: Current pumping system of Yumpag project

Source: BVN

13.2 Production Rate Expected Mine Life, Mining Unit Dimensions, and Mining Dilution and Recovery Factors

13.2.1 Production rate

Uchucchacua has a daily production of 3,500 TPD, approximately.

13.2.2 Life of Project (LOM)

With the estimated reserves as of December 2021, a LOM is estimated until 2028.

Table 13-12: Uchucchacua Mining Plan

LOM - UCHUCCHACUA							
Description	**2022-2023(*)**	**2024**	**2025**	**2026**	**2027**	**2028**	**Total**
Ore Treated (DMT)		785,400	1,071,000	1,071,000	1,194,600	478,010	4,600,010
Ag grade (Oz/MT)		7.09	7.08	7.01	7.33	8.45	7.27
Pb Grade (%)		1.28	1.31	1.41	1.17	1.61	1.32
Zn Grade (%)		2.22	2.44	2.39	1.85	2.41	2.23
Mn Grade (%)		3.93	4.68	4.40	5.54	2.87	4.52
NSR		116	117	116	119	137	119
Ag Fines (Oz)		4,518,064	6,153,734	6,096,477	7,273,268	3,289,310	27,330,854
Pb Fines (FMT)		6,648	9,226	9,638	9,144	4,526	39,182
Zn Fines (FMT)		8,727	13,070	12,809	11,098	5,771	51,475

Source: Buenaventura

Table 13-13: Yumpag Mining Plan

LOM - YUMPAG							
Description	**2022-2023(*)**	**2024**	**2025**	**2026**	**2027**	**2028**	**Total**
Ore Treated (DMT)		357,000	428,400	428,400	304,800		1,518,600
Ag grade (Oz/MT)		22.99	21.93	18.16	13.35		19.39
Pb Grade (%)		0.54	0.52	0.40	0.35		0.46
Zn Grade (%)		1.09	0.92	0.69	0.71		0.85
Mn Grade (%)		18.35	17.05	15.84	15.07		16.61
NSR		357	341	282	207		301
Ag Fines (Oz)		7,007,803	8,021,800	6,641,645	3,474,074		25,145,323
Pb Fines (FMT)		1,118	1,300	1,119	610		4,148
Zn Fines (FMT)		-	-	-	-		-

Source: Buenaventura

Table 13-14: Uchucchacua + Yumpag Mining Plan

LOM - UCHUCCHACUA + YUMPAG							
DESCRIPTION	**2022-2023 (*)**	**2024**	**2025**	**2026**	**2027**	**2028**	**Total**
Ore Treated (DMT)		1,142,400	1,499,400	1,499,400	1,499,400	478,010	6,118,610
Ag grade (Oz/MT)		12.06	11.32	10.19	8.55	8.45	10.28
Pb Grade (%)		1.05	1.08	1.12	1.01	1.61	1.11
Zn Grade (%)		1.87	2.00	1.90	1.62	2.41	1.89
Mn Grade (%)		8.43	8.21	7.67	7.48	2.87	7.52
NSR		191	181	163	137	151	165
Ag Fines (Oz)		11,525,867	14,175,535	12,738,122	10,747,343	3,289,310	52,476,177
Pb Fines (FMT)		7,766	10,526	10,758	9,754	4,526	43,329
Zn Fines (FMT)		8,727	13,070	12,809	11,098	5,771	51,475

Source: BVN

(*)Note: Uchucchacua MU temporarily closed operations from 2021 to 2024.

13.2.3 Mining Unit Dimensions (stope dimensions)

The mining unit dimensions based on the mining method for Uchucchacua are as follows:

Table 13-15: Dimensions of Uchucchacua mining units by mining method.

Parameters	**Mining Methods**	
	Bench & Fill	**Overhand Cut & Fill**
Minimum mining width (m)	0.5	0.5
Maximum mining width (m)	25	20
Stope height (m)	10-15	3
Stope length (m)	3	3
Footwall dilution (m)	0.20	0.20
Hanging wall dilution (m)	0.20	0.20
Dip (º)	>55	>45

Source: BVN

The mining unit dimensions based on the mining method for Yumpag are as follows:

Table 13-16: Dimensions of Yumpag mining units by mining method.

Parameters	Mining Methods		
	Bench & Fill	Overhand Drift & Fill	SARC
Minimum mining width (m)	2	2	2
Maximum mining width (m)	25	--	12
Stope height (m)	14	4	14
Stope length (m)	2	3	8
Footwall dilution (m)	0.3	0.2	0
Hanging wall dilution (m)	0.3	0.2	0
Dip (º)	>50	<50	--

Source: BVN

13.2.4 Dilution and Mining Recovery

The reserves stopes already incorporates a dilution by cleaning and backfilling; additionally, mining recovery has also been defined (both due to operational aspects).

During the cleaning process, ore is usually contaminated when the workings are cleaned with mechanized equipment and both materials (ore and detrital fill) are loaded. This is called a Clean-and-Fill Dilution.

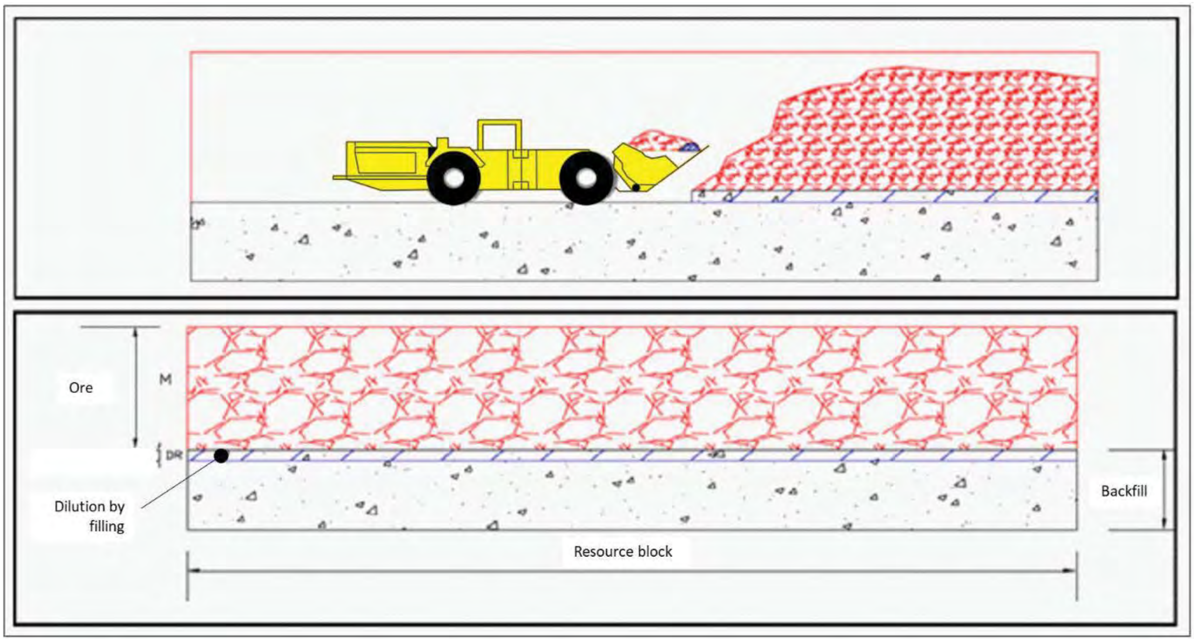


Figure 13-21: Diagram of dilution by cleaning

Source: BVN

Mining recovery refers to the mean percentage of mineral that is recovered when the panels are mined, which does not reach 100% because mineral remains in the crown of the panels. In other words, this refers to the mineral that remains at the time of cleaning at the edges of the ore body and in the corners of workings.

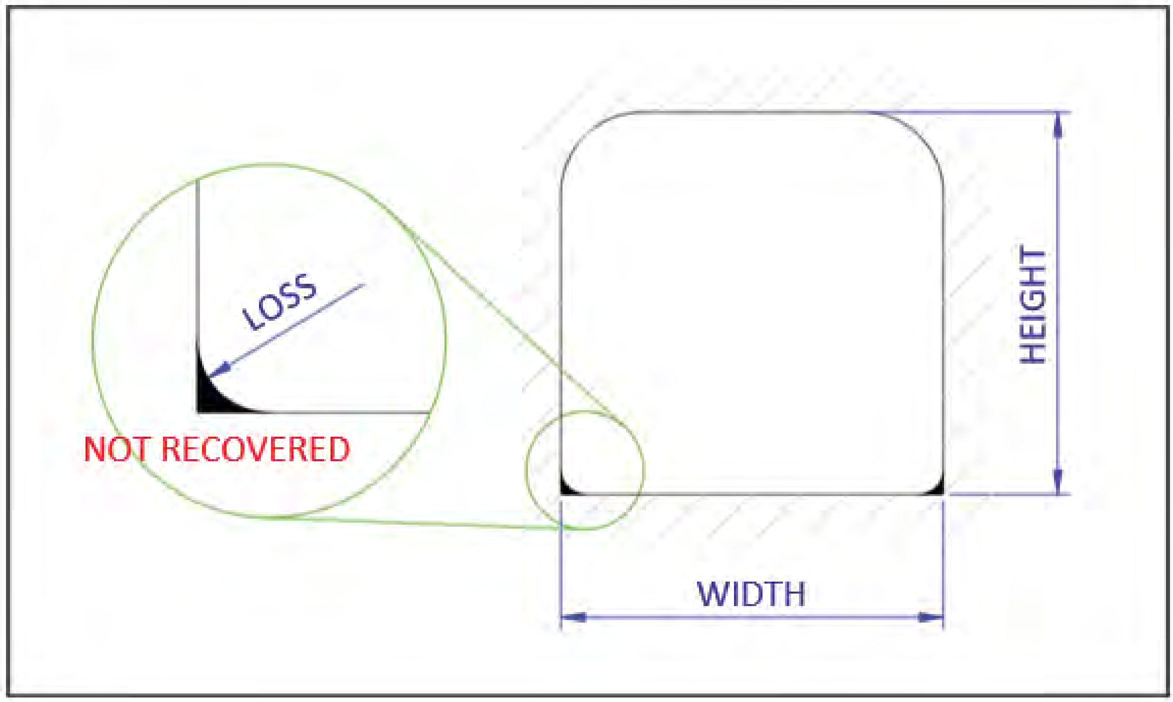


Figure 13-22: Mining recovery diagram

Source: BVN

Table 13-17: Uchucchacua-Yumpag Mine Dilution and Recovery by mining method

Item	Uchucchacua		Yumpag		
	B&F	OCF	B&F	ODF	SARC
Dilution	**10%**	**4%**	**10%**	**4%**	**4%**
Mining recovery	**90%**	**95%**	**90%**	**95%**	**95%**

Source: BVN

13.3 Requirements for Stripping, Underground Development, and Backfilling

13.3.1 Developments and preparations

In accordance with the LOM 2021 presented by BVN, the development and preparation of the Uchucchacua mine and the Yumpag project are shown in the table below.

Table 13-18: Development and preparation works - UCH LOM

UCHUCCHACUA LOM								
Work (m)	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**Total**
Development	-	-	342	342	342	342	114	1,482
Preparation	-	4,900	22,443	30,606	30,606	34,135	6,833	129,523
Exploration	7,450	7,750	3,000	3,000	3,000	3,000	1,000	28,200
Total advances	7,450	12,650	25,785	33,948	33,948	37,477	7,947	159,205
DDH	80,000	80,400	86,400	86,400	86,400	86,400	28,800	534,800
RB	-	-	1,050	1,050	760	760	-	3,620

Source: BVN

Table 13-19: Development and preparation works - YPG LOM

YUMPAG LOM								
Work (m)	2022	2023	2024	2025	2026	2027	2028	Total
Development	2,917	2,582	1,891	14	-	-	-	7,403
Preparation	5,689	7,352	8,146	6,892	1,431	-	-	29,510
Exploration	-	-	-	-	-	-	-	-
Total advances	8,605	9,934	10,037	6,906	1,431	-	-	36,913
RB	946	974	1,114	-	-	-	-	3,034
Ch	1,080	1,080	1,080	450	-	-	-	3,690

Source: BVN

13.3.2 Mine backfill

Currently, there is no system in place for the generation and distribution of "cemented backfill".

The waste rock generated in the development and preparation work is used as "detrital fill" for the primary pits mined to improve the stability of openings and to reduce the costs of transporting waste to the dumps. The detrital fill is moved and distributed using scooptrams.

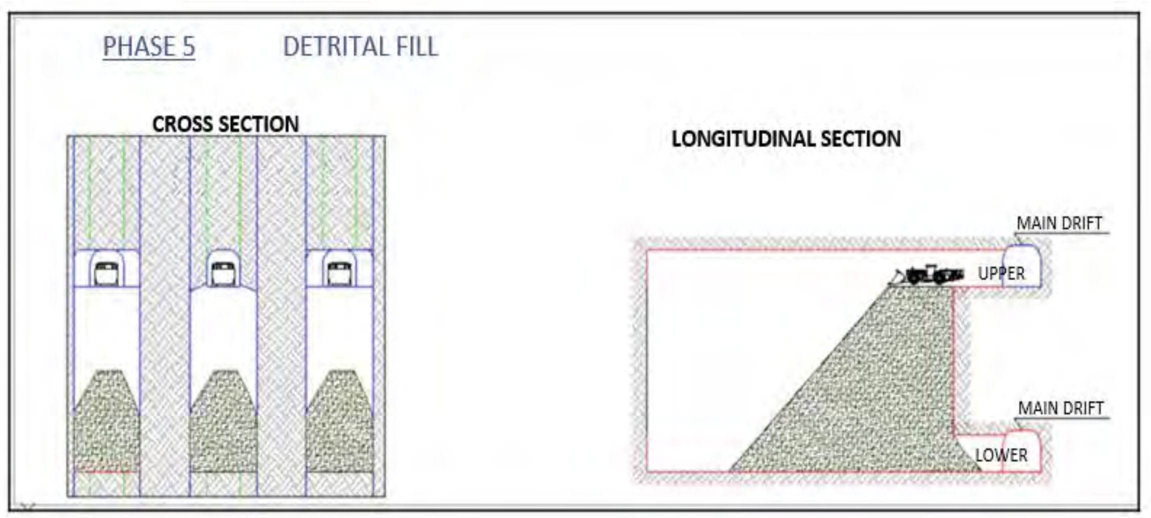


Figure 13-23: Backfill: Cross and longitudinal section

Source: BVN

13.4 Required Mining Equipment Fleet and Machinery

Specialized contractors were operating the mine (before it stops in October 2021): CONGEMIN, CMBSAA, MCEISAA, MEZA, COPSEM; which have their own fleet of operating equipment, auxiliary services, ventilation and electrical power, and are detailed below:

Table 13-20: Development and preparation works - YPG LOM

Zone	Fleet	Equipment	Brand	Model	Capacity	Company	Total
HUANTAJALLA -OXIDES	Scoop Diesel	SC-25	ATLAS COPCO	ST-2G	2.2 Yd3	CONGEMIN	1
Subtotal							1
CASUALIDAD-CARMEN	Jumbo TL	JUM-14	RESEMIN	MUKY LHP	6Ft	CMBSAA	1
	Jumbo	JUM-10	RESEMIN	MUKY FF	8 Ft	CMBSAA	1
		J-02	RESEMIN	MUKIF F 420	10 Ft	MCEISA	1
	Bolter	MJ-03	RESEMIN	MUKI FF	10 Ft	MCEISA	1
	Scoop Diesel	SCO-41	ATLAS COPCO	ST-2G	2.2 Yd3	CMBSAA	1
		SC-44	ATLAS COPCO	ST-2G	2.2 Yd3	MCEISA (Congemin)	1
		SC-22	ATLAS COPCO	ST-2G	2.2 Yd3	MCEISA	1
	Electric Scoop	SCO-39	ATLAS COPCO	EST-2D	2.2 Yd3	MCEISA (CMBSAA)	1
		SCO-34	ATLAS COPCO	EST-2D	2.2 Yd3	MCEISA (CMBSAA)	1
Subtotal							9
SOCORRO ALTO	Jumbo TL	J-2	RESEFER	NAUTI LUS DSB	20 m		1
		J-3	RESEFER	NAUTI LUS PS	20 m		1
	Jumbo	JUM-09	RESEMIN	TROID ON 44	12 Ft	CMBSAA	1
		JB-10	SANDVIK	DD-311	14 Ft	CONGEMIN	1
		JB-13	SANDVIK	DD-210	12 Ft	CONGEMIN	1
		JB-16	SANDVIK	DD-210	12 Ft	CONGEMIN	1
		JB-24	RESEMIN	TROID ON 44-XP	12 Ft	CONGEMIN	1
	Scoop Diesel	CAT-42	CATERPILLAR	R1300 G	4.1 Yd3	CONGEMIN	1

Zone	Fleet	Equipment	Brand	Model	Capacity	Company	Total
		CAT-43	CATERPILLAR	R1300G	4.1 Yd3	CONGEMIN	1
		CAT-45	CATERPILLAR	R1300G	4.1 Yd3	CONGEMIN	1
		CAT-50	CATERPILLAR	R1300G	4.1 Yd3	CONGEMIN	1
	Remote Control Scoop Diesel	CAT-04	CATERPILLAR	R1300G	4.1 Yd3	CONGEMIN	1
		CAT-39	CATERPILLAR	R1300G	4.1 Yd3	CONGEMIN	1
	Dumper	DP-32	SANDVIK	TH-320	20 Tn	CONGEMIN	1
		DP-33	SANDVIK	TH-320	20 Tn	CONGEMIN	1
	Dump truck	V-1	MERCEDES BENZ	(blank)	(blank)	MEZA	1
		V-2	MERCEDES BENZ	(blank)	(blank)	MEZA	1
Subtotal							17
SOCORRO BAJO I	Jumbo	MJ-17	SANDVIK	DD311-40	14 Ft	MCEISA	1
		MJ-05	SANDVIK	QUASAR	12 Ft	MCEISA	1
	Scoop Diesel	S-18	CATERPILLAR	R1300G	4.1 Yd3	MCEISA	1
		S-26	CATERPILLAR	R1300G	4.1 Yd3	MCEISA	1
		S-28	CATERPILLAR	R1300G	4.1 Yd3	MCEISA	1
	Electric Scoop	SCO-42	ATLAS COPCO	EST-2D	2.2 Yd3	CMBSAA	1
	Dumper	MD-18	ATLAS COPCO	MT2010	20 Tn	MCEISA	1
		MD-19	ATLAS COPCO	MT2010	20 Tn	MCEISA	1
		MD-20	ATLAS COPCO	MT2010	20 Tn	MCEISA	1
		MD-23	SANDVIK	TH 320	16 Tn	MCEISA	1
Subtotal							10
SOCORRO BAJO	Jumbo TL	J-1	RESEFER	NAUTILUS DS	20 m		1

Zone	Fleet	Equipment	Brand	Model	Capacity	Company	Total
		JUM-12	ATLAS COPCO	SIMBA S7C	8 Ft	CMBSAA	1
		JUM-13	RESEMIN	RAPTOR 44XP	6 Ft	CMBSAA	1
		JUM-16	ATLAS COPCO	SIMBA S7C	8 Ft	CMBSAA	1
	Jumbo	MJ-116	SANDVIK	DD311-40	14 Ft	MCEISA	1
		MJ-15	SANDVIK	DD311-40	14 Ft	MCEISA	1
		MJ-201	SANDVIK	DD321-40	14 Ft	MCEISA	1
		MJ-09	SANDVIK	DD311-40	14 Ft	MCEISA	1
	Bolter	EMP-03	ATLAS COPCO	SMALL BOLTEC	8 Ft	CMBSAA	1
		MJ-01	RESEMIN	MUKI FF	10 Ft	MCEISA	1
	Scoop Diesel	S-27	CATERPILLAR	R1300G	4.1 Yd3	MCEISA	1
		SC-04	SANDVIK	LH307	4.1 Yd3	COPSEM	1
		SC-06	CATERPILLAR	R1600H	6.1 Yd3	MCEISA	1
		SC-29	CATERPILLAR	R1600H	6.1 Yd3	MCEISA	1
	Remote Control Scoop Diesel	SC-03	SANDVIK	LH307	4.1 Yd3	COPSEM	1
		SC-12	SANDVIK	LH 410	6.0 Yd3	COPSEM	1
		SC-14	CATERPILLAR	R1600G	6.0 Yd3	COPSEM	1
	Dumper	DC-02	Atlas	MT2010	20 Tn	COPSEM	1
		MD-04	SANDVIK	TH 320	20 Tn	MCEISA	1
		MD-13	SANDVIK	TH 320	20 Tn	MCEISA	1
		MD-14	SANDVIK	TH 320	20 Tn	MCEISA	1
		MD-15	SANDVIK	TH 320	20 Tn	MCEISA	1
		MD-11	SANDVIK	TH 320	20Tn	MCEISA	1
		DC-10	Atlas	MT2010	20 Tn	COPSEM	1

Zone	Fleet	Equipment	Brand	Model	Capacity	Company	Total
		DC-09	Atlas	MT2010	20 Tn	COPSEM	1
	Dump truck	V-3	VOLVO	(blank)	(blank)	MEZA	1
		V-4	VOLVO	(blank)	(blank)	MEZA	1
		V-5	VOLVO	(blank)	(blank)	MEZA	1
		V-6	VOLVO	(blank)	(blank)	MEZA	1
	Scaler	DES-03	PAUS	853-S8	-	CMBSAA	1
		DES-04	PAUS	853-S8	-	CMBSAA	1
	Telehandler	MAN-01	MANITOU	MTX1030ST	3 Tn	MCEISA	1
Subtotal							32
SERVICES	Scoop Diesel	PASSPORT # 13	Atlas	ST7	4.1 Yd3	COPSEM	1
		SC-08	CATERPILLAR	R1300G	4.1 Yd3	COPSEM	1
	Dumper	DC-08	Atlas	MT2010	20 Tn	COPSEM	1
	Telehandler	TH-01	Merlo	P27.6EE	2700 KG	COPSEM	1
	Lifter	ELE-01	BTI	LP12SL6-712	-	CMBSAA	1
	Tractor	TR-01	CATERPILLAR	D5K	9,418 KG	COPSEM	1
	Skid-steer loader	MN-01	CATERPILLAR	246D	0.5 TN	COPSEM	1
		MN-03	CATERPILLAR	246D	0.5 TN	COPSEM	1
Subtotal							8
TOTAL GENERAL							77

Source: BVN

13.5 Final Mine Outline Map

13.5.1 Plan of surface components

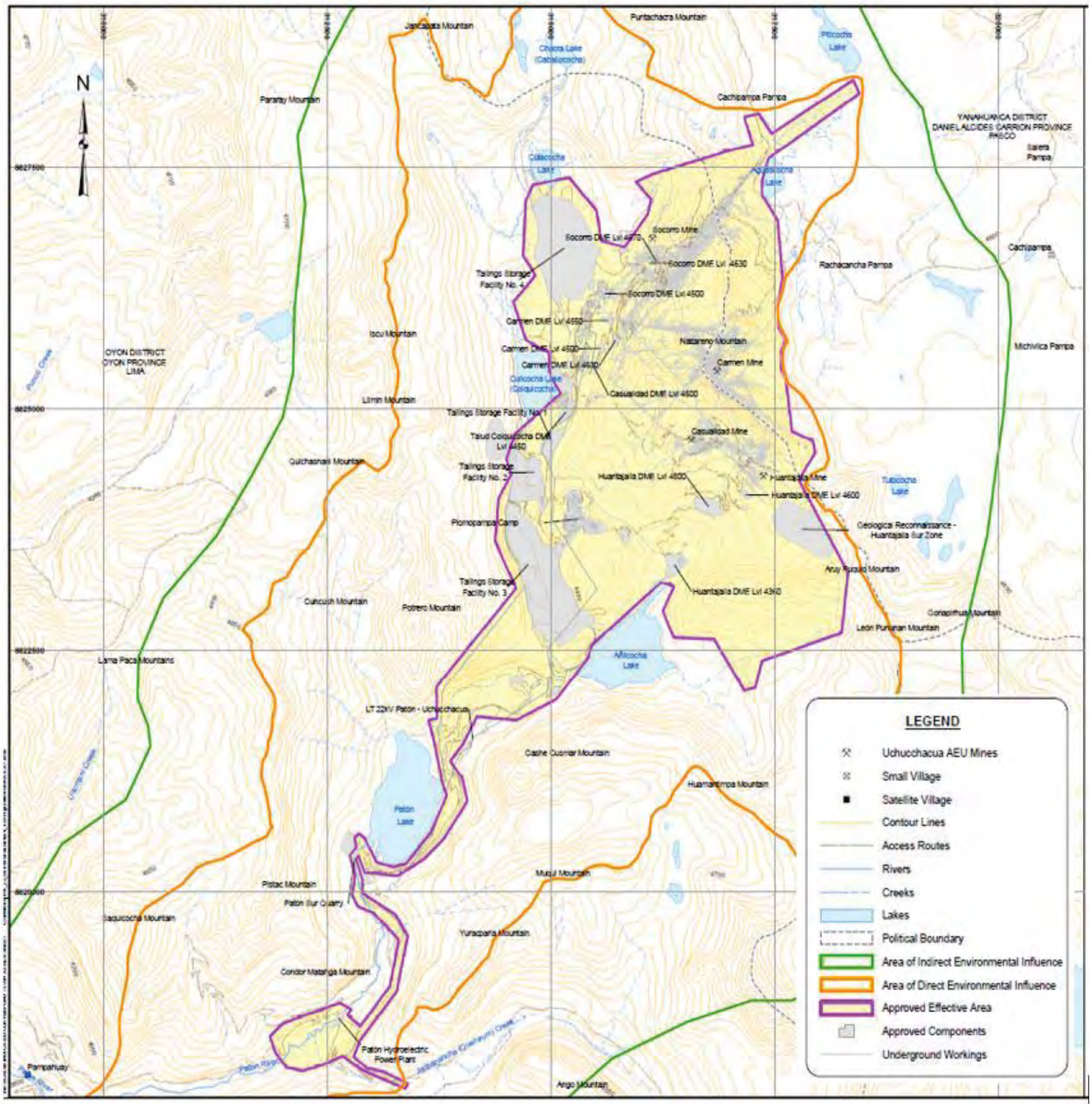


Figure 13-24: Drawing of underground mine surface components

Source: BVN

13.5.2 Plan and longitudinal views

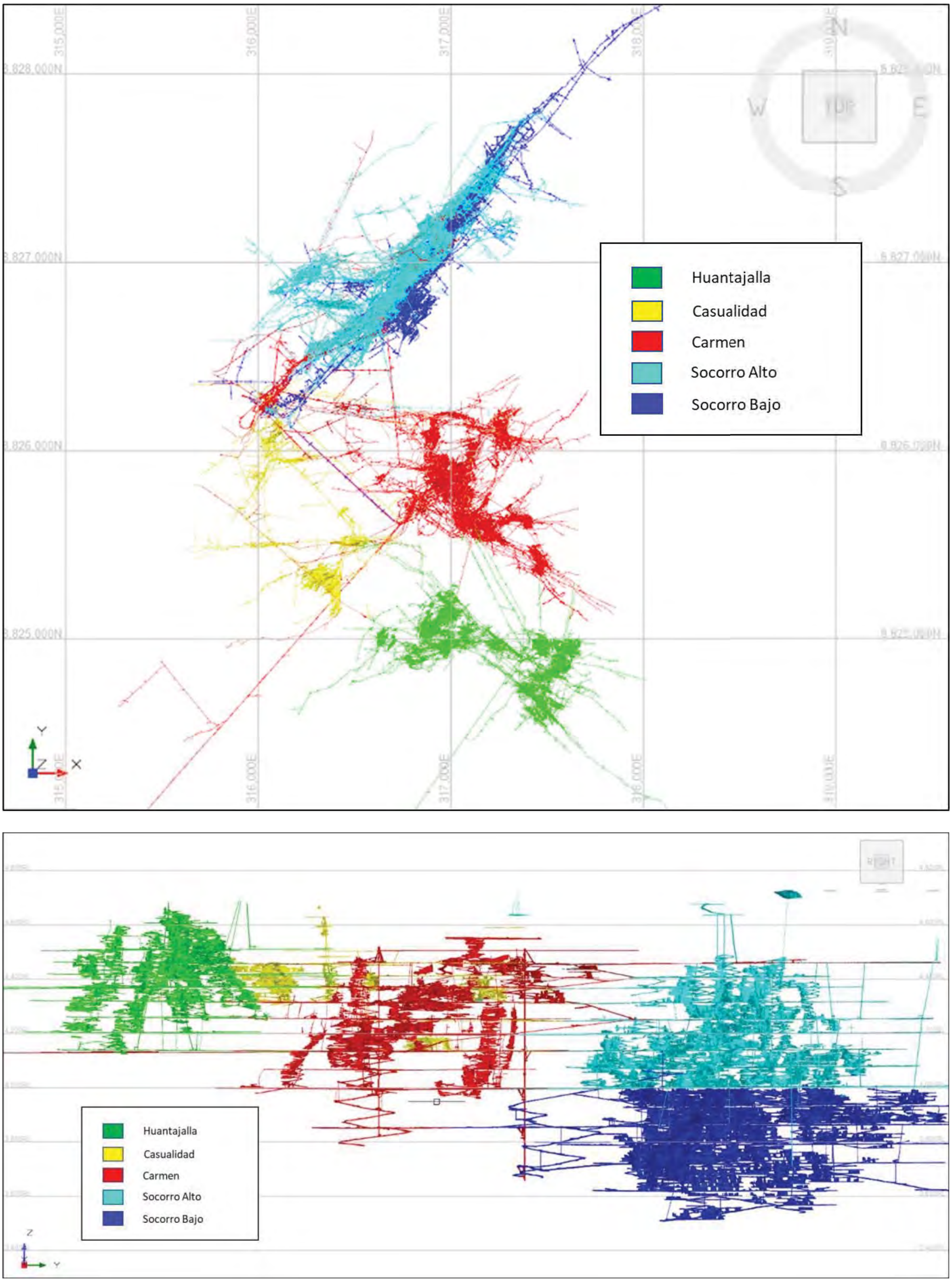


Figure 13-25: Plan and longitudinal drawings of underground mines

Source: BVN

14 Processing and Recovery Methods

Ore is sourced from multiple vein systems, namely Carmen, Casualidad, Huantajalla, Cancha Superficie, Socorro Alto, Socorro Bajo. Typically, the mining operation uses dump trucks, and in a minor proportion rail cars to deliver is ore to multiple stockpiles located in the vicinity of the primary crusher feed hopper. The stockpiles are sampled and assayed before being selectively fed to the process using front-end loaders.

Manganese is pervasive in Uchucchacua's ore and is largely deported to final concentrates. To improve the value of its production, manganese is removed by acid leaching Uchucchacua's concentrates at Rio Seco, a processing facility located in Huaral.

Uchucchacua operates a conventional concentration operation that processes polymetallic ores to produce mineral concentrates of varying quality. The processing plant consists of two parallel processing lines namely Circuito 1 (C1) and Circuito 2 (C2), see Figure 14-1.

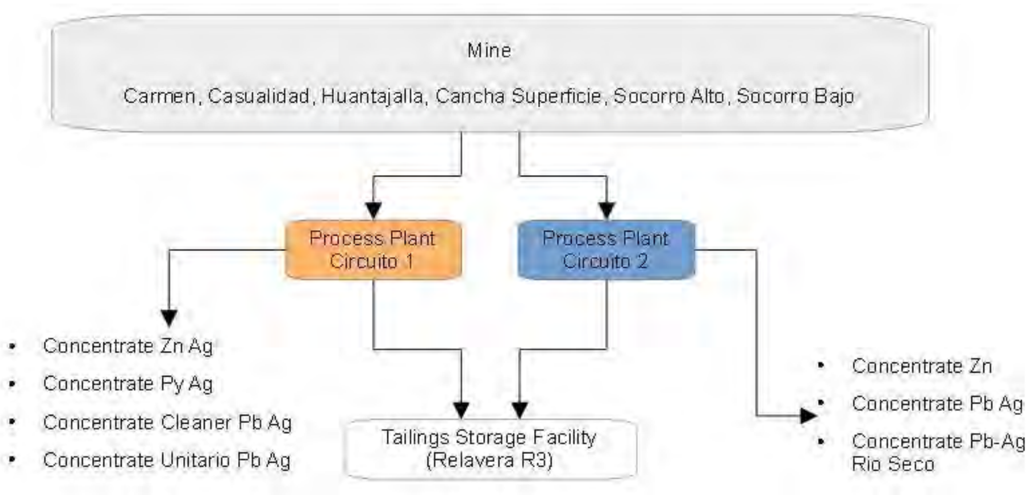


Figure 14-1: Uchuchaccua, Operation Overview

Source: BVN

The Circuit 1's final product includes Zn-Ag concentrate, Py-Ag concentrate, Pb-Ag concentrate, and Unitario Pb-Ag concentrate. The Circuit 2's final product includes Zn concentrate, Py-Ag concentrate, Rio Seco concentrate. Final tailings from both circuits are delivered to a common conventional tailing's storage facility. Dump truck transport the final concentrates off site to Rio Seco facilities for refining.

14.1 Fresh Ore Supply

The ore supply and its veins make up for the 2017 to 2020 period is presented in Figure 14-2, Figure 14-3, and Table 14-1.

- Socorro Bajo vein is the largest overall contributor to tonnage and metal for the period in question. The results were as follows:
- In terms of tonnage, 58.3% of total tonnage, or 2.7 million tonnes, was contributed by Socorro Bajo. Annual tonnage in 2020 was 387,266 tonnes which is significantly lower to previous years when the range was between 700-800 kilo tonnes.

- Silver head grade is suggesting a downward trend that started with 16.63 ounces per tonne in 2017; dropped to 14.27 oz/t in 2018; and declined further to 10.28 oz/t and 11.21 oz/t in 2019 and 2020 respectively. Socorro Bajo's contribution represented approximately 66% of total silver metal.
- Lead head grade shows a trend comparable to that of silver. In 2017-2019, lead head grade ranged between approximately 1.1% and 1.3% then dropped to 0.85% in 2020. Socorro Bajo averaged 1.18% and represented approximately 48% of total lead metal in 2017- 2020.
- Zinc head grade ranged between 1.25% and 1.95%. Over the four-year period, zinc assayed 1.70% and represented 49.3% of the total metal feed.
- Manganese's head grade ranged between 6.18% and 7.88% and averaged 6.98% over the period. Socorro Bajo's contribution represented 68% of the total manganese feed to Uchucchacua.
- Socorro Alto vein is the second largest contributor of tonnage and metal to Uchucchacua mill as follows:
- In terms of tonnage, Socorro Alto contributed approximately 21.1% of the total tonnage or 982,109 tonnes. Between 2017 and 2019, annual tonnage averaged approximately 300,000 tonnes, then dropped to 74,147 tonnes in year 2000.
- Silver head grade is suggesting a downward trend that started with 11.96 ounces per tonne in 2017; fell to 8.7 oz/t in 2018; and dropped further to 6.99 oz/t and 7.71 oz/t in 2019 and 2020 respectively. The overall silver grade during the period was 9.07 oz/tonne, which translates into 16.6% of the total silver metal in the mill feed.
- Lead head grade ranged between 1.71% and 3% with an overall weighted average of 2.43%. Socorro Alto accounted for 35.9% of the total lead metal.
- Zinc's head grade ranged between 2.21% and 4.21%. The overall weighted average was 3.29%, which is equivalent to 35% of the total zinc metal in the mill feed.
- Manganese head grade averaged 4.7% and ranged between 2.12% and 7.34%. Socorro Alto contributed with 17% of the total mill feed.

Combined, Socorro Alto and Socorro Bajo accounted for 80% of the tonnage; 83% of the silver metal; 84% of the lead metal; 84% of the zinc metal; 85% of the manganese metal, and 81% of the iron metal.

Table 14-1: Uchucchacua, Ore Supply Composition by Vein

Ore Source		2017	2018	2019	2020	Total
Carmen	Ore, tonnes	16,496	24,597	68,171	18,268	127,532
	Ag oz/t	11.89	12.12	7.10	10.10	9.12
	Pb %	0.86 %	1.27 %	1.39 %	1.11 %	1.26 %
	Zn %	1.44 %	1.40 %	1.65 %	1.78 %	1.59 %
	Mn %	4.90 %	5.60 %	4.45 %	4.78 %	4.78 %
	Fe %	4.23 %	6.22 %	5.05 %	5.48 %	5.23 %
Casualidad	Ore, tonnes	50,897	147,773	185,181	47,445	431,296
	Ag oz/t	12.72	11.38	8.13	6.26	9.58
	Pb %	1.01 %	0.77 %	0.80 %	1.36 %	0.88 %
	Zn %	1.40 %	1.02 %	1.36 %	1.94 %	1.31 %
	Mn %	3.66 %	4.22 %	3.66 %	3.18 %	3.80 %
	Fe %	6.22 %	6.01 %	5.22 %	5.83 %	5.68 %
Huantajalla	Ore, tonnes	123,225	28,536	5,854		157,615
	Ag oz/t	11.98	13.59	18.97		12.53
	Pb %	1.32 %	0.98 %	0.79 %		1.24 %
	Zn %	1.80 %	1.40 %	1.45 %		1.71 %

Ore Source		2017	2018	2019	2020	Total
	Mn %	3.70 %	3.91 %	3.27 %		3.72 %
	Fe %	5.83 %	6.75 %	5.47 %		5.99 %
Socorro Alto	Ore, tonnes	292,841	315,190	299,930	74,147	982,109
	Ag oz/t	11.96	8.70	6.99	7.71	9.07
	Pb %	1.71 %	2.71 %	3.00 %	1.73 %	2.43 %
	Zn %	2.21 %	3.61 %	4.21 %	2.59 %	3.29 %
	Mn %	7.34 %	4.92 %	2.12 %	3.77 %	4.70 %
	Fe %	5.58 %	7.33 %	10.60 %	6.64 %	7.75 %
Socorro Bajo	Ore, tonnes	784,093	822,855	715,586	387,266	2,709,801
	Ag oz/t	16.63	14.27	10.28	11.21	13.46
	Pb %	1.27 %	1.31 %	1.12 %	0.85 %	1.18 %
	Zn %	1.69 %	1.95 %	1.67 %	1.25 %	1.70 %
	Mn %	7.88 %	7.00 %	6.18 %	6.60 %	6.98 %
	Fe %	5.65 %	6.67 %	6.51 %	5.47 %	6.16 %
Cancha Superficie	Ore, tonnes	102,595	49,783	60,296	23,592	236,266
	Ag oz/t	11.51	9.73	9.06	7.20	10.08
	Pb %	1.22 %	1.85 %	1.24 %	1.27 %	1.36 %
	Zn %	1.64 %	2.53 %	1.88 %	2.41 %	1.96 %
	Mn %	5.79 %	4.31 %	5.11 %	4.52 %	5.18 %
	Fe %	6.34 %	8.09 %	7.21 %	5.19 %	6.81 %
Total	Ore, tonnes	1,370,149	1,388,734	1,335,018	550,718	4,644,618
	Ag oz/t	14.63	12.48	9.06	10.10	11.85
	Pb %	1.35 %	1.58 %	1.51 %	1.04 %	1.43 %
	Zn %	1.79 %	2.23 %	2.20 %	1.56 %	2.01 %
	Mn %	7.04 %	6.05 %	4.77 %	5.77 %	5.94 %
	Fe %	5.71 %	6.79 %	7.20 %	5.64 %	6.45 %

Source: BVN

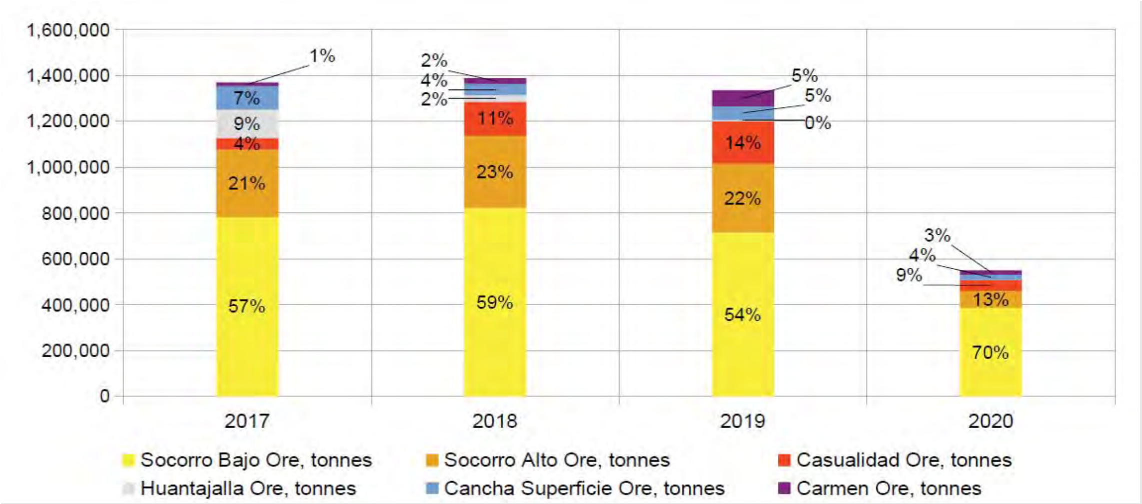


Figure 14-2: Uchuchaccua, Annual Ore Supply by Vein System

Source: BVN

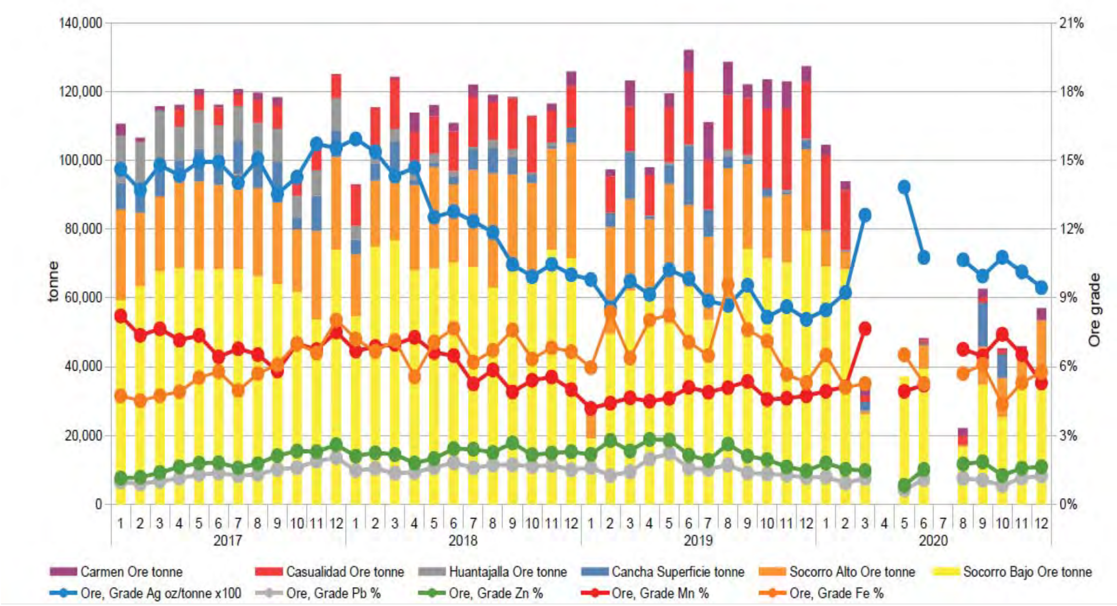


Figure 14-3: Uchuchaccua, Monthly Ore Supply by Vein System

Source: BVN

14.2 Mine to Plant, Ore tonnage Reconciliation

The ore reconciliation between mine and plant over the 2017 to 2020 period is presented in Table 14-2. For tonnage and all metals, the mine's figures are systematically higher than the plant's figures. Mine's ore tonnage is 2.7% higher than that reported by the plant. Similar to tonnage, head grades for all metals reflect differences exceeding 2.7%, with manganese as the only exception. SRK is of the opinion that reconciliation between the major areas in a mining operation are critical to ensure the business efficiency, and that a sound management practice is to develop practices and procedures to ensure a tight reconciliation on a regular basis, ideally no longer than a monthly basis.

Table 14-2: Uchucchacua, Mine-to-Plant, Ore Reconciliation

Parameter	Mine	Plant	Difference
tonne	4,644,618	4,521,233	2.7 %
Ag oz/t	11.85	11.84	
Ag oz	55,042,520	53,544,154	2.8 %
Pb %	1.43 %	1.39 %	
Pb tonne	66,381	62,766	5.8 %
Zn %	2.01 %	1.99 %	
Zn tonne	93,529	90,172	3.7 %
Mn %	5.94 %	5.99 %	
Mn tonne	275,886	270,633	1.9 %
Fe %	6.45 %	6.39 %	
Fe tonne	299,745	288,893	3.8 %

Source: BVN

14.3 Processing Plant, Data Consistency Analysis

SRK performed a metallurgical recovery consistency analysis on the available data from Uchucchacua. The analysis calculated the overall recovery for the main credit metals using two methods:

- Method 1 (M1) calculated the recovery in terms of final concentrate's reported figures as follows:

$$\text{Recovery\% (M1)} = \frac{100 \text{ xConcentrate tonnage x Metal grade in Concentrate}}{\text{Metal in mill feed}}$$

- Method 2 (M2) calculated the recovery in terms of fresh feed and reported recovery as follows:

$$\text{Recovery\% (M2)} = \frac{100 \text{ x Ore tonnes x Head grade x Recovery}}{\text{Metal in mill feed}}$$

Results from the calculation are presented in Table 14-3, Table 14-4, and Table 14-5. The conclusion are as follows:

- Analysis of the combined C1+C2 circuit shows that using M1, zinc recovery significantly exceeds 100%.
- When performing the same analysis for the individual circuits, the results indicate the same inconsistency for zinc in C1 when using M1.
- Recover calculations using M2 show consistency for the combined circuits as well as for individual circuits.
- Based on these results, SRK decided that all further analysis will be performed using a single calculation criteria: method M2.

Possible explanations for the inconsistency observed in the data are multiple, and its negative consequences in Uchucchacua's economics are multiple, and at least include the followings:

- Systematic error in the sampling of final concentrates
- Systematic deficiencies in the chemical assaying laboratory
- Calculation error of the moisture content
- Lack of calibration of the truck scale for dump trucks leaving the site loaded with final concentrate
- It is highly probable that biased, unrealistic figures were fed back to the mine planning group, which negatively impacted the mining sequence, forcing additional and unnecessary operating expenditure.
- It is highly probable that the assay exchange with concentrate buyers uses the plant's declared assays and weights, and consequently the overestimation of the concentrate's weight and/or assay leads to a reduction in the value of Uchucchacua's final products. Parameters used for mineral resources and reserves estimation must include the detailed commercial terms as stated by currently applicable contracts. For some saleable or penalizable elements, the impact of commercial terms on the ore value could be material.

Table 14-3: Uchucchacua, Data Consistency Analysis, Combined Circuits

C1 + C2	M1	M2
Rec Ag	92.8%	88.5%
Rec Pb	95.1%	92.6%
Rec Zn	112.8%	76.7%
Rec Mn	36.5%	34.8%
Rec Fe	29.1%	27.6%

Source: BVN

Table 14-4: Uchucchacua, Data Consistency Analysis, Circuit 1

C1	M1	M2
Rec Ag	94.7%	89.1%
Rec Pb	96.8%	93.1%
Rec Zn	130.2%	75.1%
Rec Mn	37.8%	35.7%
Rec Fe	32.8%	31.9%

Source: BVN

Table 14-5: Uchucchacua, Data Consistency Analysis, Circuit 2

C2	M1	M2
Rec Ag	86.2%	86.2%
Rec Pb	91.6%	91.7%
Rec Zn	79.6%	79.7%
Rec Mn	31.8%	31.8%
Rec Fe	23.0%	20.4%

Source: BVN

14.4 Processing Plant Performance

Uchucchacua operates two parallel conventional flotation circuits namely Circuito 1 (C1) and Circuito 2 (C2); see simplified block flow diagrams and detailed flowsheet in Figure 14-4 to Figure 14-8.

The Circuit 1's nominal capacity of 3,000 tonnes per day of fresh feed but in 2017-2019, the circuit operated at only 2,600 tonnes/day (approx.).

The Circuit 2's nominal capacity is 1,200 tonnes/day, but during the same period this circuit operated only at approximately 1,000 tonnes/day. See Table 14-6.

Uchucchacua registered a major drop in ore processing in year 2020. In 2017-2019, Uchucchacua's ore throughput was uncharacteristically steady at 1.34 million tonnes per year, then dropped to 0.5 million tonnes in 2020. SRK is of the understanding that 2020's performance is the result of a combination of labor issues and COVID-related restrictions.

Table 14-6: Uchuchaccua, Metal Recovery

Circuit	Units	2017	2018	2019	2020
Circuit 1	Ore tonne	962,316	945,018	974,341	405,085
	Ore tonnes/day (@365 d/y)	2,636	2,589	2,669	1,110
	Grade Ag oz/t	15.77	13.67	9.64	11.25
	Grade Pb %	1.3 %	1.4 %	1.3 %	3.2 %
	Grade Zn %	1.8 %	2.0 %	1.8 %	1.3 %
	Grade Mn %	7.3 %	6.6 %	5.4 %	6.7 %
	Grade Fe %	5.2 %	5.9 %	5.9 %	4.5 %
Circuit 2	Ore tonne	377,571	402,734	360,677	93,493
	Ore tonnes/day (@365 d/y)	1,034	1,103	988	256
	Grade Ag oz/t	11.77	9.68	7.30	5.64
	Grade Pb %	1.3 %	1.7 %	2.1 %	1.5 %
	Grade Zn %	1.8 %	2.5 %	3.3 %	2.5 %
	Grade Mn %	6.5 %	4.8 %	3.1 %	3.1 %
	Grade Fe %	6.8 %	8.7 %	10.8 %	9.0 %

Source: BVN

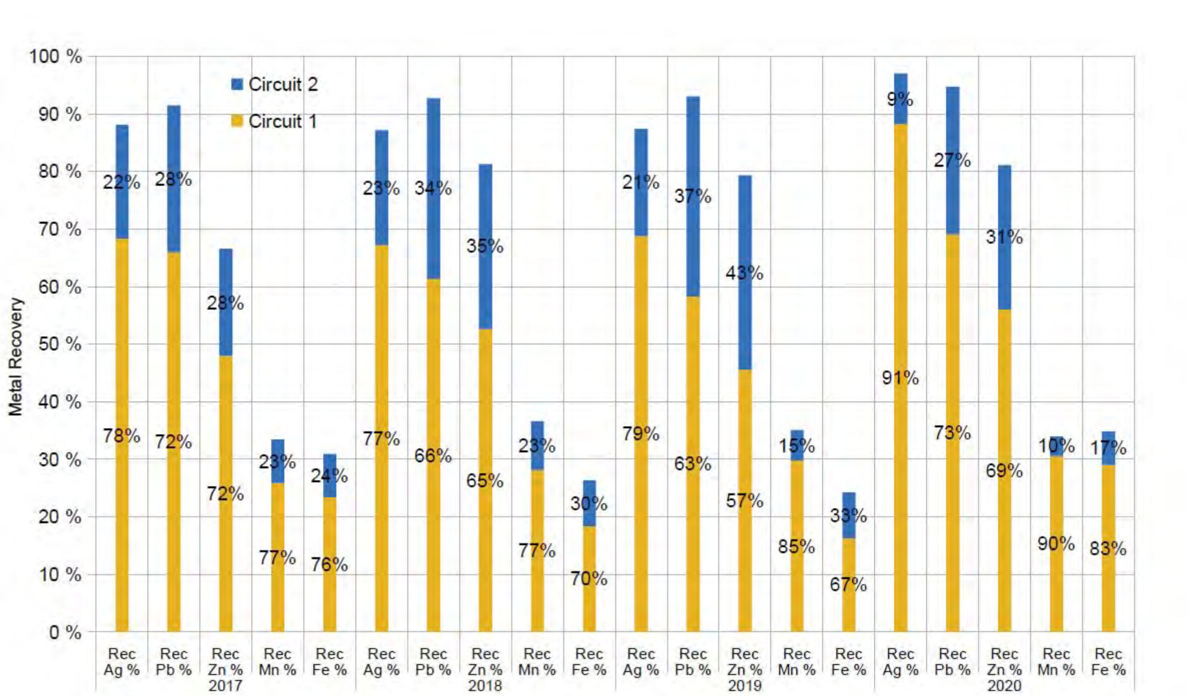


Figure 14-4: Uchuchaccua, Metal Recovery

Source: BVN

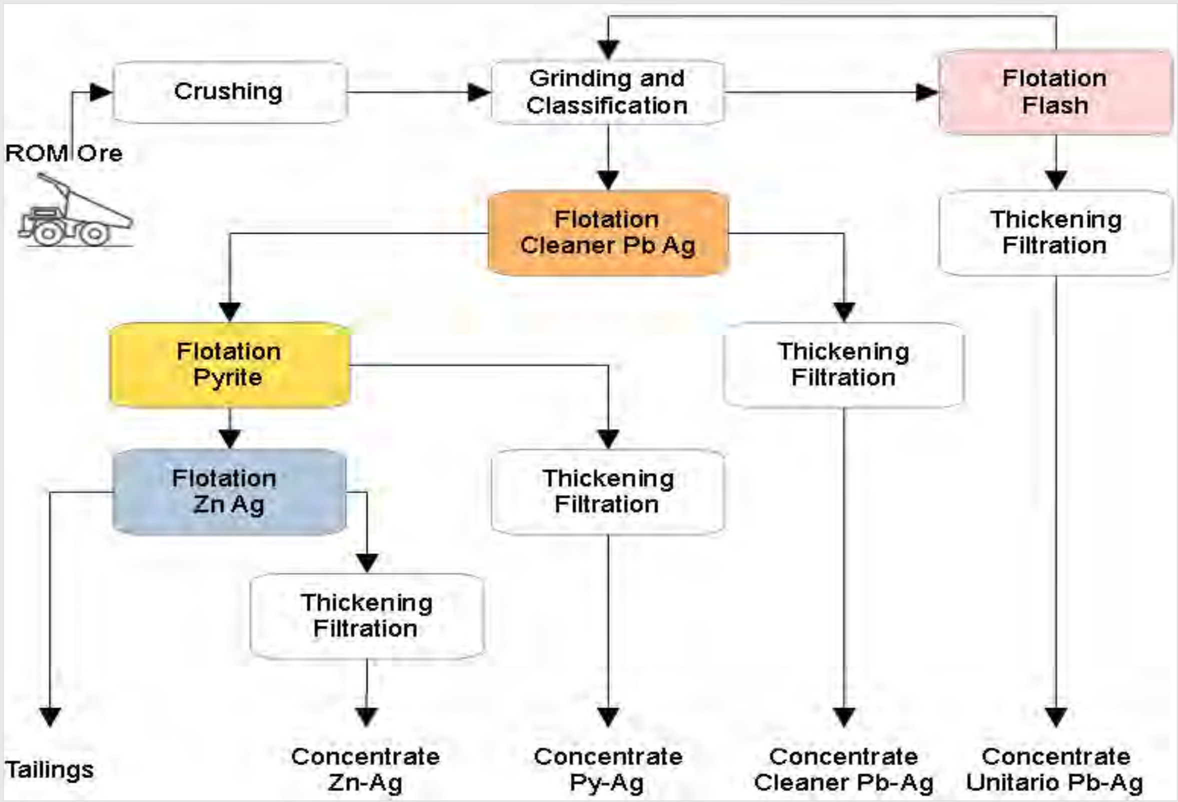


Figure 14-5: Uchucchacua, Processing Circuit 1, Block Flow Diagram

Source: BVN

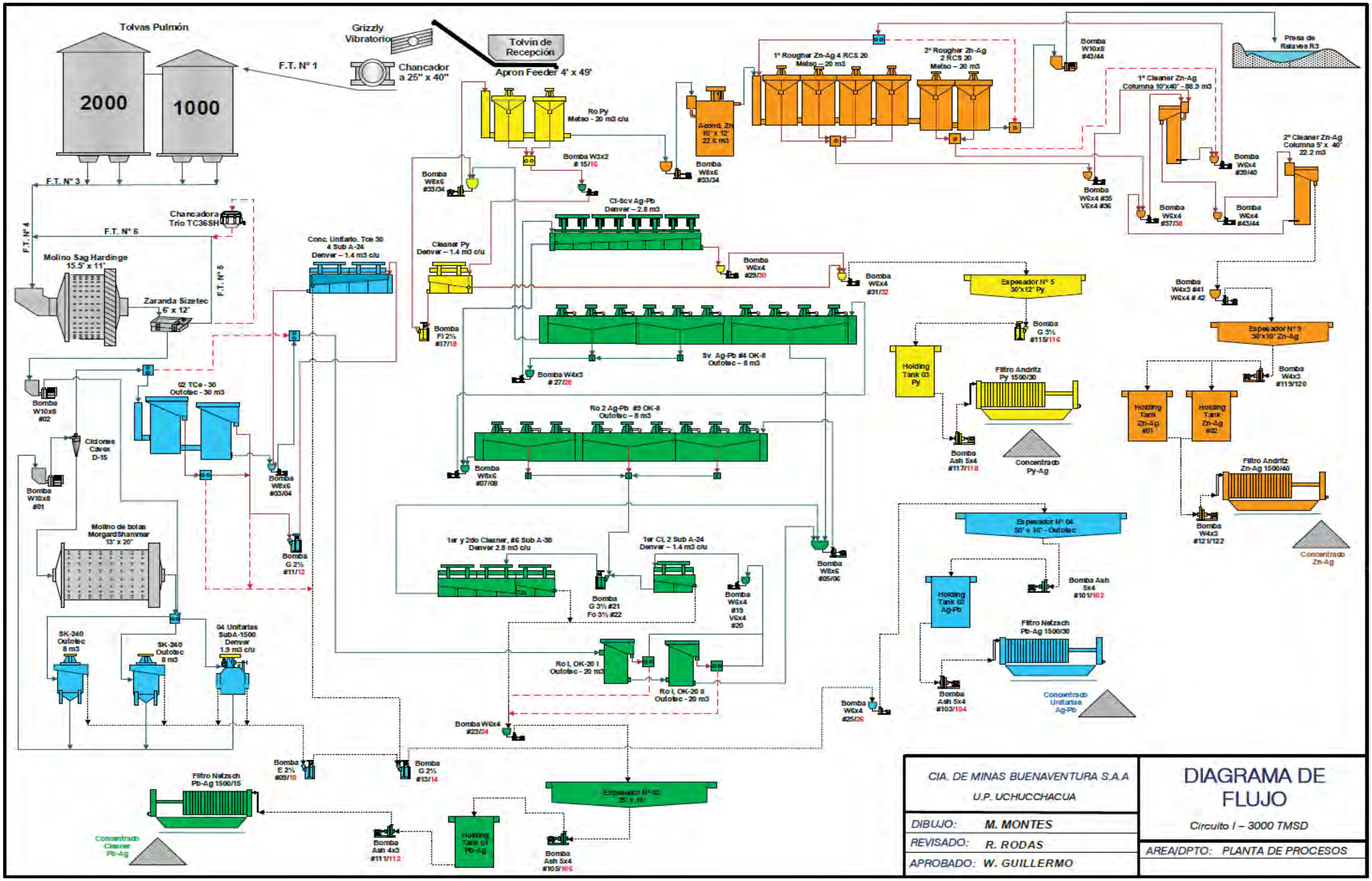


Figure 14-6: Uchucchacua, Processing Circuit 1, Flowsheet

Source: BVN

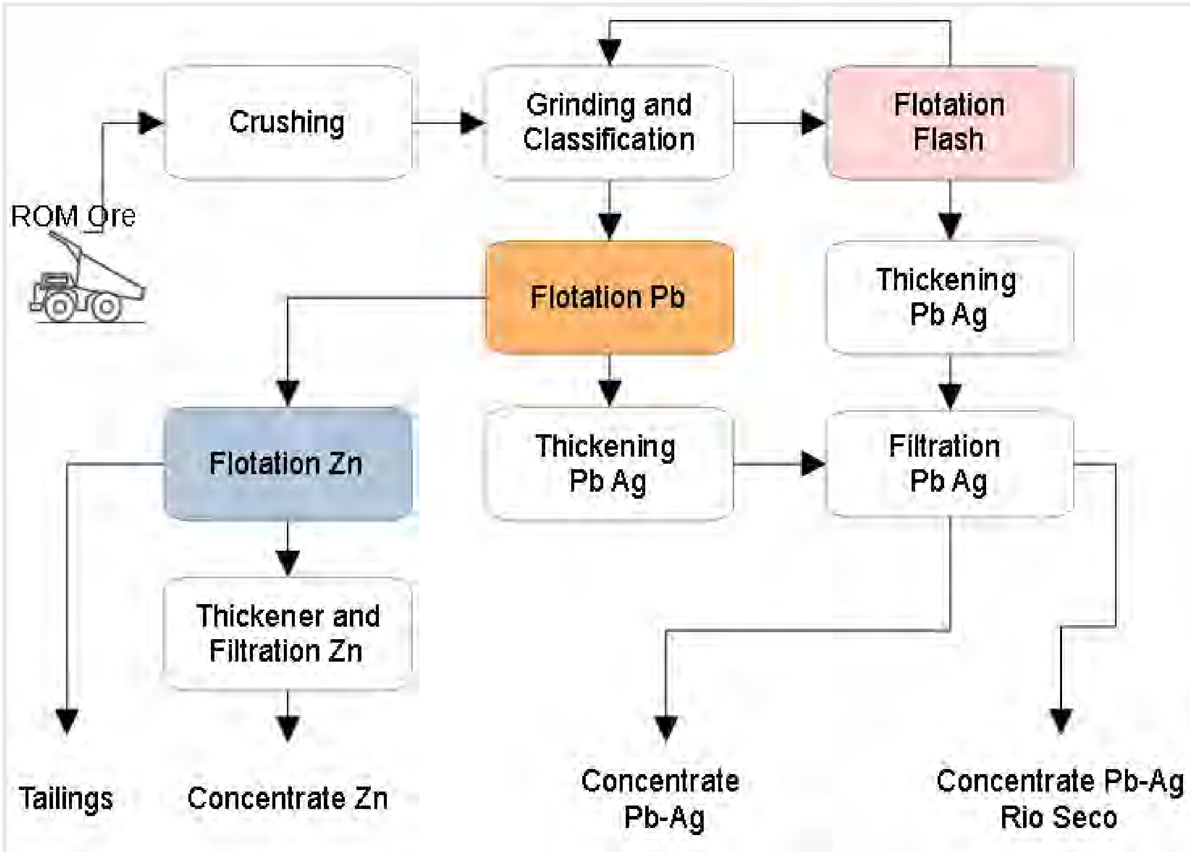


Figure 14-7: Uchucchacua, Processing Circuit 2, Block Flow Diagram

Source: BVN

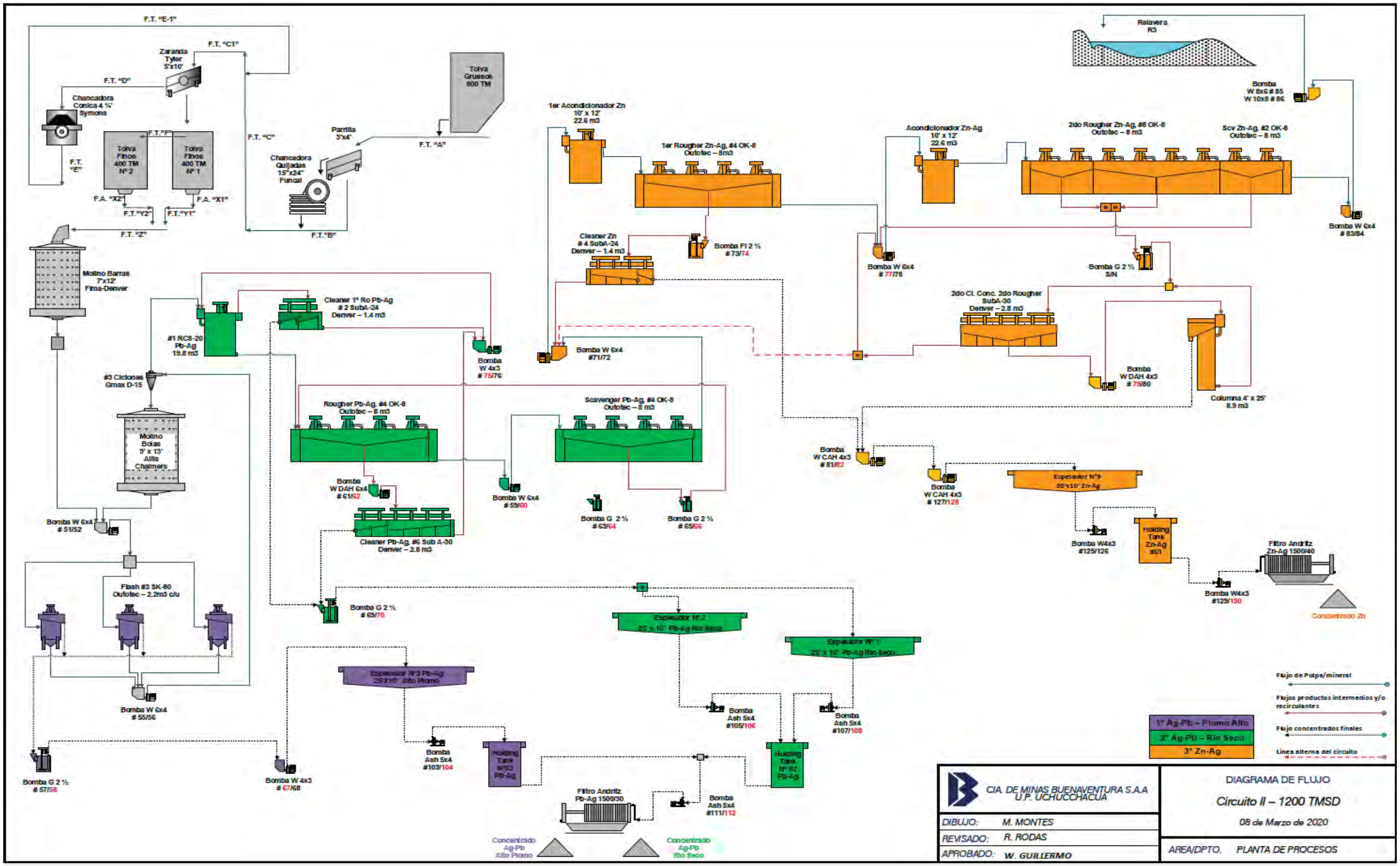


Figure 14-8: Uchucchacua, Processing Circuit 2, Flowsheet

Source: BVN

Uchucchacua's individual circuits and metal recovery by metal is depicted in Figure 14-9 and Table 14-7. It is important to note the following:

- Circuit 1 recovers the largest portion of the metal produced at Uchucchacua.
- Global silver recovery reached stood at 89% or 47.4 million ounces in the 2017 to 2020 period. Circuit 1 contributed 70% of total silver ounces produced and Circuit 2, 19%.
- Silver recovery was reasonably consistent between 2017 to 2019, ranging between 67% and 69%, but increased to 88% in 2020, which was more than likely due to a decrease in ore throughput, which resulted in a more finely ground product and an uptick in the flotation residence time.
- Lead achieved global recovery of 92%, or 58,134 tonnes in the 2017 to 2020 period. Circuit 1 produced 39,131 tonnes, which represented 62% of total lead recovery. Circuit 2 produced 19,003 tonnes, which was represented 30% of total lead recovery.
- Zinc achieved global recovery of 76%, or 69,177 tonnes in the 2017 to 2020 period. Circuit 1 produced 44,547 tonnes, which represented 49% of total zinc recovery. Circuit 2 produced 24,629 tonnes, which represented 27% of total zinc recovery.
- Manganese achieved global recovery of 35%, or 94,281 tonnes, in the 2017 to 2020 period. Circuit 1 produced 75,812 tonnes, which represented 28% of total manganese recovery. Circuit 2 produced 18,469 tonnes, which represented 7% of total zinc recovery.
- Iron achieved global recovery of 28%, or 79,755 tonnes in the 2017 to 2020 period. Circuit 1 produced ,57, which represented 08% of total manganese recovery. Circuit 2 produced 22,013 tonnes, which represented 8% of total zinc recovery.

Table 14-7: Uchuchaccua, Over all Metal Recovery

Circuit / Metal	2017	2018	2019	2020	Total
C1 Metal Ag oz	13,412,051	11,302,762	8,272,744	4,487,749	37,475,307
C2 Metal Ag oz	3,877,989	3,356,989	2,236,472	444,079	9,915,528
C1 Rec Ag %	68 %	67 %	69 %	88 %	70 %
C2 Rec Ag %	20 %	20 %	19 %	9 %	19 %
C1 Metal Pb t	11,793	12,462	11,404	3,471	39,131
C2 Metal Pb t	4,560	6,367	6,788	1,287	19,003
C1 Rec Pb %	66 %	61 %	58 %	69 %	62 %
C2 Rec Pb %	26 %	31 %	35 %	26 %	30 %
C1 Metal Zn t	11,424	15,424	13,384	4,315	44,547
C2 Metal Zn t	4,433	8,369	9,894	1,933	24,629
C1 Rec Zn %	48 %	53 %	46 %	56 %	49 %
C2 Rec Zn %	19 %	29 %	34 %	25 %	27 %
C1 Metal Mn t	24,488	23,144	18,985	9,195	75,812
C2 Metal Mn t	7,155	6,941	3,369	1,004	18,469
C1 Rec Mn %	26 %	28 %	30 %	31 %	28 %
C2 Rec Mn %	8 %	8 %	5 %	3 %	7 %
C1 Metal Fe t	17,712	16,644	15,648	7,738	57,742
C2 Metal Fe t	5,706	7,146	7,606	1,555	22,013
C1 Rec Fe %	23 %	18 %	16 %	29 %	20 %
C2 Rec Fe %	8 %	8 %	8 %	6 %	8 %

Source: BVN

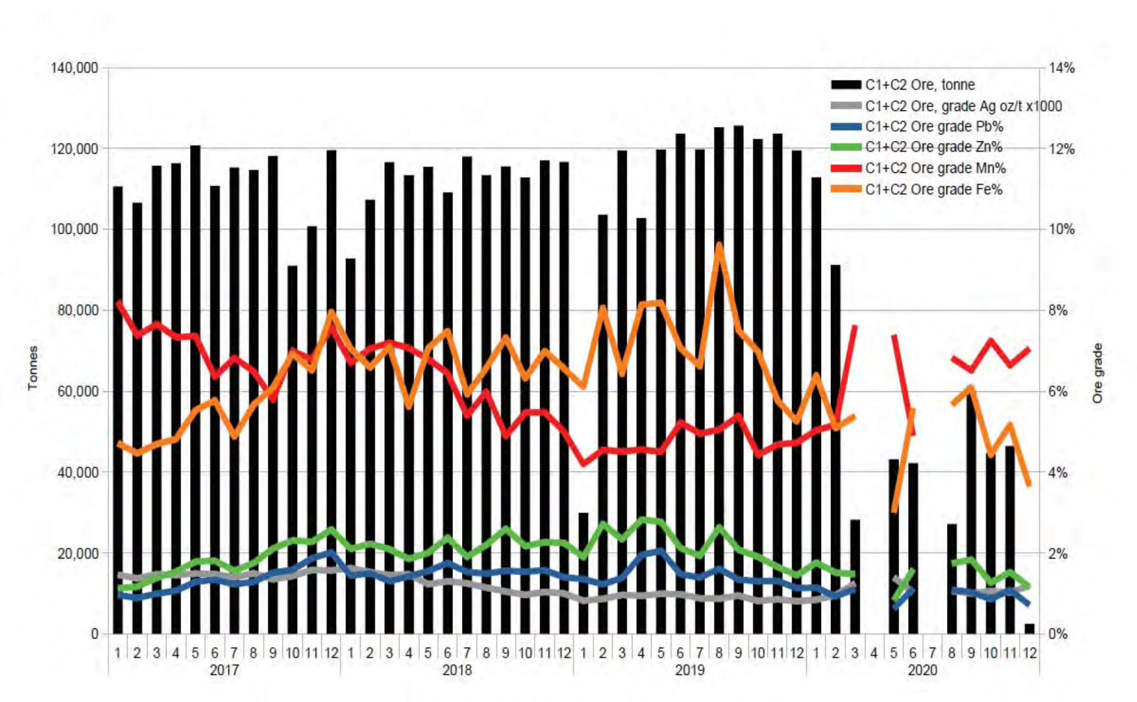


Figure 14-9: Uchucchacua, Overall Performance

Source: BVN

Information on Uchucchacua's final concentrate quality for Circuit 1 and Circuit 2 is presented in Table 14-8 and Table 14-9 respectively. Note that all concentrates exhibit grades that are not typically commercialized in the industry; their quality also varies widely.

Concentrate produced in Circuit 1 exhibit the following characteristics:

- Silver is preferentially deported to the Concentrate Unitario with 50.3%
- Lead is preferentially deported to Concentrate Unitario with 64.2%
- Zinc is preferentially deported to Concentrate Zinc with 60.3%
- Manganese is pervasive in all final products, with recoveries ranging from 1.4% up to 13.2%.
- Concentrate Unitario's head grade are 198 oz/tonne silver, 25.3% lead, 2.6% Zn, and 11% manganese.
- Concentrate Cleaner registered the largest manganese concentration: 28.4% and also reported 99 oz/tonne silver, 9.3% Pb, 2.3% Zn.
- Concentrate Rio Seco's grades are 41 oz/tonne silver, 2.5% lead, 0.8% zinc, and 11.4% manganese
- Concentrate Pyrites assays 31 oz/tonne silver 1.3% lead, 3.0% zinc, and 23.1% manganese
- Concentrate Zinc assays 19 oz/tonne silver, 0.8% lead, 37.3% zinc, and 6.1% manganese.

Table 14-8: Uchucchacua, Concentrate Quality, Circuit 1

Stream	Unit	Circuit 1 - 2017 to 2020			
		Ag oz/t	Pb	Zn	Mn
Concentrate Unitario	concentrate tonne	106,659	106,659	106,659	106,659
	Grade	198	25.3%	2.6%	11.0%
	Rec	50.3%	64.2%	4.6%	5.5%
	Mass pull	3.2%	3.2%	3.2%	3.2%
Concentrate Cleaner	concentrate tonne	99,291	99,291	99,291	99,291
	Grade Ag oz/t	99	9.3%	2.3%	28.4%
	Rec	23.4%	22.0%	3.8%	13.2%
	Mass pull	3.0%	3.0%	3.0%	3.0%
Concentrate Rio Seco	concentrate tonne	26,408	26,408	26,408	26,408
	Grade Ag oz/t	41	2.5%	0.8%	11.4%
	Rec	23.6%	17.9%	4.2%	11.1%
	Mass pull	6.5%	6.5%	6.5%	6.5%
Concentrate Pyrites	concentrate tonne	116,877	116,877	116,877	116,877
	Grade Ag oz/t	31	1.3%	3.0%	23.1%
	Rec	8.7%	3.5%	5.9%	12.7%
	Mass pull	3.6%	3.6%	3.6%	3.6%
Concentrate Zinc	concentrate tonne	95,831	95,831	95,831	95,831
	Grade Ag oz/t	19	0.8%	37.3%	6.1%
	Rec	4.2%	1.8%	60.3%	2.8%
	Mass pull	2.9%	2.9%	2.9%	2.9%
Note: The total sum of the metal recoveries reported for individual metals does not add up to 100% because some are not produced regularly.					

Source: BVN

Concentrate produced in Circuit 2 exhibit the following characteristics:

- Silver is preferentially deported to the Concentrate Unitario with 52.1%
- Lead is preferentially deported to Concentrate Unitario with 66.9%
- Zinc is preferentially deported to Concentrate Zinc with 71.8%
- Manganese is pervasive in all final products, and the largest recovery is observed in Concentrate Pyrites at 24.9%, Concentrate Cleaner at 23.2% and Concentrate Rio Seco at 19.7%.
- Concentrate Unitario’s head grade are 151 oz/tonne silver, 34.8 lead, 2.9% Zn, and 7.4% manganese.

Table 14-9: Uchucchacua, Concentrate Quality, Circuit 2

Source: BVN

Stream	Unit	Circuit 1 - 2017 to 2020			
		Ag	Pb	Zn	Mn
Concentrate Unitario	concentrate tonne	39,748	39,748	39,748	39,748
	Grade	151	34.8%	2.9%	7.4%
	Rec	52.1%	66.9%	3.7%	5.0%
	Mass pull	3.2%	3.2%	3.2%	3.2%
Concentrate Cleaner	concentrate tonne	29,688	29,688	29,688	29,688
	Grade	85	13.8%	2.1%	23.2%
	Rec	23.1%	21.2%	2.2%	12.5%
	Mass pull	2.6%	2.6%	2.6%	2.6%
Concentrate Rio Seco	concentrate tonne	3,007	3,007	3,007	3,tirr
	Grade	47	12.5%	3.0%	19.7%
	Rec	26.8%	26.8%	3.8%	20.8%
	Mass pull	3.2%	3.2%	3.2%	3.2%
Concentrate Pyrites	concentrate tonne	21,633	21,633	21,633	21,633
	Grade	29	1.0%	2.6%	24.9%
	Rec	5.6%	1.1%	2.0%	9.7%
	Mass pull	1.9%	1.9%	1.9%	1.9%
Concentrate Zinc	concentrate tonne	55,693	55,693	55,693	55,693
	Grade	11	0.9%	39.8%	4.8%
	Rec	5.5%	2.3%	71.8%	4.6%
	Mass pull	4.5%	4.5%	4.5%	4.5%
Note: summation of individuals metal's recovery does not add up to 100% because not all of them were produced regularly					

- Concentrate Cleaner registered the largest manganese concentration of 23.2.%, also 85 oz/tonne silver, 13.8% lead, and 2.1% zinc.
- Concentrate Rio Seco's grades are 47 oz/tonne silver, 12.5% lead, 3.0% zinc, and 19.7% manganese
- Concentrate Pyrites assayed 29 oz/tonne silver, 1.0% lead, 2.6% zinc, and 24.9% manganese
- Concentrate Zinc assayed 11 oz/tonne silver, 0.9% lead, 39.8% zinc, and 4.8% manganese.

14.5 Uchucchacua Equipment List

A list of the Uchucchacua's major equipment list is presented in Table 14-10.

Table 14-10: Uchucchacua, Major Equipment List

Area	Equipment	Description
Crushing	plate feeder NICO FD4486 N°5	
	Shaker Metso GN-2010 N°1	3x6
	Jaw Crusher Faco N°1	25"x40"
	Conveyor belt Armco N°1	146m x 36"
	Conveyor belt N°2	31m x 36"
	Dynamic weighing scale Thermo N°1	
	Lunch fines hopper 1000 N°1	
	Lunch fines hopper 2000 N°2	
	Pump horizont Shneider ME33200 N°61	20 HP
	Coarse ore hopper N°7	
	Coarse ore hopper N°4	800 tonne
	Chain feeder N°1	
	Chain feeder N°2	
	Chain feeder N°3	
	Chain feeder N°4	
	Conveyor belt	24"
	Conveyor belt	34m x 36"
	Grill shaker N°3	3x4
	Jaw Crusher Funcal N°3	15"x24"
	Upright Pump Galigher	2.5"
	Conveyor belt	97m x 24"
	Dynamic weighing scale Thermo Ramsey N°3	
	Conveyor belt	24"
	Conveyor belt	18mx24"
	Shaker Tyler N°4	5x12
	Conveyor belt	45m x 24"
	Cone crusher Symons N°4	4"
	Conveyor belt	24"
	Conveyor belt	24"
	Conveyor belt	24"
	Fines hopper D.E. Langer N°5	
	Fines hopper D.E. Langer N°6	
Grinding	Feeder ore belt	25mx26"
	Feeder ore belt	25mx26"
	Feeder ore belt	25mx26"
	Feeder ore belt	25mx26"
	Vertical Pump Galigher	3.5"
	Conveyor belt N°3	36"
	Dynamic weighing scale Thermo Ramsey N°2	
	Conveyor belt N°6	36"
	Conveyor belt N°4	36"
	Conveyor belt N°5	24"
	Cone crusher Trio TC 36 N°2	
	Ball mill Kooper SAG N°1	15.5x11
	Compressor Tor Sullair T1109 N°2	125 PSI
	Shaker Sizetec N°2	6x12
	Vertical Pump Galigher	3.5"
	Horizontal Pump Warman 10x8 G-AH	
	Horizontal Pump Warman 10x8 G-AH	
	Horizontal pump Metso MDM 250 THC C5HC	
	Horizontal pump Metso MDM 250 THC C5HC	
	Ball mill Morgard Shammer N°2	13x20
	Horizontal pump Warman 6/4 E-AH	
	Horizontal pump Warman 6/4 E-AH	
	Ball mill Magensa 8x14 N°4	
	Horizontal pump Warman 6x4 E-AH N°53	
	Horizontal pump Warman 6x4 E-AH N°54	
	Vertical Pump Epiasa	2.5x48
	Vertical Pump Epiasa N°9	2.5x48
	Conveyor belt	8mx24"
	Conveyor belt	14mx24"
	Conveyor belt	24"
	Conveyor belt	24"
	Conveyor belt	28mx24"
	Dynamic weighing scale Thermo Ramsey N°5	
	Rod Mill Fima N°3	7'x12'
	Horizontal pump Warman 6x4 E-AH	
	Horizontal pump Warman 6x4 E-AH	
	Vertical Pump Galigher	2.5x48
	Horizontal pump Warman N°5	9x13
	Vertical Pump Galigher	2.5"
Flotation	Flotation Cell Bank Fima Sun A-1500 N°1	
	Flotation Cell Outotec SK240 N°1	
	Flotation Cell Outotec SK240 N°2	
	Flotation Cell Outotec TCE 30I N°4	
	Flotation Cell Outotec TCE 30II N°5	
	Flotation Cell Outotec OK20-I N°15	
	Flotation Cell Outotec OK20-II N°16	
	Flotation Cell Bank Fima Sun A-24 N°6	
	Flotation Cell Bank Outotec OK-8U (01-09)	
	Flotation Cell Bank Fima Sun A-30 N°5	
	Flotation Cell Bank Outotec OK-8U (10-13)	
	Flotation Cell Bank Outotec OK-8U (14-19)	
	Flotation Cell Metso RCS20-1 N°6	
	Flotation Cell Metso RCS20-2 N°7	
	Flotation Cell Bank Denver Agitair N°7	
	Conditioner tank N°1	10x12
	Flotation Cell Metso RCS20-3 N°8	
	Flotation Cell Metso RCS20-4 N°9	

Area	Equipment	Description
	Flotation Cell Metso RCS20-5 N°10	
	Flotation Cell Metso RCS20-6 N°11	
	Flotation Cell Metso RCS20-7 N°12	
	Flotation Cell Metso RCS20-8 N°13	
	Column Flotation Cell N°21	
	Column Flotation Cell Cominco N°14	
	Vertical Pump Galigher	2.5”
	Vertical Pump Galigher	2.5”
	Horizontal Pump Warman 8x6 AH	
	Horizontal Pump Warman 8x6 AH	
	Horizontal Pump Warman 8x6 AH	
	Horizontal Pump Warman 8x6 AH	
	Vertical Pump Fima	2.5x48
	Horizontal Pump Galigher Vacseal	6x4
	Horizontal pump Warman 6x4 E-AH	
	Vertical Pump Galigher	2.5”
	Holding Tank ZnAg N°4	
	Holding Tank PbAg N°2	
	Horizontal Pump ASH N°42	4x3, 10 HP
	Horizontal pump Warman 6x4 E-AH	
	Vertical Pump Galigher	2.5”
	Horizontal Pump Galigher Vacseal	6x4
	Vertical Pump Galigher	2.5”
	Vertical Pump Galigher	2.5”
	Horizontal Pump Warman 6x4 AH	
	Horizontal Pump Warman 8x6 AH	
	Horizontal pump Warman 6x4 E-AH	
	Horizontal Pump Warman 4x3 C-AH	
	Horizontal pump Warman 6x4 E-AH	
	Horizontal pump Warman 6x4 E-AH	
	Horizontal pump Warman 6x4 E-AH	
	Horizontal pump Warman 6x4 E-AH	
	Vertical Pump Galigher	2.5”
	Vertical Pump Galigher	2.5”
	Vertical Pump Galigher	3.5”
	Horizontal Pump Fowler	3.5”
	Vertical Pump Fowler	3.5”
	Horizontal pump Warman 6x4 E-AH	
	Horizontal pump Warman 6x4 E-AH	
	Horizontal pump Warman 6x4 E-AH	
	Vertical Pump Espiasa	2.5x48
	Vertical Pump Galigher	2.5”
	Horizontal Pump Warman 1-1/2”x1 B-AH	
	Horizontal Pump Warman 4x3 C-AH	
	Horizontal Pump Warman 3x2 C-AH	
	Horizontal Pump Warman 6x4 E-AH	
	Flotation Cell Outotec SK80	
	Flotation Cell Outotec SK81	
	Flotation Cell RCS20 N°19	
	Flotation Cell Bank Denver Sub A24 N°9	
	Flotation Cell Bank Outotec OK-8U N°10	
	Flotation Cell Bank Denver Sub A30 N°19	
	Flotation Cell Bank Outotec OK-8U N°11	
	Flotation Cell Bank Denver Sub A24 N°10	
	Conditioner tank N°7	10x12
	Flotation Cell Bank Outotec OK-8U N°13	
	Flotation Cell Bank Denver Sub A24 N°12	
	Conditioner tank N°8	10x12
	Flotation Cell Bank Outotec OK-8U N°14	
	Flotation Cell Bank Outotec OK-8U N°15	
	Flotation Cell Bank Denver Sub A30 N°6	
	Column Flotation Cell N°20	
	Vertical Pump Galigher	2.5x48
	Horizontal Pump Warman AH 4x3 N°80	
	Horizontal Pump Warman E-AH 4x3 N°70	
	Horizontal Pump Fima SRL 1 1/2x1 ¼ N°20	
	Vertical Pump Galigher	2.5”
	Horizontal Pump Warman 4x3 N°68	
	Horizontal Pump Warman 6x4 N°61	
	Horizontal Pump Warman D255RA102 6x4 N°59	
	Vertical Pump Galigher N°63	2.5”
	Vertical Pump Galigher N°64	2.5x48
	Horizontal Pump Warman 4x3 N°81	
	Horizontal Pump Warman AH 6x4 N°49	
	Horizontal Pump Warman 6x4 E-AH	
	Horizontal Pump Warman D-AH 4x3 N°79	
	Vertical Pump Galigher	2.5”
	Horizontal Pump Warman E-AH 6x4 N°78	
	Horizontal Pump Warman D-AH 4x3 N°76	
	Horizontal Pump Warman 6x4 E-AH	
	Vertical Pump Galigher N°69	2.5x48
	Vertical Pump Galigher N°65	2.5x48
	Horizontal Pump Warman AH 6x4 N°71	
	Vertical Pump Galigher N°73	2.5”
	Compressor Torn Atlas Copco GA315	
	Compressor Torn Atlas Copco GA160	
	Compressor Torn Sullair TS32S 450 WC	
Tailings Pumping	Horizontal Pump Warman 10x8 F-AH	
	Horizontal Pump Warman 10x8 F-AH	
	Horizontal Pump Warman 8x6 AH	
	Horizontal Pump Warman 8x6 AH	
	Vertical Pump Galigher	3.5”
Reagents	Screw feeder N°6	
	Ball mill N°6	3’x5’
	Horizontal Pump Warman 4x3 C-AH	

Area	Equipment	Description
	Horizontal Pump Warman 3x2 C-AH	
	Vertical Pump Galigher N°70	2.5x48
	Vertical Pump Galigher	2.5x48
	Horizontal Pump Warman 3x2 C-AH	
	Agitator Tank N°5	
	Agitator Tank N°6	
	Horizontal Pump Fima SRL 1 1/2x1 ¼ N°61	
	Peristaltic Pump Albin ALH-65	7.5 HP
	Horizontal Pump Warman 3x2 C-AH	
Thickening and Filtering	Agitator Tank N°10	
	Agitator Tank N°9	
	Horizontal Pump ASH 5x4 N°48	
	Vertical Pump Galigher	2.5”
	Horizontal Pump ASH SRC 5x4 N°50	
	Horizontal Pump Warman SRC 5x4 N°51	
	Horizontal Pump ASH 4x3 N°52	
	Horizontal Pump Warman SRC 5x4 N°53	
	Vertical Pump Galigher	2.5”
	Thickener AgPb N°4	50x10
	Thickener Fima AgPb N°3	25x10
	Thickener Fima AgPb N°1	25x8
	Thickener AgPb N°2	25x8
	Holding Tank N°3	
	Thickener ZnAg N°5	30x12
	Vertical Pump Galigher N°55	3.5”
	Filter Press Netzsch 1500/15 PbAg N°2	
	Filter Press Netzsch 1500/30 PbAg N°3	
	Filter Press Diemme GHT 1500 F8	
	Vertical Pump 65QV-SPx900	
	Filter Press Netzsch 1500/15 PbAg N°1	
	Thickener Outokumpo N°6	30x10
	Thickener Outokumpo N°7	30x10
	Thickener Outokumpo N°8	30x10
	Horizontal Pump ASH SRC 4x3	
	Vertical Pump Galigher	3.5”
	Thickener Denver Mymsa 30H N°10	
	Horizontal Pump Warman 6x4 E-AH N°40	
	Horizontal Pump Warman 6x4 E-AH N°41	
Ancillary Equipment	Bridge Crane Bracket Monorail N°9	5 tonne
	Bridge Crane Bracket Monorail N°1	2 tonne
	Bridge Crane Bracket Monorail N°2	2.5 tonne
	Bridge Crane Bracket Monorail N°3	5 tonne
	Bridge Crane Bracket Monorail N°4	2 tonne
	Bridge Crane Bracket Monorail N°5	1 tonne
	Bridge Gantry Crane N°6	25 tonne
	Bridge Gantry Crane N°7	3 tonne
	Bridge Gantry Crane N°10	5 tonne
	Bridge Gantry Crane N°11	2.5 tonne
	Bridge Gantry Crane N°12	
	Bridge Gantry Crane N°8	3 tonne
	Vertical Pump Galigher	2.5”
	Vertical Pump Galigher	2.5”
	Vertical Pump Galigher	2.5”

Source: BVN

14.6 Rio Seco Processing Unit

Rio Seco processing facilities include leaching and flotation to selectively remove manganese from the concentrates. The main ancillary facility includes an acid plant to generate sulfuric acid for the leaching stage. See flowsheet in Figure 14-10.

The main products and by-products from Rio Seco are as follows:

- A polymetallic concentrate with elevated silver content
- Manganese sulfate
- Multiple calcium-derived compounds, which result from the neutralization of solutions and gases

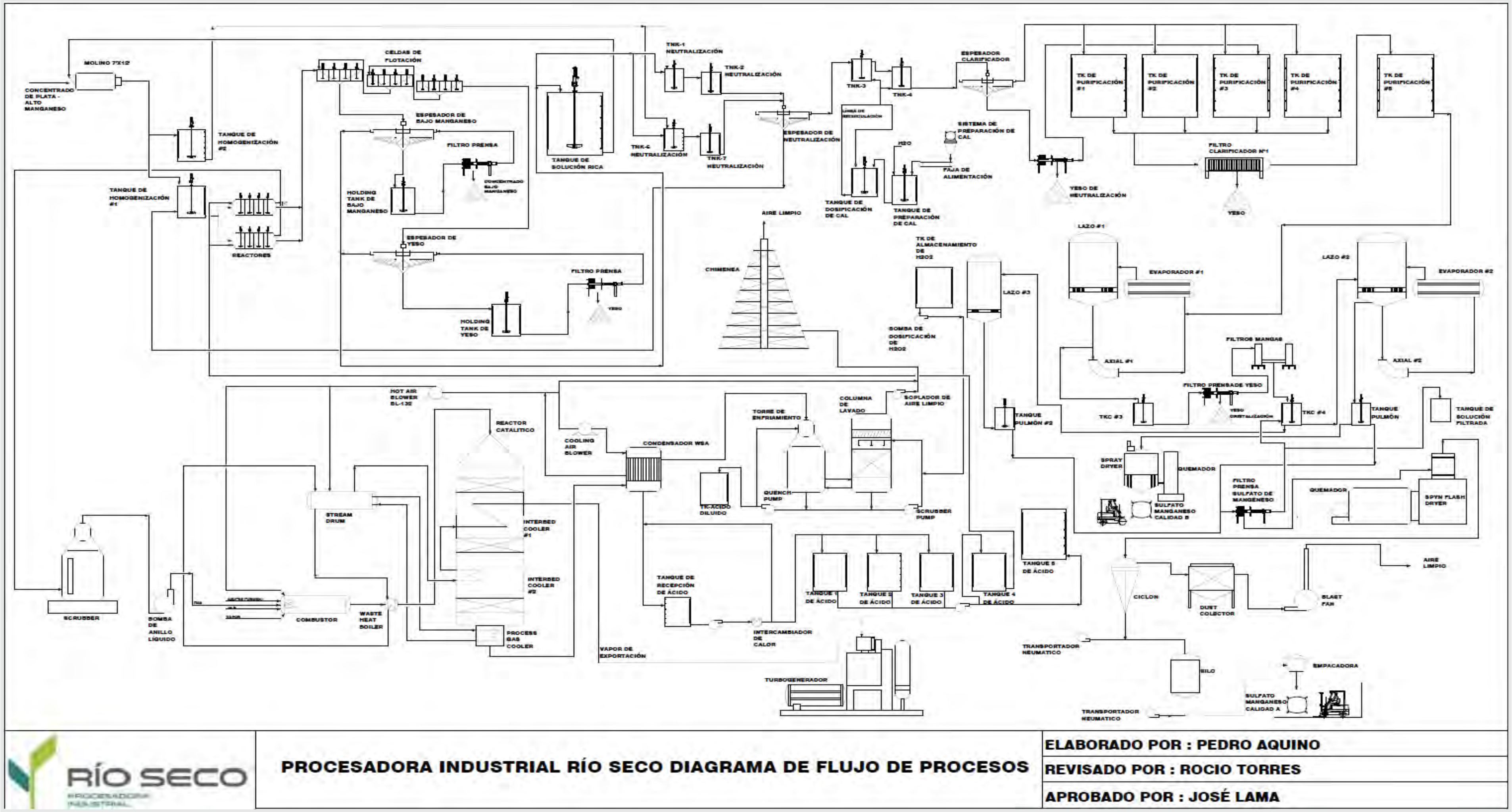


Figure 14-10: Rio Seco Flowsheet

Source: BVN

- Production from Rio Seco for the 2017 to 2020 periods is presented in Table 14-11, Figure 14-11 and Figure 14-12. The total concentrate production was 65,148 tonnes of concentrate, assaying 148 ounces of solver, 17.6% lead, 3.7% manganese, 2% arsenic, 4.0% zinc, 21.7% iron, and 0.6% antimony. Concentrate was trucked off site with 10.8% moisture.
- Concentrate tonnage production profile shows a consistent downward trend, starting at 17,778 tonnes in 2017 and dropping to 6,290 tonnes in 2021.
- Concentrate moisture has been consistent at approximately 10% w/w.
- Silver grade also shows a downward trend, consistent with its feed grade, starting at 20.4 oz/tonne in 2017 and dropping to approximately 10 oz/tonne in 2020 and 2021.
- Manganese shows a consistent downward trend, starting at 6.0% in 2017 and falling below 1.4% in 2021. Throughput is one of the possible drivers of lower manganese grades in the final concentrate.
- Zinc was not reported in 2017 2018. In 2019-2021, the zinc grade averaged 4.0%.
- Arsenic was not reported in 2017-2018. In 2019-2021, the arsenic grade averaged 2.0%.
- Additional assays available for the 2017 to 2021 period are Fe, Ca, and Sb, whose respective averages are 21.7%, 1.7%, and 0.6%.

Table 14-11: Rio Seco, Annual Concentrate Production

year	Concentrate, tonnes	Moisture %	Ag x 10oz/tonne	Pb	Mn	Fe%	Ca%	As%	Sb%	Zn%
2017	17,778	11.0	20.4	16.6	6.0					
2018	19,035	11.1	16.3	22.1	3.2					
2019	12,561	10.9	10.4	18.2	3.0	20.7	1.7	1.8	0.6	3.7
2020	9,485	10.4	9.7	12.5	2.8	21.6	2.1	2.1	0.5	4.3
2021	6,290	9.9	10.9	13.0	1.4	23.9	1.1	2.3	0.7	4.1
Total	65,148	10.8	14.8	17.6	3.7	21.7	1.7	2.0	0.6	4.0

Source: BVN

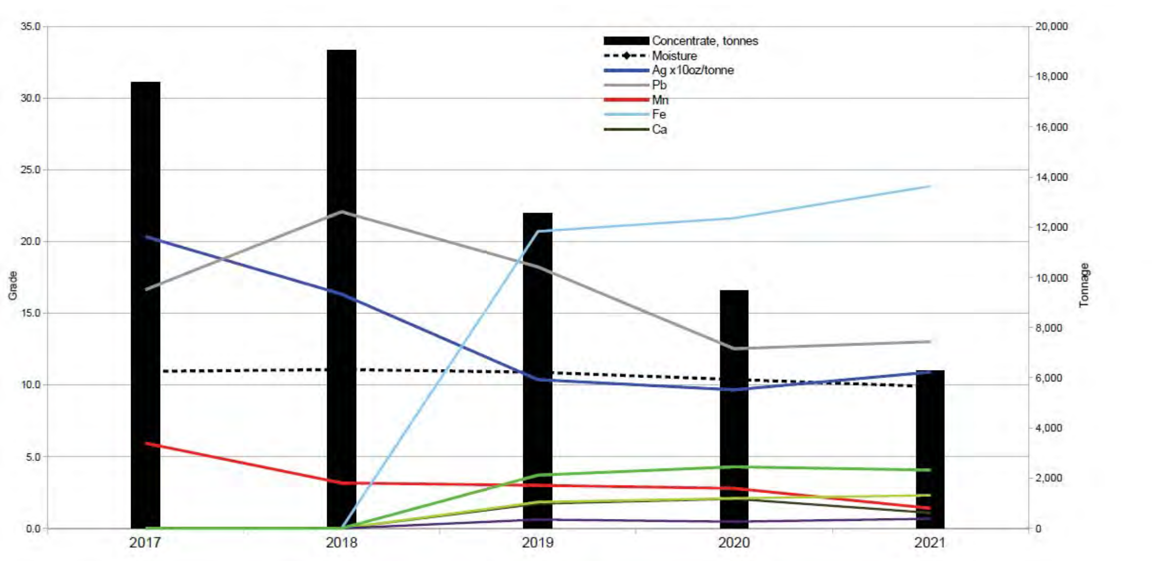


Figure 14-11: Rio Seco, Annual Concentrate Production

Source: BVN

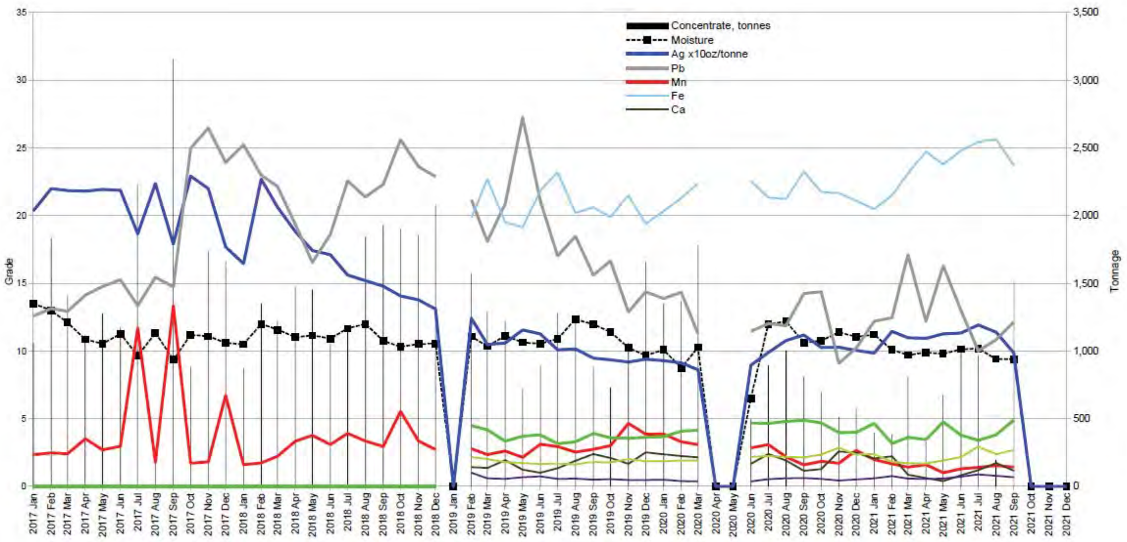


Figure 14-12: Rio Seco, Monthly Concentrate Production, 2017 to 2021

Source: BVN

14.7 Conclusions & Recommendations

SRK can offer the following comments about its visit to Uchucchacua facilities:

- Overall, the mechanical and structural competence of the facilities is substandard to the point that some areas feel unsafe to walk around.
- The visual inspection of the semiautogenous mill suggests the mill was leaking slurry for a long time. A major repair will be necessary.
- Major repairs and refurbishments will be necessary before the plant resumes operation. Most likely, electrical motors of all sizes will need replacement. A rough cost estimate is USD10.0 million over a period of six to eight months.
- The need for the re-starting capital mentioned in the bullet list above is a reflection of the poor operating and maintenance practices at Uchucchacua.
- Between 2017 to 2019, both circuits operated in the range of 87% to 88% of their nominal capacity. Considering that a comparable well-operated plant should reach, at a very minimum, 90% mechanical availability, then it is reasonable to estimate that Uchucchacua's current mechanical availability is below 79%. In other words, Uchucchacua's mechanical availability is likely poor by the mining industry's operating practices.
- Uchucchacua's high manganese concentrates are refined at Rio Seco processing facilities to add commercial value by lowering their manganese content. The products and by-products from Rio Seco include a polymetallic concentrate with low manganese and elevated silver content, manganese sulfate, and multiple calcium-derived compounds resulting from the neutralization of solutions and gases.
- Rio Seco plant is dedicated to processing Uchucchacua's production. At the time of SRK's visit, Rio Seco was not operating. Nevertheless, it appears to be a well-operated and maintained facility.
- There are a limited number of comparable metallurgical facilities in the global industry that process feeds similar to that of Rio Seco; many of them source feed from the Andean region. SRK is of the opinion that Rio Seco has the potential to become an independent (from Uchucchacua) custom processing company given that it has the strategic advantage of being close to the one of the world's main sources of polymetallic ores.

15 Infrastructure

15.1 Waste Rock Management Facility

15.1.1 Colquicocha - 2017

The Colquicocha waste rock management facility is located on top of a former tailings and waste rock management facility, which was closed as part of the PAMA program and rehabilitated in 2010.

Engineering studies on the rehabilitation and the management facility were developed by OM Ingeniería y laboratorio S.R.L. (OM) in 2010 and 2017, respectively. The facility design has an extension of 1.44 hectares for a storage of 40 K t of temporary ore and 10 k t of waste rock.

The geometric configuration of the facility considers an overall slope of 2.5(H):1(V) until reaching the maximum elevation of 4,447 MASL

Geotechnical investigations carried out by OM in 2017 were complemented with those executed in 2010, which allowed characterizing the waste rock, ore, and foundations of the facility. The latter consists of old tailings located at the base, which maintains the positioning of the nearby water table, which could trigger liquefaction phenomena.

The design criteria adopted are consistent with engineering practice. It is also stated that the stability results in static, pseudo-static, and post-earthquake scenarios comply with the evaluated criteria; however, foundation analyses are limited, and the residual behavior of old tailings should be explored in greater detail, in addition to updating the Seismic Hazard Study, which was based on instrumental information collected up to 2005. In addition, deformation analyses are recommended, considering the presence of the old tailings management facility at the base of the facility.

Static geochemical studies show no generation of acid mine drainage from the waste rock; however, the number of tests is reduced, and this study should be complemented with dynamic leaching tests to validate the environmental conditions.

Additionally, the design includes a crown ditch calculated for maximum precipitations of 24 hours with a return period of 500 years, which evacuates the collected water to sedimentation ponds. There is also a drainage system on the platform to manage the infiltration water collected and transferred to water control ponds located below the facility; however, there is no infiltration analysis to support the design used.

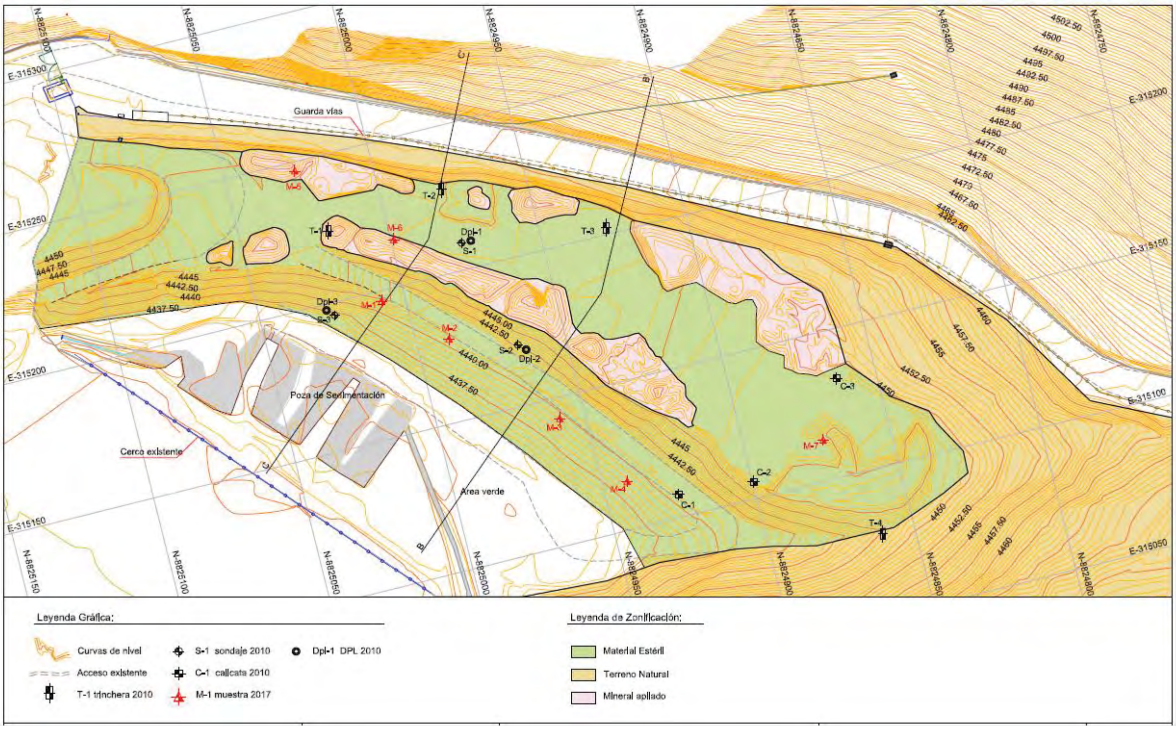


Figure 15-1: Colquicocha waste rock management facility

Source: BVN

15.1.2 Huantajalla LVL360 JMF 2014

The Huantajalla LVL 360 waste rock management facility is located in the Huantajalla Valley between 4,340 and 4,390 meters above sea level, downstream of the Huantajalla mine entrance.

The detailed engineering design was developed by JMF in 2014 considering an area of 40,950 m² for a storage volume of 745,000 m³ and a material density of 2.4 t/m³. The facility will be built in two stages, the first will consist of a 288,500 m³ (0.69 Mt) storage volume, while the second stage foresees a volume of 456,500 m³ (1.79 Mt). Its useful life considers periods of 11.4 years for the first stage and 29.3 years for the second stage.

The facility geometry contemplates the construction of 5 to 10 m high benches with berm widths of 6 m and overall slopes of 2.5H: 1V until reaching the maximum elevation of 4390 MASL

In 2009, SVS Ingenieros conducted geotechnical investigations in the area, which were complemented by JMF in 2013 to further characterize the foundation and waste rock material. This information suggests that the foundation would be made up of rock outcrops and competent colluvial deposits, while the waste rock has grain sizes ranging from sands to blocks with a maximum diameter of 50 cm.

The geotechnical design criteria used are consistent with international practice. Physical stability analyses of the waste dump showed factors of safety above the design criteria for both static and pseudo-static cases. For the latter analysis, the seismic hazard study performed by Knigth Piesold in 2009 was used.

It is worth mentioning that, towards the east zone, the facility will be supported in an area with an existing sedimentation pond; therefore, its removal is planned, prior to the expansion of the tailings management facility in that sector.

From an environmental standpoint, geochemical tests classify waste as a material with no acid drainage generation, based on static tests carried out in studies of 2009 and 2014.

Surface runoff diversion works consider channels and ditches calculated for the evacuation of maximum rainfall in 24 hours with a return period of 500 years.

Finally, recommendations are outlined for closure, post-closure, maintenance, and monitoring activities of the facilities to be considered in the Environmental Impact Study; however, costs and schedules for these activities are not provided.

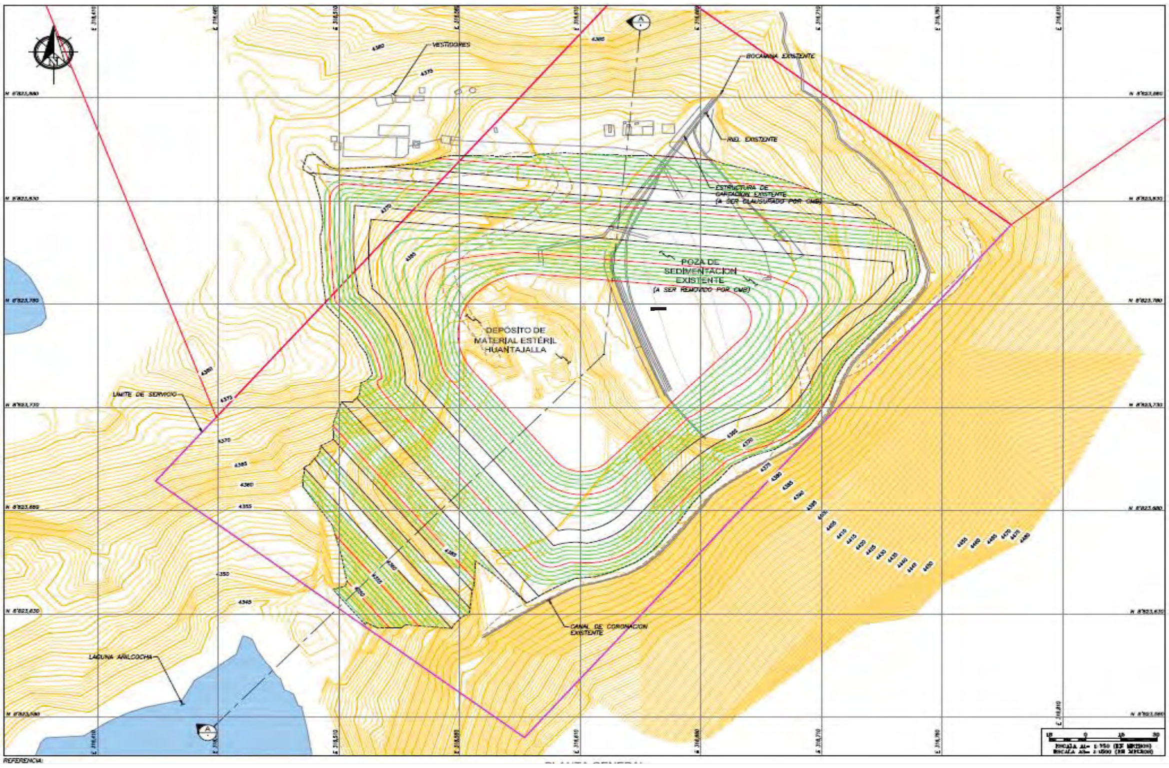


Figure 15-2: Huantajalla LVL 360 waste rock management facility

Source: BVN

15.1.3 Huantajalla Lvl 500-2014

The waste rock management facility (DME) Level 500 belonging to the Uchucchacua mining unit, is located at the foot of level 500 mine entrance.

This facility's detailed engineering was conducted by OM Ingeniería y Laboratorio (OM) in 2014, covering an extension of 4 hectares with a storage capacity of 567,000 m³ for an estimated useful life of 4 months.

The facility’s maximum height is 35 m until reaching a maximum elevation of 4,498 MASL They present 2.4H:1V slopes and 8 m berm widths. This infrastructure also has a gabion wall of 2 m at the foot, with an extension of 224.5 m.

Geotechnical investigations carried out by OM to characterize waste rock and foundation materials revealed the localized presence of very wet silty soils, for which the placement of sub-drains was recommended.

The physical stability assessment of the waste rock dump showed factors of safety exceeding the design criteria for both static and pseudo-static cases.

Geochemical results show that the waste rock material does not generate acid rock drainage for static tests; however, the number of tests is of limited representativeness.

For runoff water management, crown ditches were considered on the north and east sides with lengths of 285.7 m and 177.7 m, respectively, and designed for a maximum rainfall of 24 hours in a return period of 500 years.

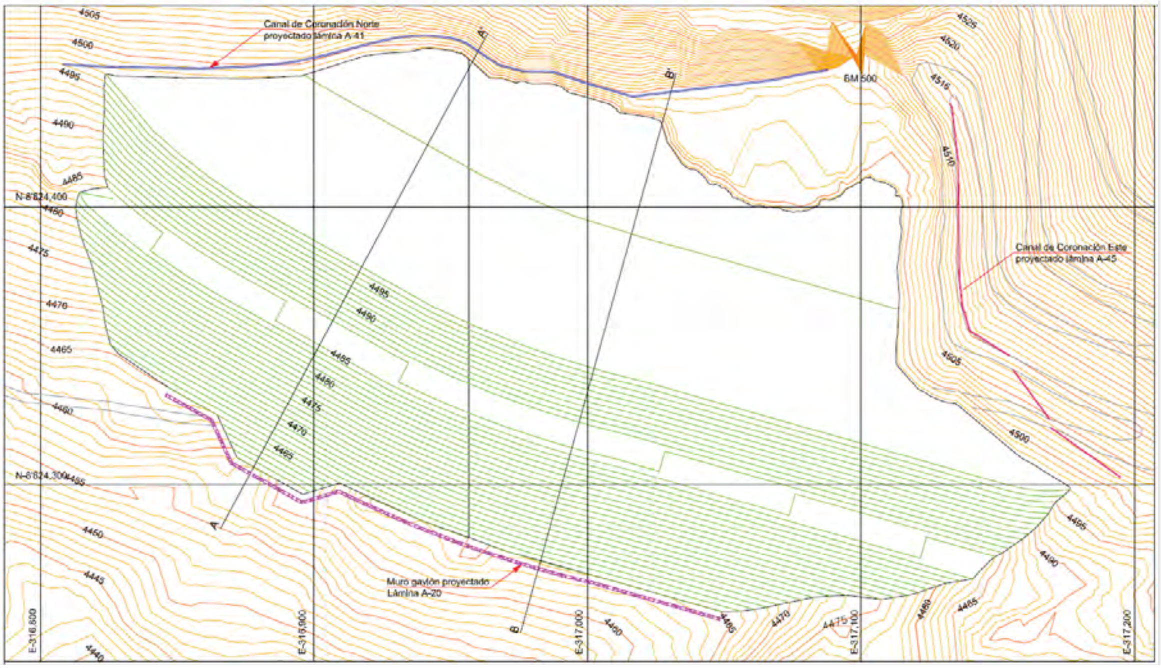


Figure 15-3: Huantajalla Lvl 500-2014 waste rock management facility

Source: BVN

15.1.4 Uchucchacua Lvl 600

Similar to Lvl 500 waste rock management facility (DME), this deposit is located at the foot of level 620 mine entrance.

This facility's detailed engineering was conducted by OM Ingeniería y Laboratorio (OM) in 2014, covering an area of 1 Ha, with a storage capacity of 48,800 m³ of waste rock, and an estimated useful life of 2 months.

The facility has a maximum height of 13 meters with slopes of 2.4H:1V and berm widths of 8 meters, until reaching a maximum elevation of 4,625 MASL In addition, this infrastructure will have a 2 m gabion wall at the foot, with a 109 m extension.

Geotechnical investigations conducted by OM to characterize the foundation revealed the presence of loose clayey gravels with no presence of fine soils, so it is considered a competent site for the management facility.

The physical stability assessment of the waste rock dump showed factors of safety exceeding the industry design criteria for both static and pseudo-static cases. Geochemical results show that the waste rock material does not generate acid rock drainage for static tests.

For the management of runoff water, a 148 m long crown ditch was considered, designed for a maximum rainfall of 24 hours in a return period of 500 years.

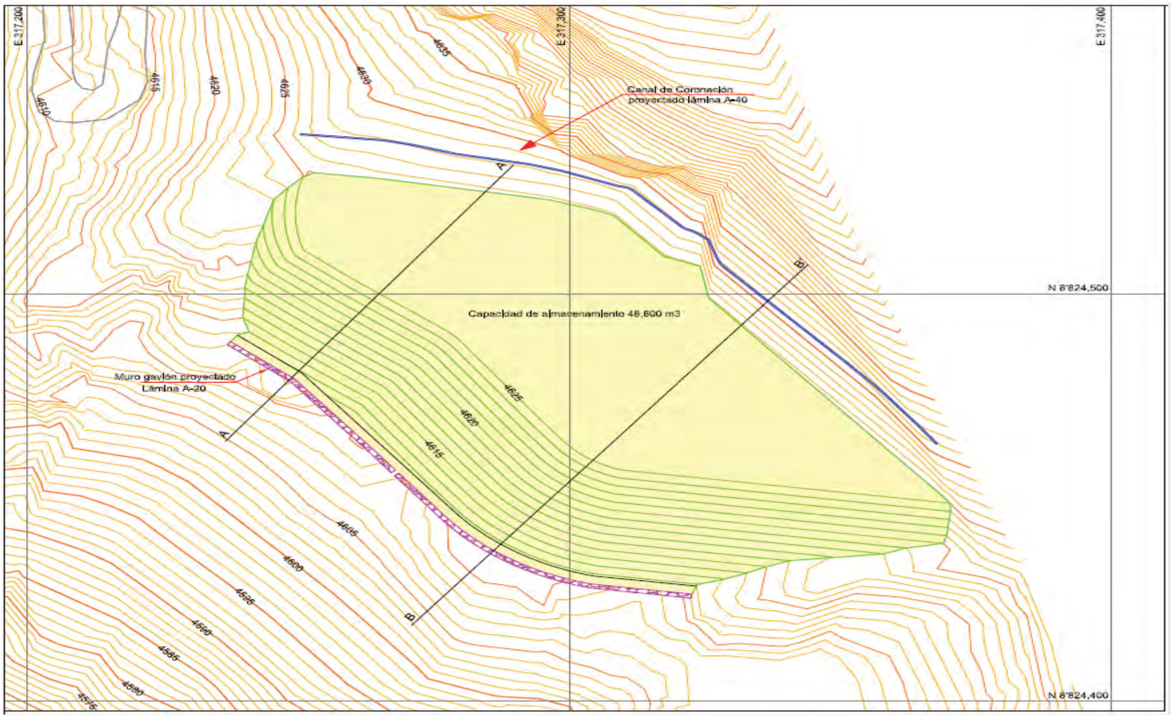


Figure 15-4: Huantajalla Lvl 600 waste rock management facility

Source: BVN

15.2 Tailings Management Facility

Cía. de Minas Buenaventura S.A.A. (Buenaventura) is a Peruvian company dedicated to the exploration, extraction and commercialization of gold, silver, and other metals, which is listed on the Stock Exchanges of Peru (1971) and New York (1996).

In the Uchucchacua Mining Unit, located in the district and province of Oyon, in the department of Lima, at an altitude of 4 300 masl, Buenaventura exploits four underground mines: Socorro, Carmen, Huantajalla y Casualidad, from which it extracts silver, lead and zinc, in addition to manganese, as a by-product, which is processed in the Rio Seco industrial plant. The Yumpag project, located 5 km to the northeast, was integrated into the Uchucchacua Unit at the end of 2019.

The Uchucchacua mine is an argentiferous deposit with base metals and a high content of manganese hosted in carbonate rocks of the Jumasha formation of the Upper Cretaceous, related to Miocene intrusives. The mineralogy is varied and complex with the occurrence of silver in sulfides and sulfosalts, with abundant alabandite and manganese calcosilicates. Lead and zinc increase in the vicinity of intrusives. The metallurgical process consists of two circuits: Circuit 1, with a capacity of 2 810 t/d, and Circuit 2, with a capacity of 1 190 t/d.

The tailings that are generated in the metallurgical process are stored in the Uchucchacua Tailings Facility, known as "Relavera 3". Knight Piésold Consultores S.A. (Knight Piésold) has provided the engineering design for its various stages together with some of the construction oversight, Quality Assurance and operational assistance, while Buenaventura has provided the other construction oversight and has directed the operation.

The Relavera 3 is located in a glacial valley flanked by high hills with large rocky prominences, which initially had had two exits, where were constructed two dams: Principal (to the east) and Auxiliary (to the west), as per the initial design developed by Knight Piésold in 1995.

The design of the early stages of the Relavera 3 was based on a 500-year return period earthquake and 100-year return period storm event, which was typical of the design criteria applied at the time in Peru (1995); it was expected a useful life of the Relavera 3 to be 20 years. From the first raise of the Relavera 3 (2008), the design parameters were selected in accordance with the Canadian Dam Association (CDA) guidelines, with the Relavera 3 dams being categorized as having "High" consequences, in the event of a fault. A subsequent recategorization of the Relavera 3 dams, based on the results of a dam break analysis (developed in 2021 as part of the feasibility study to again raise the Relavera 3 dams), resulted in "Very High" consequences, therefore, the maximum credible earthquake (MCE) is being used as the design earthquake and to estimate the design flood, the precipitation that results from the 2/3 between the 1000-year return period precipitation and the probable maximum precipitation, is used.

Seven geotechnical investigations have been developed between 1995 and 2021, to characterize the existing materials in the foundations of the dams, as well as the materials used in the construction of the various infrastructure (other consultants developed additional geotechnical investigations). Site investigations consisted of geotechnical drilling, test pits excavation, cone penetration tests with pore pressure measurement (SCPTu) and geophysics tests; soil mechanics tests were also developed in situ and in the laboratory. The respective reports of the geotechnical investigations are available.

In 1995, the Principal Dam was built in two stages: the first stage up to an elevation of 4 380,0 masl, through the construction of a starter dam made up of rockfill compacted in layers to a maximum height of 10,0 m; and, the second stage up to the elevation 4 392,0 masl, that consisted in raising downstream the starter dam with the coarse particles of the cyclone tailings (the second stage did not reach the design elevation of 4 395,0 masl), to complete a total heigh of 22,0 m. Filters were incorporated to prevent the migration of fines and a drain with rock at the base, to favor the capture and recovery of infiltrated water.

The Auxiliary Dam was designed to be raised downstream in several stages, according to operating requirements, up to the final elevation of 4 393,0 masl. The body of the dam was formed with rockfill placed and compacted in layers. On the upstream slope that is in contact with the tailings, filters and geotextile were incorporated to prevent the migration of fines, and a drain with rock at the base of the dam, as in the case of the Principal Dam. The diversion channels (east and west), tailings transport system and supernatant water decantation system were also designed and built as part of the early stages of the Relavera 3.

In 2008, Knight Piésold designed the first raise of the Relavera 3 to reach an elevation of 4 397,0 masl. In addition to raise the Principal and Auxiliary Dams, four minor dams were designed between the Principal and Auxiliary Dams, the west diversion channel was extended, an infiltration collection pond downstream of the Auxiliary Dam and an emergency channel for extreme storm events.

It is during the rise to 4 397,0 masl that Buenaventura stops using the decant system implemented in the initial stages of construction, to avoid the discharge of tailings water into the environment, for which a pumping system was implemented, located in the opposite end of the dams (north end). The decant system consisted of a "quena" pipe to capture the supernatant water, to discharged it under the Auxiliary Dam through a solid high-density polyethylene (HDPE) pipe embedded in a reinforced concrete block, which crosses the body of the Auxiliary Dam.

The "quena" pipe was sealed and abandoned and finally covered with the tailings. The downstream end was extended further down as the Auxiliary Dam was raised to maintain it as operational because a small amount of water still running. Buenaventura plans to close the old decant system with the new Auxiliary Dam that is going to be built downstream of the existing one.

Between 2014 and 2015, Knight Piésold designed the second raise of the Relavera 3, in two stages: Stage 1 to elevation 4 401,0 masl and Stage 2 to elevation 4 416,0 masl (to be built progressively in four phases). In practice, Dams were raised according to the operation requirements, and not necessarily to reach the proposed design elevations.

The Stage 1 added a storage capacity of 2,52 Mt and the Stage 2 an additional capacity of 9,45 Mt. The embankments raise was designed considering a tailings production of 2 700 t/d that would be increased up to 3 200 t/d; the extreme event flood storage was 0,82 Mm^3, the wave run-up was estimated in 600 mm and the freeboard was 1,0 m high.

It was during the construction of the dams rise to 4 401,0 masl, that the lining of the upstream slopes of the dams began, with a smooth high-density polyethylene (HDPE) geomembrane, to minimize infiltrations towards the dams, since limestone dissolution (karst) was detected between the Principal and Auxiliary Dams, in the Jumasha limestone only; the geomembrane lining was extended to the natural slopes of the basin between the Principal and Auxiliary Dams. The geomembrane was anchored to the existing tailings elevation of 4 395,5 masl and to the dam’s crests, as they were raised; the geomembrane was not deployed at the lower levels because in previous geotechnical investigations it had not seen any evidence of karst.

During the rise to 4 405,0 masl, it was necessary to relocate the public road that passes below the Principal Dam and the construction of the Plomopampa Dam, located 700 m north of the Principal Dam, to prevent tailings from flooding the Plomopampa camp.

All the raises up to the current level of the dams of 4 411,0 masl have been by the downstream method, and it is expected to continue in this way. It is during this construction stage that the HDPE geomembrane was extended to the east side, between the Principal and the Plomopampa Dams, to prevent infiltration of tailings water, because dissolution of the limestone rock was detected; prior to the geomembrane installation, the dissolution zones were treated by cleaning the cracks and filling them with shotcrete. The geomembrane will continue to be extended, both on the dam’s upstream slopes, and in the eastern sector, until the final elevation of the dams.

Buenaventura has a construction permit up to an elevation of 4 416,0 masl, for which it is planned to continue raising the dams. However, on October 15, 2021, Buenaventura made public the temporary suspension of its operations at the Uchucchacua Unit, due to conflicts with the communities; Buenaventura estimates that the suspension will last two years. Figure 15-5, taken from the drone's flight in December 2021, shows the current situation of the Relavera 3.

The initial construction of the infrastructure of the Relavera 3 to 4 392,0 masl was executed directly by Buenaventura, without having implemented Quality Control and Quality Assurance (QC/QA) procedures, for which there are no construction reports neither construction “as built” drawings. Since 2008, Buenaventura Ingenieros S.A.A. (BISA) directs the construction and QC activities, with the participation of the Empresa Comunal de Servicios Multiples Oyon (ECOSERMO), as construction contractor and in the last two stages of construction (to 4 409,0 and 4 411,0 masl) also as responsible for the QC.

Knight Piésold was not involved in the initial infrastructure construction of the Relavera 3, and only responded to those inquiries that Buenaventura proposed, as well as made some site visits. It is in 2008 when Knight Piésold is hired to carry out the QA of the dams raise from 4 409,0 to 4 411,0 masl (current elevation); Knight Piésold was not involved in the construction to raise the embankments from 4 405,0 to 4 409,0 masl, when the QA was overseeing by BISA. The corresponding construction reports and 'as-built' drawings are available.

Although there is no information on the initial stages of construction, it is known that the preparation of the foundations of the dams consisted in excavating the unsuitable materials until a competent foundation was found, but there is no information on whether there was a need to treat karst areas. There are documented records of the treatment of the foundation, of those stages in which Knight Piésold was responsible for the QA.

Similarly, there is no information on the conformation of the fill materials during the initial stages of construction, although subsequent field investigations have confirmed that the compactness achieved is adequate. As of 2008, there is documented information that the construction materials were placed in accordance with the requirements of the technical specifications.

The existing mineral reserves in the Uchucchacua Mining Unit make it necessary to increase the storage capacity of the Relavera 3 or build new tailings facilities. Based on the trade-off studies results that have been developed, in November 2019 Buenaventura commissioned Knight Piésold to develop the feasibility engineering to raise the Relavera 3 to 4 429,0 masl; the study includes the change of technology to store conventional and thickened tailings, which was commissioned to Paterson & Cooke Chile S.P.A. The feasibility study report will be available in May 2022.

The feasibility design to raise the Relavera 3 embankments to 4 429,0 masl, considers a new Auxiliary Dam slightly downstream after the raise to 4 016,0 masl. The realignment of the Auxiliary Dam is necessary to provide a better enclosure for the facility and facilitate its construction, since at the beginning of the design no one could have anticipated that the Principal and Auxiliary Dams would become one (to join both dams the alignment was very intricate).

Currently, the remaining capacity in the Relavera 3 up to an elevation of 4 411,0 masl is 0,25 Mt and up to an elevation of 4 416,0 masl, 3,22 Mt could be stored. Although Buenaventura plans to raise the dams to 4 413,0 masl, and later reach an elevation of 4 416,0 masl, it has not been necessary due to the temporary suspension of activities in the Uchucchacua Unit, which will last until 2023. The elevation of the dam to 4 416,0 masl is the level currently allowed (construction permit approved).

The raise up to 4 429,0 masl will provide the Relavera 3 with an additional storage capacity of 15,21 Mt, managing to extend the operation of the Uchucchacua Mining Unit until July 2032. At the end of the operation, the final capacity of the Relavera 3 will be 26,27 Mt, for an estimated density of conventional tailings of 1,26 t/m³ and for the thickened tailings of 1,6 t/m³; the discharge of thickened tailings will start in 2027. All future raises will continue to be implemented by the downstream method.

The stability reviews of the Principal and Auxiliary Dams made it possible to identify safety factors that do not meet the value required for seismic condition analysis, which is due to: (1) during the raise up to 4 409,0 masl, weak materials, unsuitable as a foundation surface, were left under the raising areas of the Principal and Auxiliary Dams; and, (2) Buenaventura commissioned the update of the seismic hazard study of the Uchucchacua Unit to ZER Geosystem Perú S.A.C., whose results indicated design accelerations greater than those of the previous seismic hazard study.

Commissioned by Buenaventura, Knight Piésold has developed the design of reinforcement buttresses to improve the stability conditions of the Principal and Auxiliary Dams up to 4

416,0 masl, whose construction will take place in 2022. The main restriction for the design of the buttress of the Principal Dam was the public road, as it cannot be relocated; however, the design proposed by Knight Piésold accounts for keeping the road in its current location while still meeting seismic design requirements. To raise the Principal Dam above the elevation 4 416,0 masl, it will be necessary to relocate the public road with due anticipation. A preliminary cross section of the Principal Dam is presented in Figure 15-6.

The Principal Dam was initially formed with cyclone tailings, whose potential to liquefy is being evaluated as part of the feasibility study. Although, location of these tailings is favorable since they are contained both downstream and above, in the upcoming detailed design of the 4 429,0 masl arrangement, Knight Piésold will conduct full dynamic deformation analyses of the dams under the MCE to confirm the security of the design for the long term under earthquake loading; this deformation analysis is planned to be done with FLAC (Fast Lagrangian Analysis of Continua), to demonstrate that the entire dam, including the cyclone sand, that is well confined, will perform adequately.

Water management is always important for the safe operation of any tailings facility and is of importance for the Relavera 3 to keep the pore pressures in and under the dams within acceptable limits and to maintain an appropriate level of flood storage capacity and freeboard. The contributing basin is extensive upstream of the Relavera 3, although the location of the Colquicocha lagoon is conducive to attenuating surface runoff avenues. However, the east diversion channel construction is pending, since the water balance models consider this diversion structure, necessary in extreme storm events, and for the dewatering of the Colquicocha lagoon. Although due to the temporary suspension of the Uchucchacua Unit operation, there are currently favorable conditions for the management of water caused by extreme rainfall, Buenaventura must finish the construction of the east diversion channel towards the start of operations in 2023.

In 2019, during heavy rain events, the supernatant water pond reached the Principal Dam and significant springs water and wetting of the downstream slope occurred (it is also likely that some water flows came from the karst area in the east abutment). Similar events have not occurred because Buenaventura improved tailings discharge, allowing it to maintain an extensive beach to prevent supernatant water from approaching the dams during the rainy season; in addition, the current elevation of the discharged tailings has increased the length of the path for the water to infiltrate and reach the anchored geomembrane at 4 395,5 masl. Maintaining an extensive beach against the dams and continuing the geomembrane up the remaining height of the facility will be key elements of the Relavera 3 plans going forward.

The geotechnical instrumentation installed in the Relavera 3 consists of open tube piezometers (Casagrande type) and topographic landmarks, which are regularly monitored. The piezometric levels measured at the foundations of the dams suggest that the conditions are favorable for static slope stability but not yet favorable for earthquake slope stability, until the buttresses are built. Additionally, many of the piezometers and topographic landmarks were lost during the different construction stages, for which the geotechnical instrumentation currently installed in the Relavera 3 must be updated and extended, for which it has been recommended to develop a plan that includes a trade-off of the best available technologies, to select the instruments that best adapt to the needs of the Uchucchacua Unit.

The protests of the communities are experienced by some regularity and accessing the Uchucchacua Unit is restricted, which made it difficult to monitor the installed geotechnical instrumentation. Buenaventura is working to resolve the issues and the automation of the instrumentation will improve this situation. By way of an overall conclusion, Knight Piésold believes that the Relavera 3 will be able to be re-commissioned, expanded and utilized for resumed operations through 2032 and up to elevation 4 429,0 masl in a secure manner provided that:

- suitable downstream buttresses are built against the current embankments in 2022 before operations resume,
- all future embankment raises above the buttresses are completed following the downstream method of construction with competent, drained fill that is placed and well compacted to form a dense and stable structure,
- the geomembrane liner is continued on the upstream side of the embankments and the east side of the facility following good quality installation practices,
- a new water diversion channel system is installed upstream of the Relavera 3 in accordance with its plans,
- the water balance is extended into the future through the full life of mine period and refined to include an initial calibration and a probabilistic component, and is updated periodically throughout the operation,
- all construction is completed in accordance with the objectives of the designs and specifications with good quality oversight and QA/QC services provided, and with good quality documentation,
- a high level of operational attention is paid to maintaining long drained tailings beaches against the dams at all times with the supernatant water pond kept small and well removed from the dams, in accordance with the tailing's deposition plans and the updated water balance requirements, and
- the surveillance and monitoring system is updated and expanded to provide the information needed to confirm that the Relavera 3 will meet all required stability and security objectives, and appropriate regular and event driven are conducted.

Knight Piésold will provide the designs, specifications and other engineering inputs to facilitate the **above.**

Figure 15-5: Relavera 3 current situation

Source: BVN

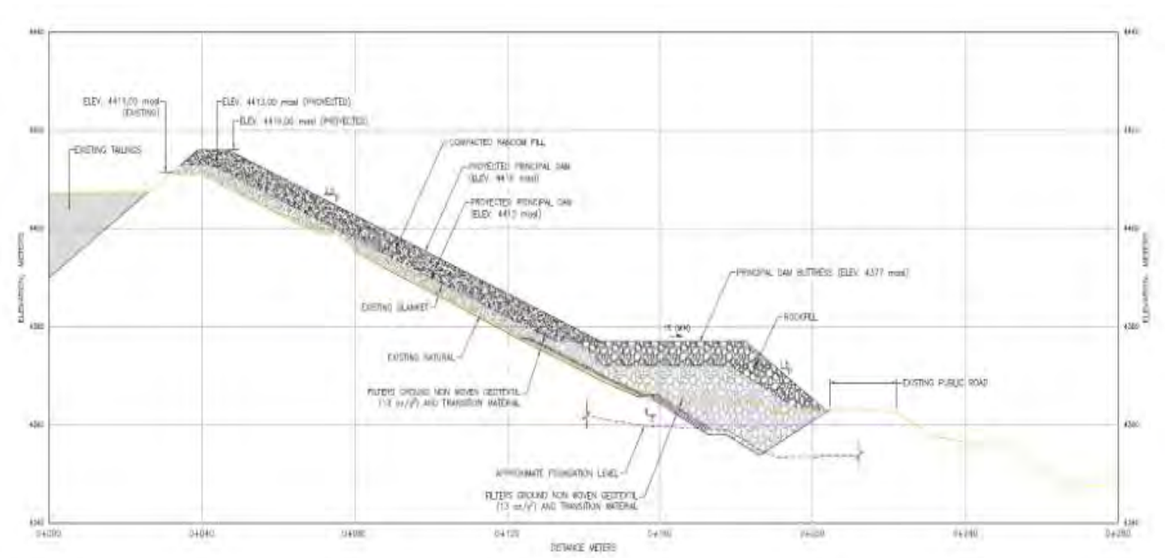


Figure 15-6: Principal Dam cross section (after buttress implementation)

Source: BVN

15.3 Mine Operations Support Facilities

15.3.1 Underground Workshop

This facility is placed for minor repairs and immediate support of equipment. It is located on Nv 3920.

15.3.2 Pumping System

The mine drainage has two discharge systems to the surface: the Patón and the Huantajalla tunnels. All the water collected from the deep levels is sent up to Lv. 4120, where the Patón tunnel is located; this is where drainage for the entire mine is carried out.

The pumping stations are located in:

- Carmen mine at levels 3970, 3830, 3690, and 3550.
- Socorro mine at levels 3830, 3690, and 3550

15.3.3 Mine Administration and Warehouse

The Mine Administration and Workshop building have an area of 1,500 m². The building is divided in:

- Administration building
- Main Warehouse

15.3.4 Other facilities

Workshop

There are different areas within the workshops, such as tire station, lubrication station, truck repairs area, welding area, and truck wash facility.

Truck Fuel Facility

The fueling facility has a storage capacity of 88,236 gals. This facility is consigned to the Primax company.

Explosives Storage

The building is located in the Socorro mine at level 3990.

15.4 Processing Plant Support Facilities

15.4.1 Laboratory

The laboratory building has an area of 578 m², built with thermoacoustic panels for the roof and walls. The facility has the following working areas: sample preparation, assaying, testing facilities, warehouse, offices, men & women toilets, and dressing room.

15.4.2 Warehouse

This facility is located close to the processing plant with an area of 1,632 m².

15.5 Man Camp

The Plomopampa housing area and executive accommodation are located in Plomopampa area. U.E.A Uchucchacua offers housing for up to 1,271 company employees and contractors. In the Patón area, there are rooms for seven workers and the rest of the rooms for visitors. Finally, both facilities have a capacity of 1,278 employees.

15.6 Power Supply and Distribution

The energy from the national network is taken from the substation Paragsha II located in Cerro de Pasco. Energy is transmitted through the L-1123 transmission line at a voltage of 138 kV via 240 mm^2 aluminum cables that are supported by metal towers. The line runs the length of 47.8 km to the Uchucchacua substation, where the voltage is reduced from 138 kV to 10 kV through an 18/22 MVA transformer.

Another source of energy that supplies the operations of Uchucchacua is the Otuto hydroelectric plant, which has a generating capacity of 3,300 kW in the short rainy season and 1,800 kW in the dry season.

U.E.A Uchucchacua has a thermal power plant, which is equipped with a CAT 3612 generator set of 2,400 nominal kW and a generator set Sulzer of 1,100 nominal kW. Together, they have a generation capacity effective 2,500 kW.

15.7 Water Supply

The water supply is obtained by pumping water from Chacra or Caballococha lagoon, Cutacocha lagoon, Culicocha or Culquicocha lagoon, Patón lagoon, and Qda. Jachacancha or Quererum. This source of water is used for industrial and domestic purposes.

15.8 Waste Water Treatment and Solid Water Disposal

15.8.1 Waste Water Treatment

Industrial effluents were generated as part of the mining and metallurgical activities from the U.E.A. Uchucchacua at 6,000 TPD. These come from the Socorro mine (4'952,894 m^3/year), Carmen (1'908,395 m^3/year), Casualidad (3'126,755 m^3/year) and Huantajalla (455,976 m^3/year).

Domestic effluents come from the domestic wastewater treatment system (15,768 m^3/year) of the Huantajalla office and the treatment system of activated sludge (236,520 m^3 / year) from the effluents of the Plomopampa camp and the industrial zone.

15.8.2 Solid Waste Disposal

Domestic Waste Disposal

The domestic waste disposal is located on the path from the Plomopampa Camp to the Huantajalla mine facilities. It has a ventilation and gas evacuation system. In this facility are deposited all the domestic waste generated in the U.E.A Uchucchacua that cannot be reused. Due to the characteristics of the terrain, the domestic sanitary landfill, the combined method (trench and area) is considered for filling, which covers an approximate area of 0.40 ha and has been designed to store an estimated volume for ten years 13,000 m^3 of waste.

Industrial Waste Disposal

It is the final disposal deposit for hazardous waste, also called landfill industrial. Hazardous waste generated in the U.E.A Uchucchacua, flammable, hospital, non-reusable waste, among others, are deposited in this landfill prior to encapsulation. The area of this landfill is approximately 0.60 ha and has been projected to store for 19 years an estimated volume of 10,000 m^3 of industrial waste.

16 Market Studies

16.1 Uchucchacua markets

16.1.1 Zinc market

Overview of the zinc market

Zinc – the fourth most widely consumed metal in the world following iron, aluminium and copper – is an excellent anti-corrosion agent and bonds well with other metals. It is also moderately reactive and a fair conductor of electricity. It is well-recognised for its effectiveness in protecting steel against corrosion by galvanising, and as such this accounts for 60% of total zinc consumption. Galvanised zinc is widely used in multiple industrial applications such as automobile bodies, air conditioners and more. Zinc is also commonly used for alloy production, as well as chemical uses and battery production.

By end-use sector, construction and transportation add up to ~70% of total demand. In the transportation sector, the automotive industry accounts for around 10% of global zinc demand.

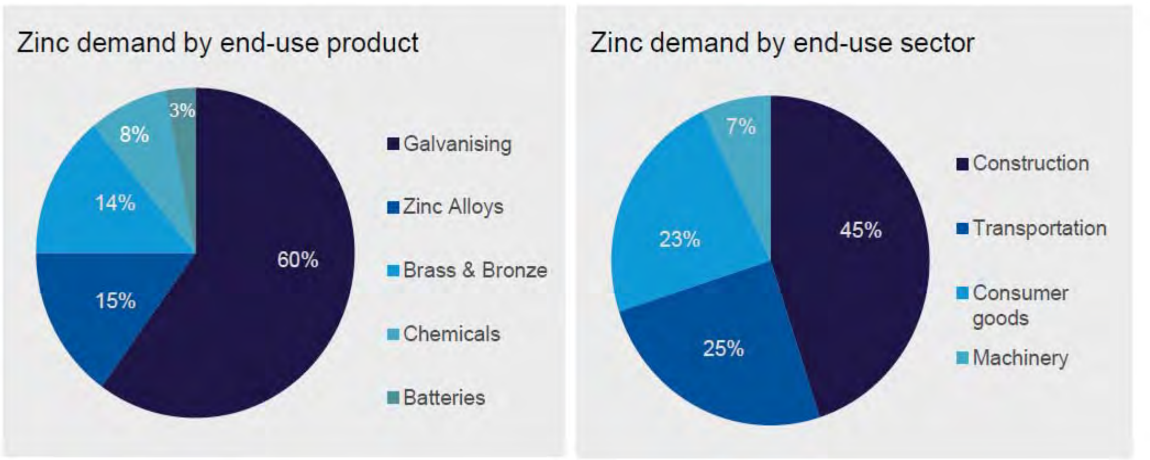


Figure 16-1: Global zinc demand by first-use sector and end-use sector

Source: CRU

In terms of mine production, around 80% of zinc mines are underground, only 8% are open pit mines and the remaining 12% are a combination of both. Zinc ores contain only around 5-15% zinc and need to be concentrated before being processed by smelters. A typical zinc concentrate contains 50-62% Zn and other elements such as Pb, S, Fe, SiO_2 and silver. Metallic zinc can be recovered from the concentrate by using either hydrometallurgical or pyrometallurgical techniques. Today, over 90% of zinc is produced hydrometallurgically in electrolytic plants.

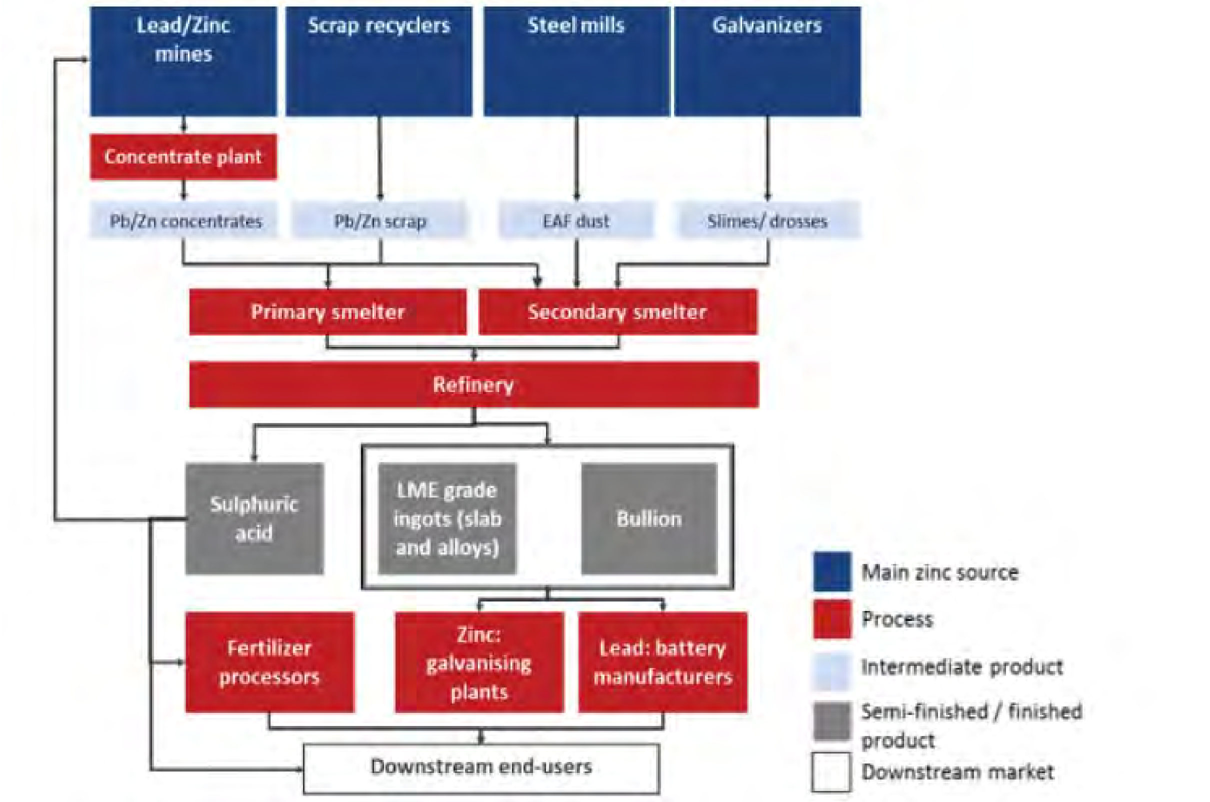


Figure 16-2: Zinc value chain

Source: CRU

Zinc value chain

The following figure shows a simplified version of the zinc value chain:

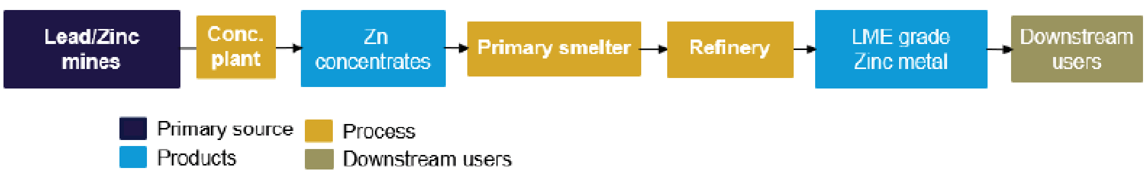


Figure 16-3: **Simplified zinc value chain**

Source: CRU

Mine production accounts for the vast majority of refined zinc supply. In 2020, ~89% of the refined zinc was produced from concentrates.

Zinc concentrates are an intermediate product in the production of refined zinc, and typically contain 50-62% zinc. In addition, concentrates may contain economic levels of gold and silver which can be recovered during the smelting process and are therefore typically paid for by the smelter. Recovery rates depend on the smelter setup but, given that lead smelters are able to reach high recovery rates for silver, it is often the case that the silver-lead residue is captured and then processed at a sister lead smelter. This means that payables are not necessarily linked to recoveries in the zinc smelter itself, but that residue processing and transportation costs are taken into account when negotiating them.

Metallic zinc can be recovered from the concentrate by using either hydrometallurgical or pyrometallurgical techniques. Today over 90% of zinc is produced hydrometallurgically in electrolytic plants. The pyrometallurgical process is a less common type of metallurgical process.

The majority of zinc producers are not fully integrated from mine to finished product. As a result, zinc concentrates are widely traded by mines to smelters, often through a merchant.

Zinc concentrate

The miner usually gets paid certain percentage of zinc, gold and silver contents in the concentrates sold:

The industry-standard zinc payable formula states that the buyer will pay for a certain proportion of the contained zinc, typically 85%, subject to a minimum deduction levied on the overall grade of the zinc concentrate. This minimum deduction typically stands at eight units (or eight percentage points). A well-run modern smelter will now recover between 90-99% of the zinc content of its feed. The remaining “free zinc” the smelter gets becomes part of the smelter's expected revenue from a purchase of concentrates.

- In most occurrences, zinc concentrates have a naturally low gold content. However, given the high value of gold units, these are attractive to recovered even at low levels, with recovery rates varying depending on the smelter. Typically, payable terms range between 70-80% of the gold content with a minimum deduction of 1g Au per tonne of concentrate with no RC.
- Silver is a relatively common occurrence in zinc deposits, and if present in sufficient quantities, will be payable in a zinc concentrate contract. However, fewer zinc smelters can recover silver as easily or effectively as smelters of other metals, hence less silver is paid for in a typical zinc concentrate contract than other concentrates. Silver in zinc concentrate is usually subject to a 3 troy ounce deduction (93.3 g/t) and then a 70% payability.

In addition to the main payable metals above, indium can be paid by some smelters if it is present in high quantities. However, this happens in rare occasions, and it is usually recovered by the smelters but not paid to the miner.

Zinc concentrates all contain a host of other elements, and some of these can create operational difficulties for smelters and refineries. Actual penalties will vary according to the ability of the specific smelter to handle each impurity. Typical elements which receive penalties when above certain thresholds include arsenic, bismuth, antimony, mercury, fluorine and magnesium.

Zinc concentrates are also subject to a treatment charge (TC). The spot TC market is almost entirely constituted of China, whereas negotiations in the European market are mainly negotiated on an annual contract basis. Hence, benchmark price for China is spot TC, while for Europe is annual TC.

In Western markets, it is also common to find price participation clauses. These represent a form of profit-sharing between the smelter and the miner, such that depending on the LME zinc price, then the TC on the zinc concentrate is adjusted by an escalator to transfer some of the price risk to the smelter. Chinese smelters usually do not apply price participation clauses, meaning that there is a fixed TC charge for Chinese smelters to process concentrates, and this is not affected by the prevailing zinc price.

Zinc market balance and price

The following price forecast represents CRU's forecast as of January 2022 for period 2021-2026. Long term prices represent CRU's forecast as of April 2021.

The global refined zinc market was in deficit with demand exceeding supply in most of the years between 2015 and 2019. The only exception was 2015 when the market was in high surplus due to a demand depression driven by a slowdown of industrial production, automotive and construction sectors, together with a moderate growth (~3.6% y/y) of refined zinc production. This relatively tight market supported an environment of rising prices between 2015 and 2018, with prices going from US$1,928 to US$2,922 per tonne. With a reduced refined zinc market deficit, an accumulation of concentrate market surplus and the exit of bullish investors, LME zinc cash prices fell dramatically to US$2,546/t in 2019.CRU estimates that the market has moved from a moderate deficit of -235 kt Zn in 2019 to a considerable surplus of 536 kt Zn in 2020, driving prices down to US$2,267/t.

Going forward, global smelter output growth is expected to slow but refined zinc surpluses will continue to build, as demand growth is expected to remain lacklustre. The cumulative refined surplus is expected to continue to increase to 2025, the majority of which will be in the world ex. China. Although prices are expected to increase in 2021, the overall surplus in the following five years will result in lower prices, with the average annual price expected to reach US$1,955/ t in 2025 in nominal terms.

In the long term, CRU expects smelting capacity will be able to support the demand for primary zinc, as new smelting capacity can come on stream relatively easily if the market requires it. Mined zinc supply will therefore be the bottleneck to global zinc market growth, and prices will need to adjust in order to incentivize investment into new mining capacity. Based on the supply-demand gap expected at a mine level, new mining projects will be needed from 2026 forward.

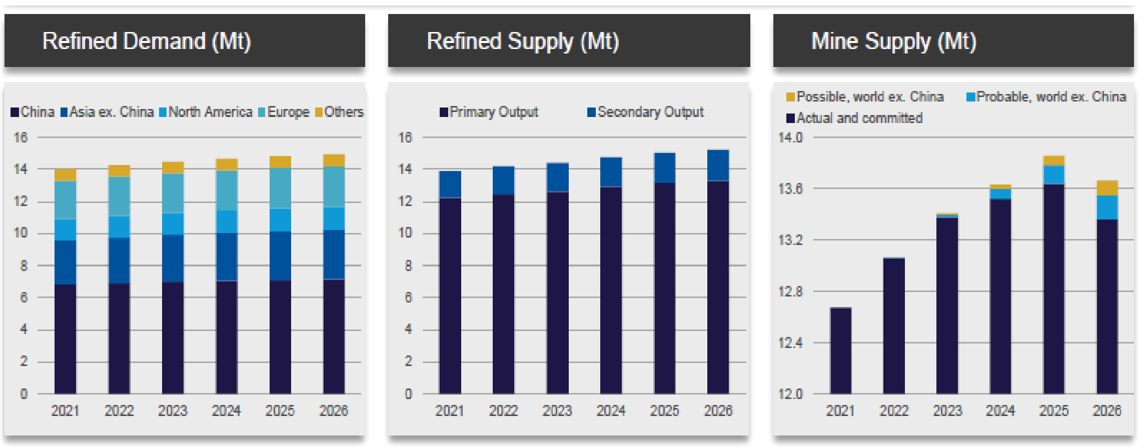


Figure 16-4: Zinc supply-demand gap analysis, 2021 - 2026, kt

Source: CRU

Figure 16-5: Zinc supply-demand gap analysis, 2021 - 2026, kt

Source: CRU

Smelter disruption affected the supply sector in a transversal way in 2021. Refined supply was supplemented by the release of zinc stocks, but an outperforming demand growth mainly in Europe and the USA, and a weak response from the supply-side, led to a tightly refined surplus of 60 kt in 2021, pressing prices up to $3,033 /t. CRU expects the global refined market to switch to deficit in 2022 and 2023, generating supportive fundamentals for the metal price increase, but returning to surplus from 2024 onwards. Thereafter, CRU expects prices to fall deep against a backdrop of cumulative surpluses to bring the market back to a sensible balance, hitting its lowest point in 2025, equivalent to $2,134 /t. Nevertheless, prices will need to correct to rebalance the market, pushing prices up again in 2026, leaping up to $2,348 /t.

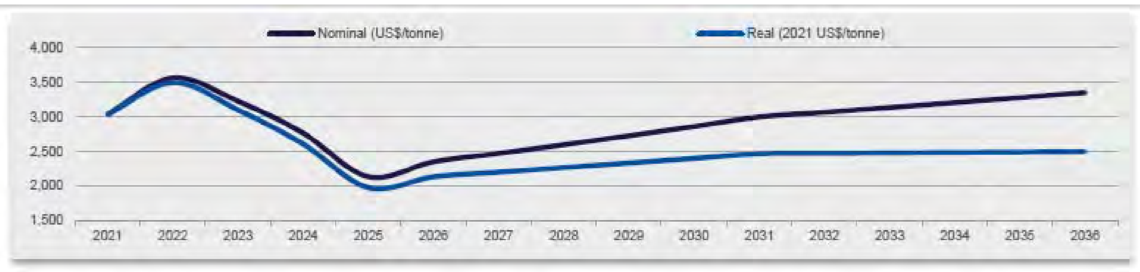


Figure 16-6: LME zinc cash prices, 2021-2036 (US$/t)

Source: CRU

Table 16-1: Zinc LME cash prices 2021 – 2036 (US$/t)

	2021	2022	2023	2024	2025	2026	2027	2028
Nominal (US$/tonne)	3,033	3,560	3,220	2,762	2,134	2,348	2,469	2,595
Real (US$ 2021/tonne)	3,033	3,490	3,095	2,604	1,975	2,131	2,197	2,264

	2029	2030	2031	2032	2033	2034	2035	2036
Nominal (US$/tonne)	2,724	2,858	2,996	3,064	3,133	3,203	3,275	3,349
Real (US$ 2021/tonne)	2,330	2,397	2,463	2,469	2,475	2,482	2,488	2,494

Source: CRU

16.1.2 Lead & silver markets

Overview of the lead market

Historically, lead was used in a wide variety of applications, but these have narrowed in time due to technological advances as well as environmental & health pressures. Currently, lead consumption has become dominated by its application in lead-acid batteries (LABs), which accounts for ~85% of total lead consumption.

The greater portion of lead consumed in the battery sector is dedicated to SLI Batteries (Starting, Lighting and Ignition), which are mostly found in cars and motorcycles. Going forward, both production of new vehicles (or OE, Original Equipment) and replacement of failed batteries in existing vehicles are important demand drivers. These are followed by industrial batteries, accounting for nearly a third of lead demand. The rest is for non-battery uses including submarine cables, some chemicals and radiation shielding. Lead's incorporation into paint, petrol, solders, galvanising alloys and other less relevant uses is fast disappearing.

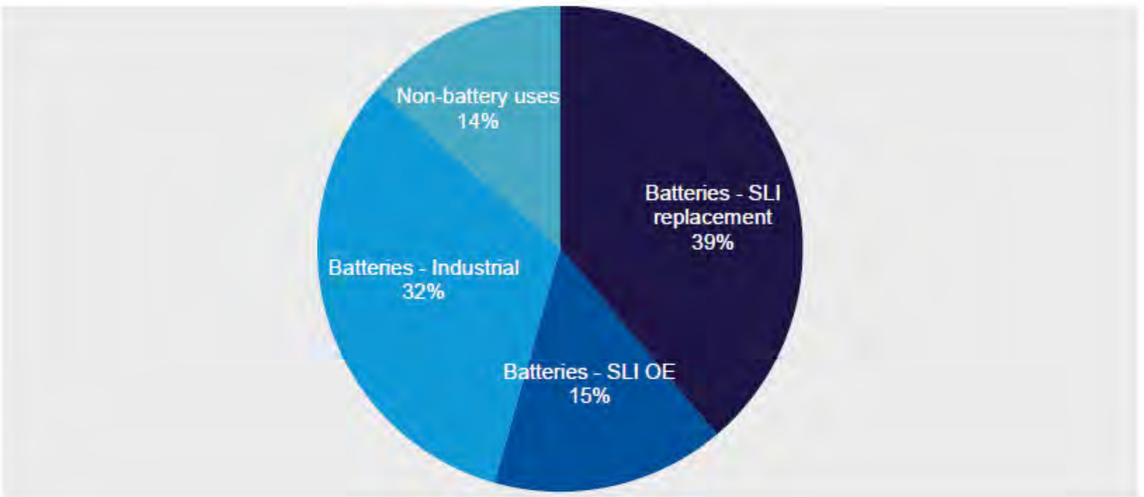


Figure 16-7: Lead demand by end-use sector

Source: CRU

On the supply side, due to the polymetallic nature of most lead mines, lead production is significantly impacted by the production of other metals. The main minerals where lead is found often contain silver, zinc, and copper, and commercial ores can have a lead content from 2% to >20%.

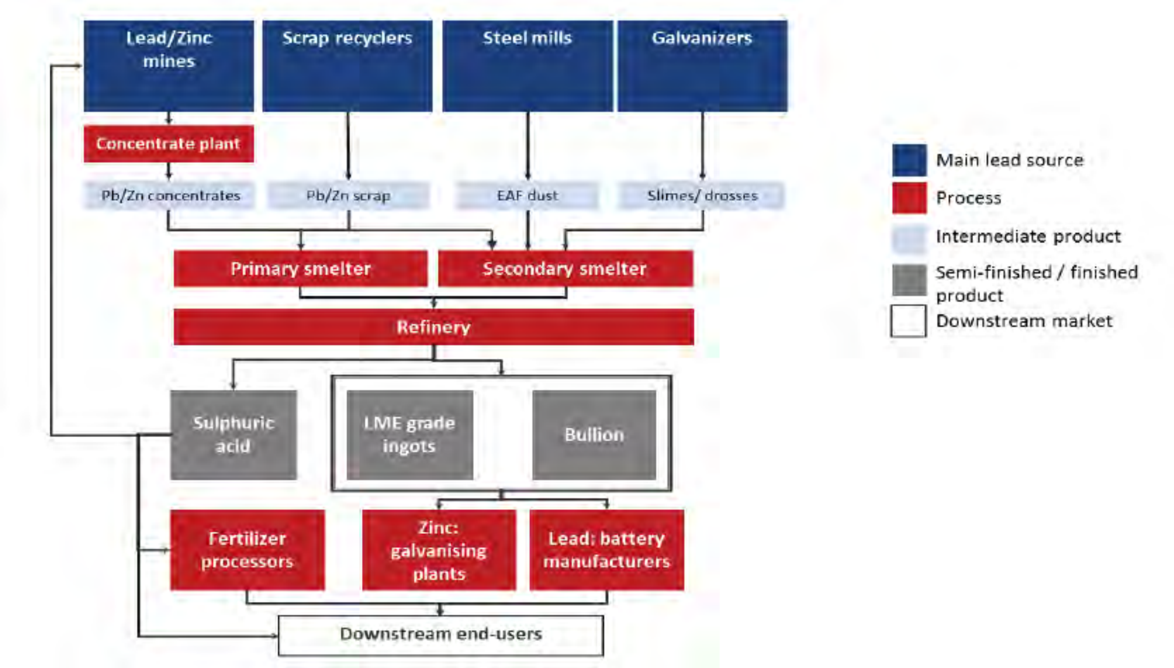


Figure 16-8: Lead industrial value chain

Source: CRU

Lead value chain

Lead is normally found as an accessory mineral within the ores of other base metals such as zinc, silver, copper and sometimes gold. Due to the polymetallic nature of the vast majority of lead mines, production is significantly impacted by the production of other metals, in particular by that of zinc and silver. Indeed, in many of these mines, lead is the by-product, or at least not the main focus of mining.

The following figure shows the value chain for lead production:

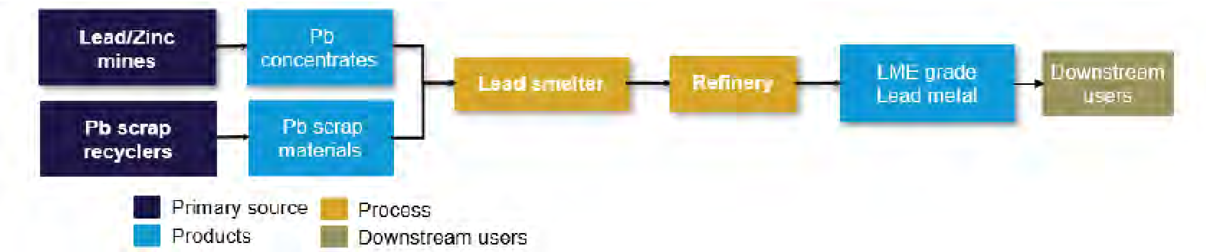


Figure 16-9: Simplified lead value chain

Source: CRU

Most of lead supply is obtained from recycled material, accounting for 63-65% of total production.

The remaining ~35% of lead supply comes from mine production, specifically from concentrates containing lead. The concentrate is an intermediate product generated when the more diluted lead content of the mined ore is beneficiated at a concentrate plant. Lead concentrates can have a lead content of up to 50% Pb and are sold by mines directly to lead smelters or to traders.

Lead concentrate

Unlike other types of concentrate, estimating the specifications of a ‘typical’ lead concentrate is difficult due to the wide range of lead concentrate qualities produced at individual mines and the differing preferences of smelters to treat the array of material being offered by the market.

On the mine supply side, there is a clear split between higher volumes of more complex ‘high-silver’ lead concentrates and a much scarcer flow of ‘low-silver’ lead concentrates.

On the concentrate demand side, most smelters have some ability to recover silver, though it typically comes down to the payment terms in order to make it sufficiently attractive to process such material. This is particularly important for Chinese smelters, where Chinese silver prices are lower than international prices. Though this discourages them from treating ‘high-silver’ feed, Chinese smelters will continue to buy ‘high-silver’ concentrates because ‘low-silver’ concentrates are in short supply. They will also strive for terms that reflect the associated tighter margins of treating such material. As a result, lead concentrates attract different treatment charges (TCs) depending on whether they are catalogued as low-silver or high-silver concentrates. For TC purposes, a ‘high-silver’ lead concentrate has ~3,100g/t of silver and ~70% lead content, while a ‘low-silver’ concentrate has less than 400g/t of silver and ~65% lead content.

It is also common to find price participation clauses in lead concentrate sales. These represent a form of profit-sharing between the smelter and the miner, such that depending on the LME lead price, then the TC on the lead concentrate is adjusted by an escalator to transfer some of the price risk to the smelter. It is usually the case that contracts for ‘low-silver’ lead concentrates include price participation, whereas ‘high-silver’ terms usually do not include price participation. Terms for concentrates with a silver content between 400 and 3,100g/t vary as they can follow either structure and, as the case with all concentrates regarding of their silver content, the structure of the final contract is ultimately the result of negotiations between parties and there are no rules set in stone.

When it comes to metal payables, payable terms do not discriminate based on silver content. Regardless of the silver content, the payable stays the same for main payable materials of lead, gold and silver:

- Modern smelters are quite efficient. A typical smelter recovers around 97% of the lead. Hence, the lead payable terms are high at 95% of the concentrate content subject to a minimum deduction of 3%.
- Silver is usually the second most valuable material in the lead concentrate. The terms are 95% payable, subject to minimum deduction of 30g/t with RCs applied on payable silver content. RCs can vary depending on silver content and market conditions, and have fluctuated between US$0.6-1.5/oz in later years.
- Gold is less often found with lead-zinc deposits. Having said that, typical terms consider a 95% payable, subject to minimum deduction of 1g/t with RCs applied on payable gold content. RCs are relatively standard at US$5.0/oz.

In addition to the main payable metals above, lead concentrates all contain a host of other elements, and some of these can create operational difficulties for smelters and refineries. Actual penalties will vary according to the ability of the specific smelter to handle each impurity. Some typical elements which could attract penalties when above certain thresholds include arsenic (penalized when levels are above 0.1%), mercury (penalized when levels are above 15ppm), bismuth (penalized when levels are above 0.02%) and antimony (penalized when levels are above 0.3%).

Lead market balance and price

The following price forecast represents CRU's forecast as of November 2021 for period 2021-2026. Long term prices represent CRU's forecast as of April 2021.

The global refined lead market moved steadily from a small surplus of only ~20 kt in 2015 to a deficit of 113 kt in 2018 and a slightly lower deficit of 72kt in 2019. From a price perspective, there was a downward correction in 2015 to reflect a relatively high stock level, before lifting to US$2,317/t in 2017 owing to tight concentrate and refined lead markets. Lead prices continued to stay high at US$2,242/t in 2018 but fell to US$2,000/t in 2019, primarily due to the breakdown of US-Chinese trade talks and the return of further import tariff hikes.

CRU estimates the refined lead market saw a global surplus of 91 kt in 2020 as demand decreased more than production in the midst of the Covid-19 pandemic. As a result, prices dropped significantly to US$1,826 /t.

In 2021, CRU expects another year of surplus – both demand and supply are expected to pick up from 2020 levels, but consumption is still expected to lag slightly behind supply. The shrinking surplus in 2021 heralds a change towards 2025, one of a re-tightening path. The key dynamic at play will be a greater slowdown in primary than in secondary production growth. This will trigger overall production growth to slow by more than consumption growth, thus moving the global market back into deficit in 2023-2025. As a result of these changes, CRU expects an LME lead cash price recovery from US$1,980/t in 2022 to US$2,240/t in 2025.

In the long term, lead will continue to be weighed down in investors' eyes by a lack of a compelling positive narrative in the 2020s, not least relative to other 'battery' metals like lithium, cobalt and nickel in the vehicle electrification story. We believe that lead's tarnished image among the investment community is somewhat misplaced, given its current and future dominant role in most battery sectors and impressive 'green' recycling record. Yet the very success of lead recycling will perhaps act as a drag on lead prices, with this 'closed loop' resulting in smaller market imbalances ahead compared to other more primary supply-driven metals like copper.

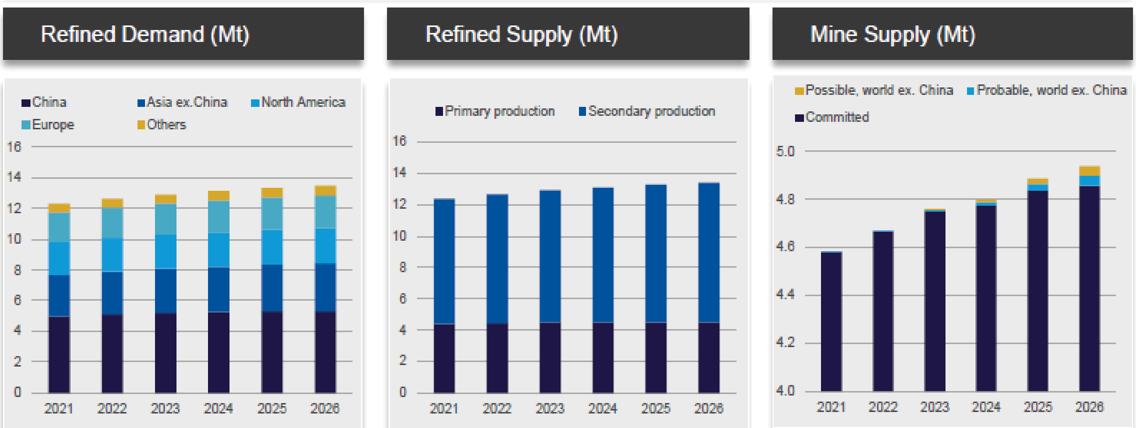


Figure 16-10: Lead supply-demand gap analysis, 2021 - 2026, kt

Source: CRU

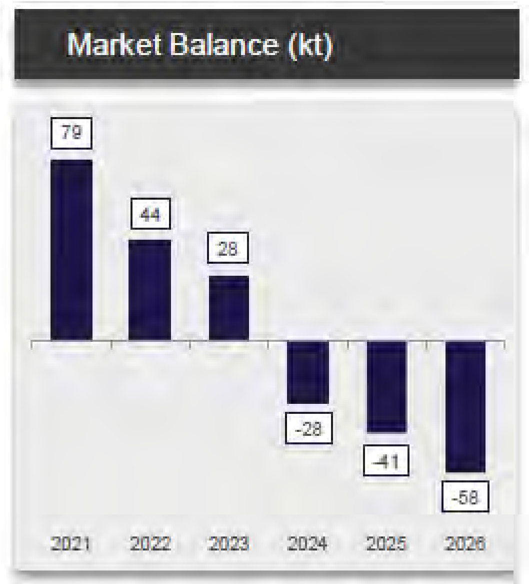


Figure 16-11: Lead Market Balance 2021 – 2026 (kt)

Source: CRU

The market surplus generated coming out of the Covid-19 pandemic is expected to slow down the upwards price trend that has been taking place since early 2020 and, consequently, nominal price is expected to hit 2,271 US$/t in 2022 before dropping to 2,239 US$/t in 2023. After 2023, prices are forecast to rise as the World's refined lead demand progressively outpaces production going to 2026. Subsequently, as this imbalance turns into deficit, prices are expected to hit 2,391 US$/t by the end of the forecasted period.

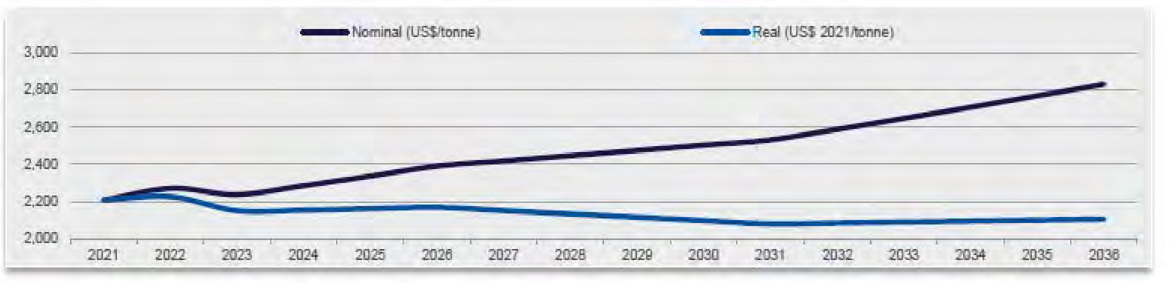


Figure 16-12: LME cash lead prices 2021 – 2036, US$/t

Source: CRU

Table 16-2: Lead LME cash prices 2021-2036 US$/t

	2021	2022	2023	2024	2025	2026	2027	2028
Nominal (US$/tonne)	2,209	2,271	2,239	2,285	2,337	2,391	2,419	2,447
Real (US$ 2021/tonne)	2,209	2,227	2,152	2,155	2,163	2,170	2,152	2,135

	2029	2030	2031	2032	2033	2034	2035	2036
Nominal (US$/tonne)	2,475	2,503	2,531	2,588	2,646	2,706	2,767	2,830
Real (US$ 2021/tonne)	2,117	2,099	2,081	2,086	2,091	2,096	2,102	2,107

Source: CRU

Overview of the silver market

Silver is often compared to gold given its ancient usage in jewellery and coinage, which now account for 30% and 8% of silver demand respectively. The main distinction between both markets is that silver has more extensive uses in industrial applications, with electrical/electronic uses accounting for 23% of demand. Like gold, silver is used in electronics for its excellent electrical conductivity, lack of corrosion, and ease of mechanical use – but given its lower price point and higher availability, it sees far more widespread usage than gold in this area.

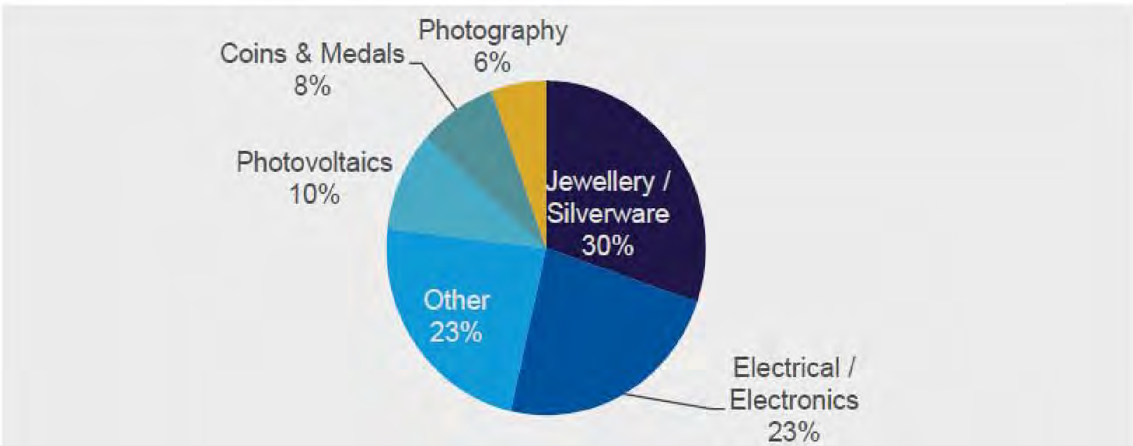


Figure 16-13: Silver demand b end-use

Source: CRU

In terms of supply, mined silver makes up ~80% of this total silver production, with recycled silver scrap accounting for the rest. Furthermore, only 25% of mined silver comes from mine which produce silver as their primary metal, while the remainder of mined supply is produced as a by-product from polymetallic mines that may also produce zinc, lead, or copper. Because of this, the silver market is highly diversified with the top eight producers only making up less than 30% of global mined supply.

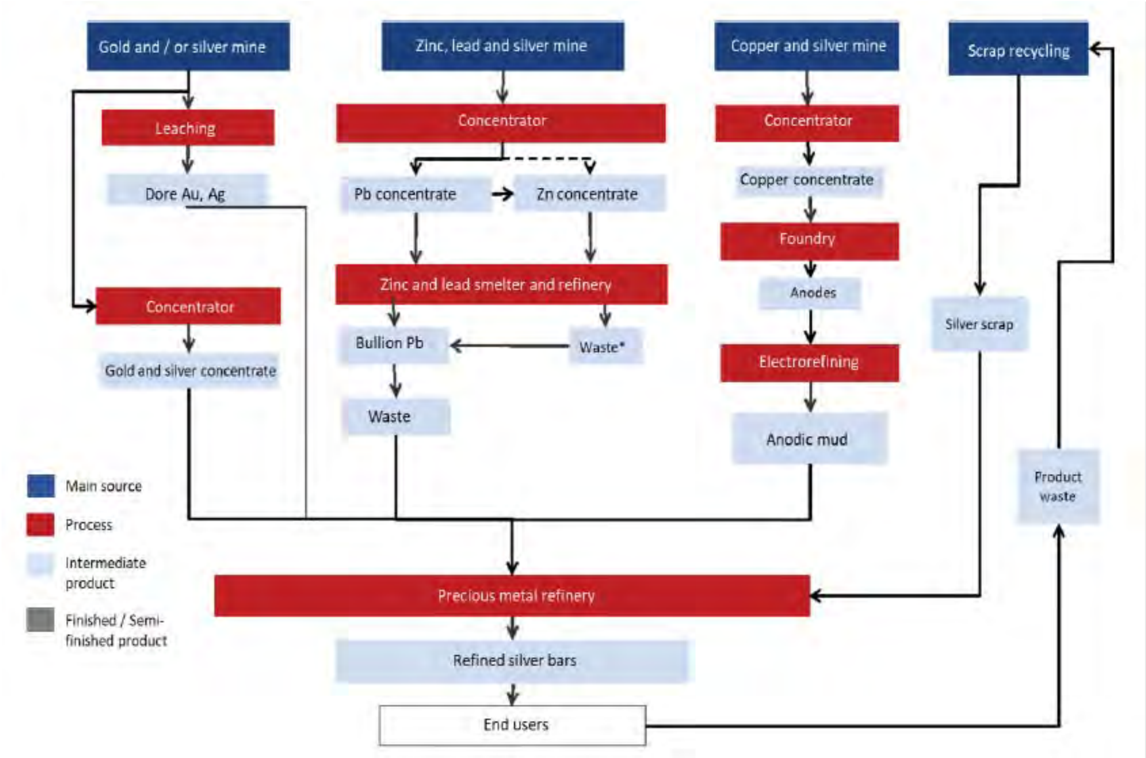


Figure 16-14: Silver value chain

Source: CRU

Silver market balance and price

The following price forecast represents CRU's forecast as of January 2022 for period 2021-2026. Long term prices represent CRU's forecast as of April 2021.

The silver market is currently going through a phase of rapid market rebalancing as it shifts from a period of deficit from 2016 to 2019, to a surplus in 2020 and forward. With the Covid-19 pandemic, fabrication demand was hit harder than supply, which resulted in a small surplus for the year. Both supply and demand are expected to rebound in 2021, bringing the market back into a deficit. In the medium term, the market is expected to remain relatively well balanced, alternating between years of surplus and undersupply. Demand is expected to peak in 2024 as increases in the jewelry sector – the main end use for silver –are not enough to offset dwindling demand from other end uses, and the market is expected to see an increasing surplus into the long term.

On the price side, and similarly to gold, silver prices do not tend toward equilibrium like other commodities. Instead, price is often linked to sentiment rather than fundamental market forces. Since 2015, prices have been relatively stable, ranging between US$16 and US$17 per troy ounce between 2015 and 2019. The uncertainly brought by Covid-19 pushed prices up to US$20 /oz in 2020. This tendency is expected to continue out to 2025, when prices are expected to peak at US$34 /oz.

Figure 16-15: Silver supply-demand gap analysis, 2021 - 2026, kt

Source: CRU

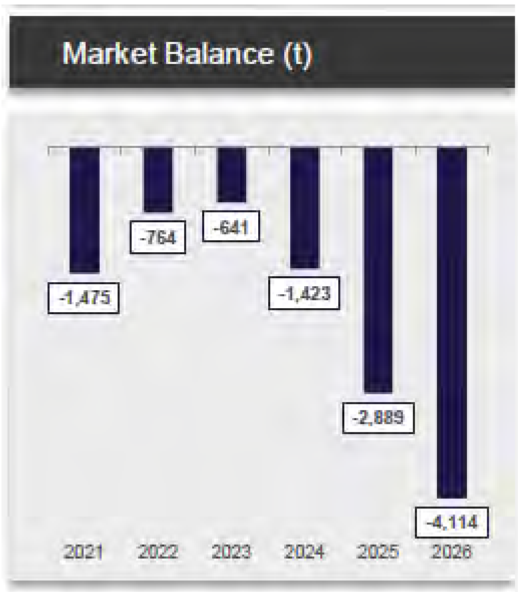


Figure 16-16: Silver Market Balance 2021 – 2026 (kt)

Source: CRU

Rising uncertainty about the strength of the post-pandemic global economic recovery will keep reining in growth in industrial demand. This, combined with a robust recovery in metal supply, will reduce the fundamental deficit, leading to a more balanced silver market in 2022-2023. CRU does not expect to see a sustainable return in buying interest towards this precious metal until late 2022 with the nominal annual average silver price dropping from $25.1/oz in 2021 to $23.3/oz in 2022. Starting from 2023, market fundamentals will start to retighten as industrial demand for silver (ex-coins) fully recovers from the pandemic shock and mine supply weakens driven by grades degradation, reserves exhaustion and mine closures. This will spark a resumption of the silver bull rally and pushing nominal prices all the way up to $31.1/oz in 2026.

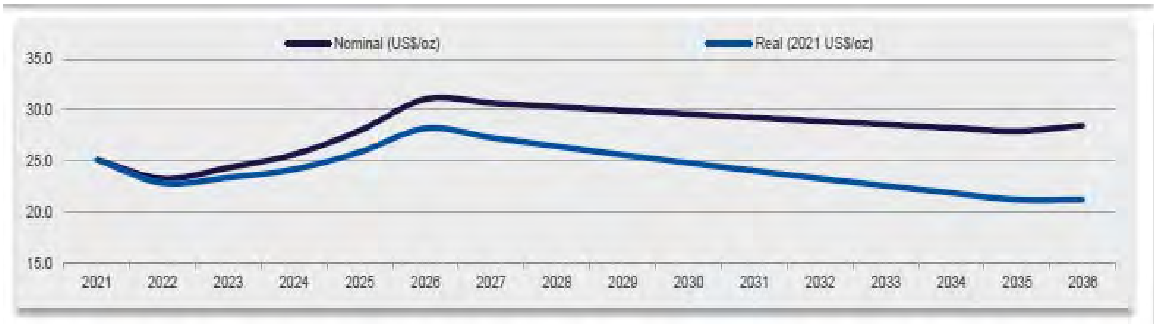


Figure 16-17: Silver price forecast, 2021 – 2036, US$/oz

Source: CRU

Tabla 16-1: Silver prices 2021 - 2036, US$/oz

	2021	2022	2023	2024	2025	2026	2027	2028
Nominal (US$/oz)	25.1	23.3	24.3	25.7	28.0	31.1	30.7	30.3
Real (US$ 2021/oz)	25.1	22.9	23.4	24.2	25.9	28.2	27.3	26.5

	2029	2030	2031	2032	2033	2034	2035	2036
Nominal (US$/oz)	30.0	29.6	29.3	28.9	28.6	28.3	27.9	28.5
Real (US$ 2021/oz)	25.6	24.8	24.1	23.3	22.6	21.9	21.2	21.2

Source: CRU

16.2 Uchucchacua products

16.2.1 Summary of Uchucchacua products

The following tables summarizes the main specifications and production of each concentrate and doré produced by Uchucchacua:

Table 16-3: Typical specifications of Uchucchacua's concentrates

	Unit	Pb Unitarias conc.	Pb Cleaner conc.	Pb Lixiviado conc.	Zn conc.
Copper	%	0.2	0.15	0.23	0.24
Gold	g/dmt	1.4	0.79	1.337	0.31
Silver	g/dmt	4354	2488	3297	342.14
Zinc	%	1.8	3	3.56	31.00
Lead	%	16	6	13	1.28
Moisture	%	7	7	8	7.00
Iron	%	11	14	20	14.00
Alumina	%	0.416			
Antimony	%	1	0.35	0.62	
Arsenic	%	1.6	1.2	1.96	
Bismuth	%	0.000617	0.001	0.001	
Chlorine	%	0	0.1202	0.0025	
Nickel	%	0.0035	0.002	0.002	0.00
Fluorine	%	0.04	0.0727		
Mercury	%	0.0002	0.00022	0.00031	0.00
Silica	%	2.77	2.19	4.01	1.03
Cadmium	%	0.015	0.012	0.023	
Sulphur	%	32.805	25.85	34.7	33.95
Tellurium	%	0.006167	0.002	0.002	0.00
Magnesium oxide	%				0.13
Manganese	%	13	26	3	
Molybdenum	%	0.001974	0.001	0.003	
Selenium	%	0.00518	0.002	0.002	
Tin	%	0.17	0.07	0.13	

Note: Over 70% of Uchucchacua´s "Cleaner" concentrate is sent to Rio Seco plant in order to process it further and obtain the "Lixiviado" or leached material.

Source: Buenaventura

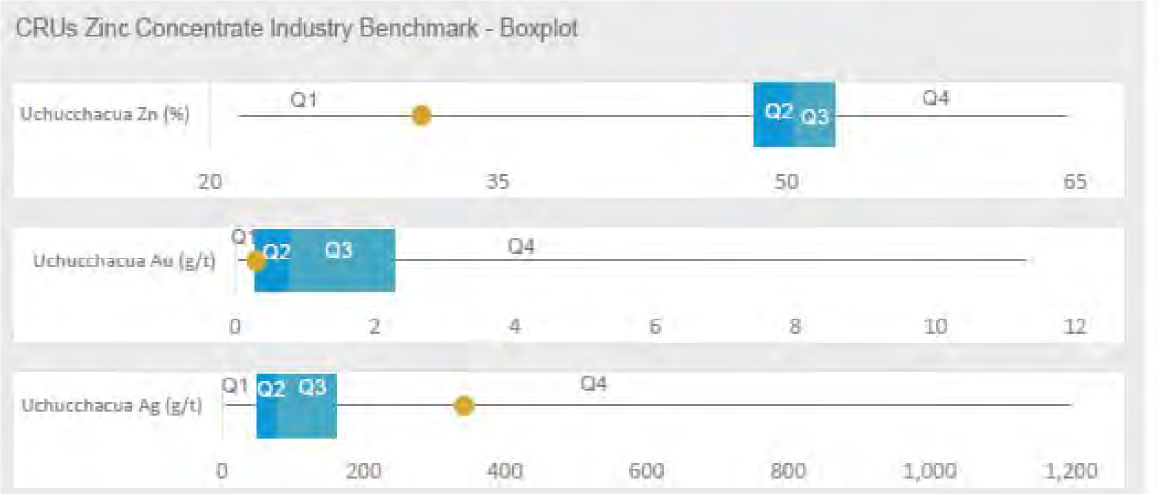
This section aims to assess and compare Uchucchacua's products to other players in the industry. This is done by showing where each product stands when compared to estimated specification from a large sample of mines. The figures presented show the minimum and maximum content of each element under analysis in the samples of mines used, as well as the median and the distribution around it segmented in quartiles in the following way:

Figure 16-18: Sample boxplot

Source: CRU

16.2.2 Zn concentrate

The following charts show Uchucchacua's zinc, gold and silver content in their zinc concentrate when compared to a sample of mines from CRU's Zinc and Lead Cost Model, looking at data between 2015 and 2019. A sample of 229 mines (out of which 60 are located in Latin America) was used to evaluate standard zinc content in concentrates across the industry, while gold and silver content was evaluated using smaller samples of 63 and 166 mines, respectively.



Note: Three mines have an Ag grade of over 1,200 g/t. They were omitted for graphic purposes.

Figure 16-19: Zn concentrate of Uchucchacua mine

Source: CRU

Buenaventura does not have smelting capacity to process zinc concentrate, and therefore needs to sell the product to the market.

Total smelting capacity in 2019 was ~15 Mt of zinc per year. Zinc concentrates are mostly sold to Asia, where most of smelting capacity is located. Approximately ~44% of zinc smelting capacity can be found in China, followed by South Korea (~7% of global smelting capacity) and Japan (~4% of global smelting capacity). Outside Asia, other relevant location is Europe, which concentrates 17% of smelting capacity worldwide. Central and South America account for ~4% of smelting capacity, with smelters in Peru and Brazil. Peru has two zinc smelters, La Oroya and Cajamarquilla, with Cajamarquilla being the seventh largest zinc smelter in the world in terms of processing capacity.

Most of the zinc smelters in the world are not integrated. According to our estimates, the customs market volume is estimated to be ~7Mt of zinc concentrates.

Non-integrated smelters are located in all the major zinc consuming regions. Having said that there are some zinc smelters that are located inland such as CIS smelters, which makes them unattractive choice for processing. In Europe and North America, there are smelters that will be more likely to buy concentrates from nearby mines. Nevertheless, there are still smelters that will accept concentrates from overseas mines. The largest customs market is likely to be located in Asia, where there are Japanese, South Korean and Chinese smelters which will operate in the customs market.

Buenaventura's zinc concentrates from Uchucchacua has very low zinc content and high levels of manganese. This means the material is sold at a discount and is a good match for traders with a large portfolio who can use the concentrate for blending. Buenaventura has been able to sell this concentrate on the back of the large amount of diverse zinc concentrates extracted in Peru, which allows for a variety of combinations which are attractive to the market once blended. Looking forward, Buenaventura has contracts in place covering 100% of Uchucchacua's zinc concentrate production for 2022 and 2023, and 60% of production for 2024. Conversations with current buyers are constant and future production is likely to be secured when the time arrives.

16.2.3 Pb concentrate

Uchucchacua produces two distinct lead concentrates: "unitarias" and "cleaner". A fraction of the "cleaner" concentrate is sent to Rio Seco plant for further processing, and the resulting material is called "lixiviado" or leached material. This product is also analysed in this section.

The following charts show Uchucchacua's lead, gold and silver content in their lead concentrates when compared to a sample of mines from CRU's Zinc & Lead Cost Model, looking at data between 2015 and 2019. A sample of 191 mines (out of which 57 are located in Latin America) was used to evaluate standard lead content in concentrates across the industry, while gold and silver content was evaluated using smaller samples of 54 and 179 mines, respectively.

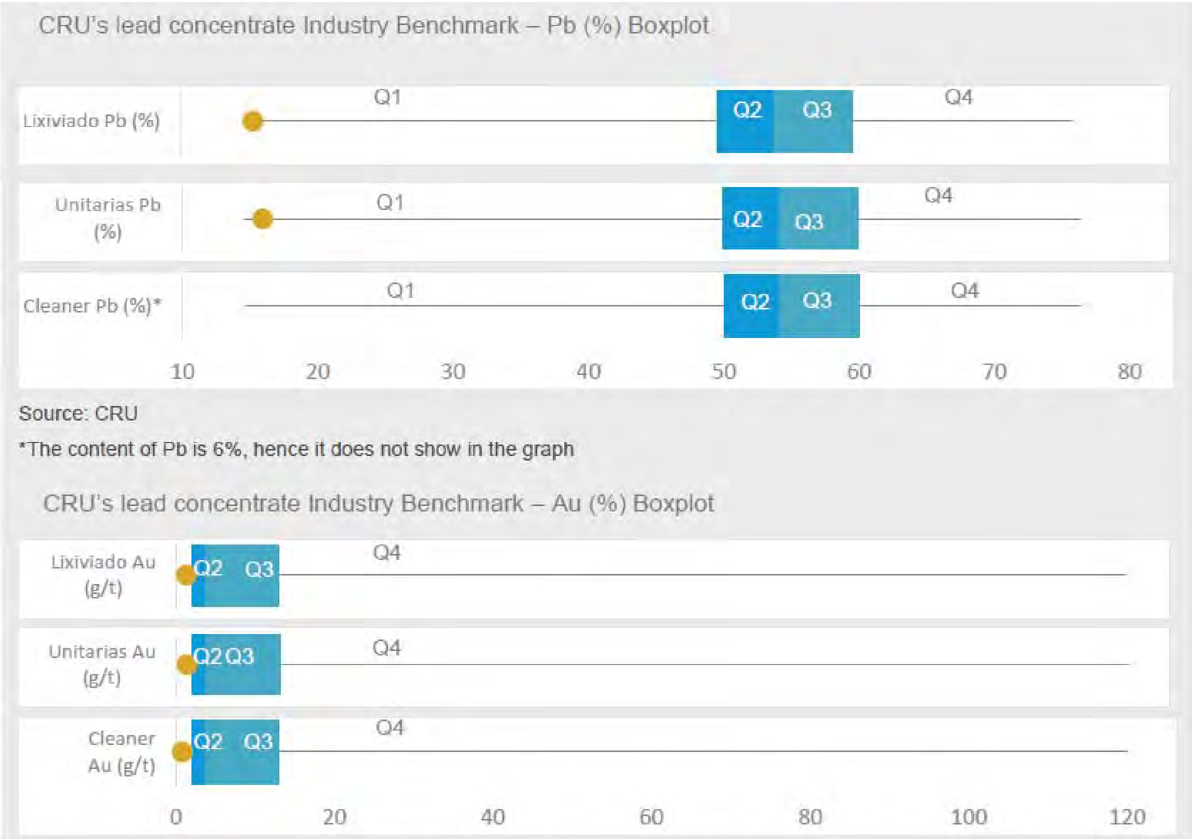


Figure 16-20: Pb concentrate of Uchucchacua mine (1/2)

Source: CRU

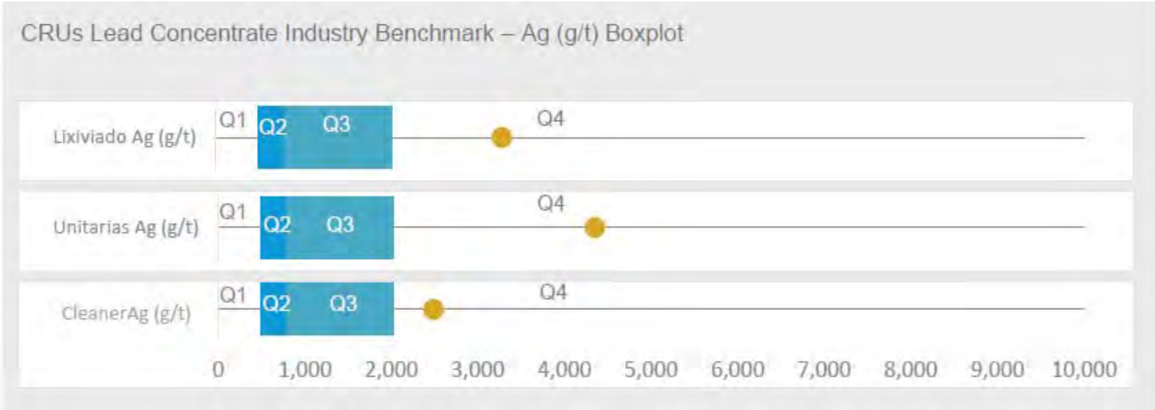


Figure 16-21: Pb concentrate of Uchucchacua mine (2/2)

Source: CRU

The lead market is highly reliant on the secondary market to provide the vast majority of refined lead. From 11.8 Mt of refined lead production in 2020, just 4.3 Mt of refined lead came directly from lead mines, equivalent to 37% of production.

Around two thirds of mined lead is produced in China. China does not export any concentrate and remains a substantial importer of lead concentrates, importing around ~700kt of lead contained in concentrates every year. Outside of China, the size of smelter's custom market purchases is equivalent to ~800 kt Pb contained concentrates annually, which translates into a total custom market for lead concentrates of ~1.5 Mt Pb. In terms of quality preference, most Chinese smelters are not overly interested in processing lead concentrates with high silver because of the silver price arbitrage. The silver price in China is usually lower than international LBMA prices, and a prospective Chinese smelter would have to pay in LBMA terms when buying the concentrate and receive the local price when selling. Notably, there are a few lead smelters which have government permits in place that allow them to process the silver and export it, avoiding price arbitrage in the process. However, this can be done only if the concentrate being imported into China falls under the silver concentrate category. Although the smelters which have the necessary permits to process silver concentrates and then export them are only a few in number, they are relatively large in terms of capacity.

Uchucchacua's lead concentrates all have different specifications:

- "Unitarias": low lead content, high silver content and low manganese content.
- "Cleaner": low lead content, high silver content and high manganese content. Over 70% of this material is sent to Rio Seco plant, where it is processed to lower the manganese content and increase lead and silver content in the product. The remaining material is sold directly to market.
- "Lixiviado" or leached material: material resulting from leaching a fraction of the "cleaner" concentrate. As mentioned before, this product has lower manganese content and higher lead and silver content than the "cleaner" concentrate.

"Unitarias" concentrate, with high silver and low lead, is a good example of a mine where silver content is its main positive characteristic. This concentrate could be attractive for the Chinese smelters that have an appetite for high-silver lead concentrate, as well as other locations such as Germany, South Korea and Japan. The concentrate's high arsenic content, however, means it would likely need to be blended.

The “cleaner” concentrate has just 6% lead content, as well as high silver and high As content. Given the low amount of lead in the concentrate and the relatively high silver and arsenic levels, this concentrate is likely to be used for blending and processed as a silver concentrate. Payables would mostly be linked to silver content and, as the “unitarias” concentrate, markets which value silver content will be the most likely target markets.

Looking ahead, Buenaventura has secured sales for 68% and 13% of Uchucchacua’s “unitarias” concentrate production for 2022 and 2023, respectively. Conversations with current buyers are ongoing and future production is likely to be secured when the time comes.

As far as CRU understands, the leached material catalogued as “lixiviado” concentrate cannot be exported to China as, having been through additional chemical processes after being concentrated, it is no longer considered a concentrate. This, combined with the high arsenic content in the material, would mean this production will likely be used for blending and then exported to markets other than China. The material’s high silver content will also help increase its attractiveness in markets where silver is well-valued. Going forward, Buenaventura has secured sales for 80% and 76% of Uchucchacua’s production of its “lixiviado” material for 2022 and 2023, respectively. Conversations with current buyers are ongoing and future production is likely to be secured when the time comes.

17 Environmental Studies, Permitting, and Plans, Negotiations, or Agreements with Local Individuals or Groups

According to Peruvian law, any activity that could cause a significant negative environmental impact must be evaluated prior to its execution, so that a set of commitments about what to do and what not to do are generated in order to avoid such impacts, or otherwise to mitigate, remedy, or compensate them. When the environmental study is approved, such commitments become environmental obligations that can be audited, and non-compliance is punishable.

Similarly, the national regulation requires the mining company to make a technical and economic proposal on how the intervened areas will be rehabilitated, so that at the end of the mining activity they are compatible with the surrounding ecosystem; we refer in this case to the Mine Closure Plan (MCP), which is executed during the useful life (progressive closure), and at the end of operations (final closure and post-closure).

The aforementioned management instruments also consider approaches for adequate social relations, for which the regulation requires the mining owner to have a "Social Management Plan", i.e., a set of "strategies, programs, projects, and social impact management measures to be adopted in order to prevent, mitigate, control, compensarte, or avoid negative social impacts and to optimize the positive social impacts of the mining project in their respective areas of social influence." The Social Management Plan is approved as part of the EIAd.

In addition to the commitments that may be established in the Social Management Plan, derived from the social impacts related to project implementation, it is important to note that there are also social commitments that derive from compliance with the "Principles of Social Management" to which all mine owners must adhere, and which are not necessarily related to the social impacts of the project, but are equally enforceable.

In addition to the above, the national regulatory framework requires other permits of a sectoral nature as conditions for the commencement and development of mining activities (permits from the Ministry of Energy and Mines), such as for the use of other natural resources, protection of natural heritage or culture, among others.

Below, we report on the performance of the Uchucchacua MU regarding the aspects described above, pointing out the problems identified, if applicable.

17.1 Environmental Study Results

Due to its age, the activities at Uchucchacua mine were subject to an Environmental Adjustment and Management Program (PAMA)[1] as the primary environmental management instrument (1997),

[1] The Environmental Adjustment and Management Program (PAMA) is an environmental management instrument regulated by the repealed Supreme Decree 016-93-EM. This program was required for mining projects already in operation before

and subsequently several preventive environmental studies were approved for various areas of the mining activity, as well as modifications to these (either through EIA modifications, Supporting Technical Reports -STR-, or prior communications). Therefore, we can conclude that this set of environmental studies configures the scope of the "Environmental Certification" under which mining activities must be developed.

In addition to the PAMA, Uchucchacua MU has two EIAs (1997 and 1998) for tailings management facilities and plant capacity expansion, as well as three EIA Modifications (2006 and two in 2014), and obtained compliance for minor or environmentally non-significant STR variations (2013, 2014, 2014, 2017, and 2019, in addition to a partial approval of the STR in 2021) and two communications. Finally, it also has a Detailed Environmental Plan (2021).

A review of the descriptive scope of the documents identified above allows us to point out that the main activities and components for mining and beneficiation comprising the Uchucchacua MU comply with the legal requirement of being covered by an Environmental Certification. A similar appraisal is given regarding its ancillary components.

17.2 Project permitting requirements, the status of any permit applications, and any known requirements to post performance or reclamation bonds

17.2.1 Mining operating permits issued by sectoral mining authorities.

a) For mining and ancillary activities

From the review of available documents, SRK corroborated that the Uchucchacua MU has mining rights for its mining and ancillary activities and possesses the corresponding permit from the mining authority to operate.

In terms of mining rights, activity is carried out in the Uchucchacua Administrative Economic Unit (AEU), which comprises a total of 20 mining concessions covering an area of 9,810 ha.

This unit obtained authorization to commence operations in 2010.

SRK has confirmed that the company has submitted annual mining plans for 2020 and 2021 to the competent authority.

b) For beneficiation and ancillary activities

After the review of available documents, SRK corroborated that Uchucchacua MU currently has the permits that allow it to expand and consequently operate the "Uchucchacua concentrator"

1993 and had to include the necessary actions and investments to incorporate into mining-metallurgical operations the technological advances and/or alternative measures aimed at reducing or eliminating emissions and/or discharges in order to comply with the maximum permissible levels established by the competent authority. The Uchucchacua Mining Unit's activities were considered within the assumptions of this program and required compliance with the environmental parameters established by regulation.

Supreme Decree No. 016-93-EM also established that once the mine owner that had submitted a PAMA complied with all the objectives approved for adequacy, the mining authority would approve the execution of the PAMA, which would imply recognizing that the Project complied with the allowable environmental levels established in the 1993 regulations. This was the case with the activities of the Uchucchacua Mining Unit, whose PAMA was approved.

beneficiation concession at an installed capacity of 4,500 MT/day, as well as to operate the R3 Tailings Storage Facility Dam Stage 2 Phase 2 Subphase 2 of the "Uchucchacua Concentrator" beneficiation concession at 4411 m.a.s.l, respecting a 1-meter high freeboard of beneficiation.

17.2.2 Other permits required by other sectoral authorities.

It was found that Uchucchacua MU has permits other than the environmental and sectoral permits mentioned above, which are of utmost importance for the development of mining activities, such as the ones described below:

a) For the use of water resources

Water supply for domestic use comes from the Caballococha lake, where a reinforced concrete dam collects water and transports it through various facilities to the Plomopampa reservoir (375 m³), where water is chlorinated for distribution to camps and dining areas.

The water supply for industrial use comes from the Colquicocha lake, where a pumping point with a pipeline leads to a water tank located at the concentrator plant. The mining unit is also supplied by the Cutacocha lake, where there is a pumping line that continues through an earthen channel and is finally distributed through pipes to the mine workings, thermal power plant, concentrator plant, and changehouse. The supernatant water from tailings management facility No. 3 is recirculated to the metallurgical process as industrial water.

From the reviewed resolutions approving the water use licenses for the Uchucchacua Mining Unit, it can be generally concluded that the Uchucchacua Mining Unit has the water use licenses required to carry out its activities.

b) For discharge into water resources

Water derived from different uses in mining operations must be previously treated and authorized for discharge into natural bodies of water. In this regard, SRK found that the Uchucchacua MU has obtained authorizations for its discharges, contained in the discharge authorization, approved by Directorial Resolution No. 129-2019-ANA-DCERH dated July 26, 2019 (rectified with Directorial Resolution No. 005-2017-ANA-DGCRH), and in force for 4 years as of August 7, 2019.

c) For drinking water treatment plants

Regulations require that the water provided for human consumption meets the appropriate quality conditions. To this end, DWTPs must have the corresponding sanitary authorization for the water treatment system. No documentation has been made available to corroborate these authorizations for the mining unit's DWTPs.

d) For the protection of cultural heritage

Regarding the protection of cultural heritage, a CIRA for a total area of 6,370.12 ha was found to be in place, which covers all the surface components of this operation.

e) Fuel Storage

As stated in the third STR, there are 6 gasoline and oil storage tanks with capacities between 13,844 and 30,000 gallons, for which we have corroborated their registration in the Hydrocarbons Registry.

f) Powder magazines

There are 5 powder magazines with their respective authorizations.

17.3 Mine closure plans, including remediation and reclamation plans, and associated costs

Uchucchacua MU's activities comply with the legal requirement of having presented measures for the progressive, final, and post-closure of its existing and planned components. Thus, the approval of an initial MCP in 2009 has been corroborated, as well as that of subsequent updates (2017 and 2021). According to the last approved MCP Update, final closure is scheduled to start in the third quarter of 2022.

The mine owner submitted the first semi-annual closure report in 2018. No further information on compliance with the obligation to submit semi-annual reports on the execution and projection of progressive closure has been made available to SRK.

It should be noted that the schedule of closure activities included in the MCPs or their amendments are mandatory; failure to comply can lead to administrative sanctions and financial guarantees may be triggered if progressive closure budgets not executed.

17.4 Social relations, commitments, and agreements with individuals and local groups

The Area of Direct Social Influence (ADSI) of the Uchucchacua AEU includes the rural communities of: Oyón and San Juan de Yanacocha belonging to the district of Oyón, province of Oyón department of Lima, as well as the rural communities of San Juan Baños de Rabí, Huachus, and San Juan de Yanacocha. which belong to the ADSI of the Yumpag-Carama Project located in the district of Yanahuanca, province of Daniel Alcides Carrión, Pasco region. The AISI is made up of the district of Oyón in Lima and the district of Yanahuanca in Pasco.

Social Management Plan programs and sub-programs aim to strengthen the mining unit's ties with the community population and local authorities to build sustainable relationships that will facilitate the company's plans to acquire land for the mining operation down the line and bolster its reputation.

The results of this documentary audit were based on the programs and activities identified through the information provided by the Uchucchacua AEU regarding socio-environmental obligations and commitments relative to the EMI and those assumed with the population of the areas of interest and/or direct and indirect influence, which may have an impact on the declaration of reserves and resources of the UCHUCCHACUA mining unit.

According to the Uchucchacua 2021 Monitoring Matrix of the Commitment Import Template that contains the Activities of the Community Relations Plan, which were prepared based on the

Environmental Impact Assessment and amendments and STR of the MU, this CRP contains six (06) programs with (36) commitments or periodic auditable obligations:

- Communication and information program
- Local employment program
- Local procurement program
- Local Development Support Program (PRA)
- *Aprender para Crecer* Program (UPCH agreement)
- Scholarship program

Of these obligations in operation stage, eleven (11) are being fulfilled and are projected to reach 100% execution. The other twenty-five (25) are considered high, medium, and low priority. From the information contained in the matrix, SRK found that low priority obligations were being fulfilled while medium priority commitments were on hold.

We note that there is a need to systematize and update the obligations and commitments follow-up matrix to correctly differentiate obligations and commitments to optimize resources and make programs and activities more transparent. At the moment, many activities are on hold due to budget constraints. There was no further information regarding the company's social relations policies and corporate social responsibility activities that could determine the level of work carried out for social relations.

The COVID-19 context has weakened community relations due to the lack of visits to the ADSI and AISI. Nonetheless, it is also true that the Social Affairs Area of the mining unit should have more support to implement the strategy developed by the Social Affairs team, which seeks to strengthen and improve community relations to facilitate the company's plans for land acquisition down the line. The Social Affairs Area must aim to obtain the Social License to Operate recommended by international financial institutions.

In general, at Uchucchacua Mining Unit, the mine owner complied with the practice of reporting on the social components in accordance with SK-1300.

17.5 Mine Reclamation and Closure

17.5.1 Closure Planning

Although the approved closure plan is fairly detailed most of the proposed actions are conceptual given that detailed engineering has yet to be performed.

Nevertheless, the objective of this technical memo is not to describe components and closure activities in detail. The general closure actions for the project components that pose the greatest risks and represent the largest costs are summarized below. Closure of other facilities, such as civil infrastructure, demolition of structures and buildings, quarries and landfills, are considered in the closure plan, but are not addressed herein.

Closure actions proposed in the closure plans for the key facilities are summarized below and some aspects are discussed in more detail in the following sections.

Underground Openings

The operation includes 22 portals and 34 ventilation shafts. The closure action for the portals is to construct a 1.5 m thick reinforced concrete bulkhead. The access will be closed with a gravel plug to prevent any access after closure. Special consideration will be given to Paton tunnel, which consists of an additional drainage channel. Continuous improvements of the bulkhead's design are being carried out. Topsoil and revegetated area is considered. Hydraulic plugs are proposed for underground openings with high underground water flow. All structures associated with the underground openings will be demolished.

Waste Rock Dumps

There are three waste rock dumps at the site. The proposed closure actions for the waste rock dumps include construction of diversion channels, construction of retaining walls, placement of a cover (the type of which will depend on the material being covered), and revegetation. Slopes are planned to remain at angle of repose (2H:1V).

Tailings Impoundments

Uchucchacua has three tailings storage facilities (TSF). Closure of the TSF will include settlement through placement of waste rock and progressive loss of moisture due to the negative water balance. The waste rock will be placed in layers using trucks. Once placed, the waste rock material will be spread with bulldozers, which will also facilitate compaction. Following placement of the waste rock, each TSF will be covered with a low permeability layer and a layer of soil, followed by revegetation.

Progressive Closure

Included in the closure plan for Uchucchacua is a commitment to progressively close facilities as they are no longer needed for operations. To date, the following facilities have been, or are being closed in advance of final closure.

- Two portals
- Ten shafts
- Two waste rock dumps
- Two tailings storage facilities
- Cyanide detoxification plant

17.5.2 Closure Cost Estimate

The estimated closure cost has been based on the approved closure plan (Update of the Mine Closure Plan of the UEA Uchucchacua through R.D. N ° 142-2017-MEM / DGAAM) and the results of the additional physical and chemical stability review performed by SRK during this project. SRK has prepared a revised closure cost estimate incorporating the relevant gaps and an update for several closure activities. Therefore, this section describes associated costs, and a comparison between the estimate and the approved closure plan of Uchucchacua.

SRK focused the closure cost update to focus on the most significant cost components, which comprise approximately 80 percent of the total existing or updated costs. This analysis reviewed and, as necessary, updated quantities and unit costs based on the existing information and SRK's experience.

The analysis of the most significant closure activities was developed based on an update of the productivities and unit prices related to the labor, equipment and material. This analysis and update was based on published cost data[2], Peruvian Chamber of Construction CAPECO, (in its Spanish acronym)[3] and internal SRK data from similar projects.

In updating the closure costs, SRK made the assumptions due to limited information available.

- The quantities are preserved from the approved closure plan
- In cases where the estimated unit prices were updated and represent a lower price than the approved closure plan, SRK conservatively used the unit price presented in the closure plan.
- For the estimate of Paton portal, three times the cost of the hydraulic bulkhead of the portal Nv. 4225 from Orcopampa site is considered.
- For the Portal Socorro Nv. 445 -RP Fernando and Casualidad 4460, a length of 4 meter is considered for the hydraulic bulkhead for each
- A hydraulic bulkhead for the portal below water level 4,470m MASL is considered

Table 17-1: UM Uchucchacua closure cost comparison

Description	Closure Plan -2020		Update Closure Cost -2022		Percentage (%)	
	Progressive Closure (USD)	Final Closure (USD)	Progressive Closure (USD)	Final Closure (US$)	Progressive Closure (USD)	Final Closure (USD)
Direct cost	11,704.65	8,291.25	15,726.56	14,962.48	34%	80%
Indirect cost	3,043.21	2,155.73	2,709.35	7,909.78	-10%	259%
Contingency	468.19	331.65	2,765.39	3,430.84	-	-
Total (without Taxes)	15,216.05	10,778.63	21,201.30	26,303.10	39%	144%

Source: SRK

17.5.2.1 Post-Closure Costs

Post-closure activities were presented in the approved closure plan. These primarily related to monitoring and maintenance for the minimum requirement of five years. SRK updated these costs based on professional experience and internal databases but did not increase the length of the monitoring and maintenance period. The results are presented in the following Table 17-2.

[2] Website: https://costosperu.com/

[3] Website: Capeco - Nosotros

Table 17-2: Post-closure approved closure plan and update (2021)

Activity	Description	Approved Closure Plan (2020)	Update Closure Cost (2021)	Percentage
		(USD)	(USD)	(%)
Maintenance	Site Visit and Physical Maintenance	24.990,00	30.219	21%
	Geochemical Maintenance	21.560,00	21.56	0%
	Hydrological Maintenance	7.84	15.117	93%
Monitoring	Geotechnical	70	70	0%
	Piezometers	65.975	65.975	0%
	Geochemistry	83.628	38.514	-54%
	Biological	20.32	33.089	63%
	Social	100	168.534	69%
Direct Cost		394.313	443.007	12%
Indirect cost		70.976	265.804	274%
Contingency (15%)		15.773	66.451	321%
Total (without Taxes)		481.062	775.263	61%

Source: SRK

17.5.3 Limitations on the Current Closure Plan and Cost Estimate

Limited information was available in the approved closure plan and cost estimate regarding closure material quantities and how they were calculated. Because of the limited information available, particularly the lack of details as to how those costs were calculated basis for the unit rates, SRK cannot validate the cost estimate in the approved closure plan.

However, in order to assess the impact of changes in unit prices, SRK used the quantities and key parameters (e.g., topsoil haul distances and cover material thicknesses) that were included in the approved closure plan and assumptions where details were absent, and applied current unit rates for labor, equipment, and materials to those quantities. For example, the cost to excavate, haul and place low permeability cover material did not indicate how far the material would be hauled. In this case, we used published and internal equipment and labor rates, and estimated an average haul distance to update the cost. For Uchucchacua, the resulting average factor is 1.24.

17.5.4 Material Omissions from the Closure Plan and Cost Estimate

Based on our review of the available data, SRK has observations with respect to predicting and designing closure actions to manage the long-term physical stability of the site. Factor of safety (FOS) criteria established in the studies were the same for the TSFs and the WRD and set a minimum static FOS at 1.5 and a minimum pseudostatic FOS at 1.0. Pseudostatic analyses of the various facilities considered a horizontal seismic acceleration of 0.17g, which was specified as 2/3 of the MCE with a long-term recurrence interval of 1/500 years. The results of the stability analyses indicated that all analyzed slope configurations satisfied the minimum static and pseudostatic FOS criteria set in the study

SRK makes the following observations with respect to the available stability analyses:

- Several slopes are proposed in a final closure configuration with reinforcement by gabions or concrete blocks and geogrid (TSF Nº4). Gabion or geogrid reinforced slopes are unlikely to be acceptable slope configurations for long-term closure stability
- Final WRD bench slopes are proposed at 2H:1V and will be difficult to revegetate and stabilize.
- The established FOS criteria should be reviewed and revised depending on the guidelines Buenaventura decides to adhere to in demonstrating long-term stabilization.
- The latest stability analyses consider the same seismic acceleration, which satisfies current Peruvian national regulations, but which does not satisfy the passive-closure recommendations in the Global Industry Standard on Tailings Management.[4] If Buenaventura decides to comply with this relatively new standard, additional design and stabilization work will be required to ensure the facilities meet the seismic criteria of the GISTM, possibly including the construction of compacted fill buttresses to increase embankment stability under 1/10,000 year seismic loading.
- Slopes to be covered should be analyzed using the infinite slope method to demonstrate long-term closure stability of the cover layer.
- Records of tailings and waste rock dump seepage were not available. Phreatic conditions within the TSFs and WRDs should be modelled for the closure configuration to facilitate accurate stability analyses and predictions of long-term draindown flows.

Based on our review of the available geochemistry data, SRK has observations with respect to predicting and designing closure actions to manage the long-term chemical stability of the site and potential impacts to the surrounding environment, specifically downstream water resources.

- The SNC Lavalin closure cost estimate (CCE) includes no provision of post-closure water treatment or the use of hydraulic bulkheads. One or both of these solutions are likely required due to exceedances of manganese at the surface water compliance point.
- There is currently no post-closure water balance or predictions of future water quality at Uchucchacua. These are required to fully determine the nature of water treatment required post-closure.
- The available water quality data indicates that the operation causes non-compliance at its EU-15 surface water compliance point as a result of elevated manganese concentrations. Based on data reviewed, SRK anticipates that unless mitigation measures are taken, then discharge water from the site post-closure will result in continued exceedances of the applicable standards.
- Passive water treatment has been included, where flows at an individual WTP are <5m³/hr. No bench scale laboratory or field-based pilot testing has been carried out to prove the feasibility of passive water treatment. No site visits have been undertaken to assess land or material availability for such schemes. Other factors that could affect the success of passive water treatment such as climate, regulatory approval, land ownership, deleterious parameters that cannot be removed by passive techniques or topography have not been considered. In addition, the type or number of passive water treatment techniques that

[4] ICMM. 2020. International Council on Mining and Metals (ICMM) (2020). “Global Industry Standard on Tailings Management”, August 2020.

would be required has not been determined. SRK has indicated an approximate CAPEX and OPEX for schemes of this nature, based on experience only.

- There is the potential that compliance criteria will change in the future - this has not been accounted for and the possibility remains that the recommended water treatment techniques will not be adequate should compliance criteria change. For example, if a parameter is not treatable by HDS WTPs was to be included in discharge criteria then a new WTP would have to installed.

17.5.4.1 Water Treatment Capital Cost

Post-closure water treatment was omitted from the current closure cost and SRK has determined that the available data indicate that this will be required. SRK has prepared a high-level estimate of the capital costs to construct a HDS water treatment plant to treat water from the TSF and WRDs after closure. Operating costs are included as a post-closure cost. Due to the installation of hydraulic bulkheads in the portals, water will not discharge from the underground openings after closure.

The capital costs (Capex) for water treatment have been estimated by using previously received quotations for the major equipment associated with HDS plants, scaling these appropriately and adjusting for inflation. Due to time constraints no new quotes have been sought as part of this project. No optimization of design has been conducted with the scaling of costs being the same for each WTP. SRK has also used our experience of similar commissions. SRK have included a 50% buffer in the predicted maximum design flow, in order to provide contingency in the plant sizing. The Capex for both HDS WTPs at post-closure assume WTP would need to be operational immediately in the post-closure phase.

Table 17-3: Water Treatment Capex

Item	WTP_01 (new) Cost (US$)
	Predicted Max Flow – 245 m³/hr
	Design Flow – 367 m³/hr
General Excavation	82,867
Structures	322,343
Equipment	9,553,680
Electrical	649,058
Piping	559,159
Site Construction Management and Services	351,137
Construction Equipment and Services	260,193
Engineering	1,159,371
Commissioning	102,633
Sub Total	13,040,441
10% Contractor Profit	1,304,044
Total	14,344,486

Source: SRK

SRK has also developed costs for sustaining Capex that would be required to maintain and repair, build new or refurbish WTP in the future. The expected lifespan of a HDS WTP is estimated at 20 years although the WTP is unlikely to be required after year 10 post-closure on the basis that flows from the TSF and WRDs will become amenable to passive water treatment. Therefore, only minimal sustaining CAPEX would be required to replace or rebuild components during the expected 10 years of operation. This cost is estimated to be USD 200,000.

The CAPEX associated with the passive water treatment plants is estimated at USD 2,000,000. Sustaining CAPEX for passive treatment is estimated at USD 30,000 per year.

17.5.4.2 Water Treatment Operating Cost

According to the chemical stability analysis and the described section of the capital cost of the WTP, the CAPEX for the HDS WTP is 14,344,486 USD. The expected lifespan of the HDS WTP is estimated at 20 years. The sustaining CAPEX is estimated to be USD 200,000 per year (for 10 years) for WTP_01.

The operating costs for the HDS WTP are predicted to be in the order of:

- Years 0 – 5 – USD 2,500,000
- Years 5 – 10 – USD 450,000
- Years >10 - USD 20,000

17.6 Adequacy of Plans

17.6.1 Environmental

The mine owner proposed as one of the objectives of the Third STR, the reprogramming of activities at the Uchucchacua MU. This, however, was declared inadmissible in the second article of Directorial Resolution No. 00032-2021-SENACE-PE/DEAR. According to the STR, the "lifespan" currently considered in the environmental certification would end in 2021.

In the Second Update of the MCP it was proposed to modify the closure schedule, extending the progressive closure until 2025, which was observed (obs. 13); in response to which the mine owner justified a rescheduling of the progressive closure until the second quarter of 2022.

In this regard, at the environmental certification level, and considering what was approved at the MCP level, the environmental studies would only cover the development of operational activities until 2022, with final closure formally scheduled to begin in the third quarter of that year. However, the mine owner reports that it is developing a plan with multiple alternatives to extend the schedule of activities covered by its environmental certification. One of these alternatives is to obtain a favorable decision in the second administrative instance regarding the STR.

The mining unit has yet to submit an updated EIA, which could result in an administrative fine, although there is no risk that the continuity of operations will be affected. In this regard, the mine owner has planned to perform this update when the integration of the environmental studies integrating the Uchucchacua Unit with the Yumpag project is proposed.

17.6.2 Local Individuals and Groups

We note that there is a need to systematize and update the obligations and commitments follow-up matrix to correctly differentiate obligations and commitments in order to optimize resources and make programs and activities more transparent. At the moment, they have been postponed due to budget constraints. There was no further information regarding the company's social relations policies and corporate social responsibility activities that could determine the level of work carried out for social relations.

17.6.3 Mine Closure

Hydrogeology

- Post-mining simulations should be implemented in the next level of studies to achieve an accurate estimate of the main hydrogeological parameters' designs (water levels, groundwater flows and rebound timing). It should include the bulkhead designs and sensitivity analysis.

Hydrology and Stormwater Management

- Final reclaimed slopes are up from 2% minimum to 2(H):1(V) maximum; regraded slopes of 2.5(H):1(V) or 3(H):1(V) should be considered to limit erosion by sheet flow.
- Concrete and grouted riprap channel linings are “rigid” systems and are subject to cracking, spalling and potential for failure over time due to settlement. Future design should consider flexible channel linings such as riprap, vegetation, or other engineered solutions.
- A comprehensive sitewide stormwater management system for the closed site configuration should be developed and documented in a design report. The report should specify all design and input parameters used and should align with Buenaventura’s chosen final closure criteria (CDA, GISTM, etc.).
- The details of the comprehensive stormwater design should be used to develop accurate construction costs using local or regional contractors to update the pricing and cost estimate.

Cover Design

- Once the post-closure water management requirements are known, Buenaventura should consider a trade-off study to evaluate the potential cost benefit of one type of cover versus another in limiting infiltration and prevent draindown or seepage that may require post-closure management.
- The physical stability of the closure covers should be evaluated based on the slopes of the covered components using the infinite slope method.

Physical Stability – TSFs and Waste Rock Dumps

- Review and revise FOS criteria based on selected guideline for demonstrating long-term closure stabilization.
- Review and revise closure designs, construction materials, and slope stability analyses to ensure long-term stability of all construction components.
- Evaluate phreatic conditions within WRD and TSFs and develop a sitewide water balance model incorporating all predicted flows and informing the potential need for post-closure water treatment.

Chemical Stability - Geochemistry

Based on the information detailed above, SRK have determined two possible ways to mitigate the non-compliances with respect to concentrations of manganese at EU-15 downstream of the mine.

- Post-closure water treatment; and
- The installation of hydraulic bulkheads.

SRK is of the opinion that likely both will form part of the solution. Water treatment alone appears would be a technically challenging solution and would be prohibitively expensive as a standalone option. Therefore, SRK is of the opinion that hydraulic bulkheads will be required in order to prevent or significantly reduce groundwater discharges from the underground mine. The use of hydraulic bulkheads would be subject to detailed studies and engineering design.

In addition, SRK recommends that a site wide, in-depth study is undertaken to determine the source(s) of manganese. For example, if it was determined that the manganese loadings could be attributed to the TSF then this may reduce the overall liability and technical challenges. At the present, SRK cannot determine the exact or the most significant source of manganese. The results of these studies will feed geochemical numerical predictions to more accurately predict future water quality.

Post-mining simulations should be implemented in the next level of studies for an accurate estimate of the main hydrogeological parameters' designs (water levels, groundwater flows and rebound timing). It should include the bulkhead designs and sensitivity analysis.

Closure Costs

Details of quantities in the estimate was not traceable and the absence of information made it difficult to identify or update. This should be improved in the next S-K 1300 update.

- Links regarding with the Excel have some minor differences and were corrected.
- The hydraulic bulkhead was estimated based on similar project and as global cost. For that reason, SRK recommends that Buenaventura prioritize additional study and design to improve the estimate.
- The need for and cost of water treatment should be investigated in future studies to optimize closure activities regarding water management.
- Once the closure and post-closure activities are reviewed and updated in the closure plan, the requirements and length of time needed for post-closure monitoring and maintenance should be revised to accommodate those changes.

17.7 Commitments to Ensure Local Procurement and Hiring

The source of information reviewed for this section was the amendment of EIA 2014, which includes a social commitments matrix.

The information reviewed for this section is related to the programs, subprograms and activities developed by Uchucchacua mine, during the Operations stage, corresponding to the Social Management Plan Uchucchacua 2021.

There are two programs related to Local Procurement and Hirings, as follows:

17.7.1 Local Employment Program

The purpose is to achieve 80 local hires from Oyon district, maintaining all other job positions with contractor services.

In addition, to implement a job bank (Ruana) and a local hire system in Huachus district.

17.7.2 Local Goods and Services Acquisition Program

The purpose is to implement a database with local suppliers, the status is on hold.

In addition, strengthen the administration of the Huachus communal enterprise which is financing by a fund.

No further information about results of hiring local people or local procurement were found.

18 Capital and Operating Costs

Estimation of capital and operating costs is inherently a forward-looking exercise. These estimates rely upon a range of assumptions and forecasts that are subject to change depending upon macroeconomic conditions, operating strategy and new data collected through future operations. For this report, capital and operating costs are estimated at PFS-level with a targeted accuracy of ±25%. However, this accuracy level is only applicable to the base case operating scenario and forward-looking assumptions outlined in this report. Therefore, changes in these forward-looking assumptions can result in capital and operating costs that deviate more than 25% from the costs forecast herein.

SRK has reviewed and analyzed the following aspects:

- Historical operating costs from 2018 to 2020, including a detailed analysis of the cost database and compilation of costs for forecast estimation;
- Projected capital cost for the LOM of Uchucchacua, including sustaining CAPEX

18.1 Capital and Operating Cost Estimates

18.1.1 Operating Costs

The forecast LoM operating unit costs are summarized in Table 18-1.

A contingency of 10% was considered for the operating cost to cover any unpredictable factor or variation in the future cost with regard to the historical cost used for forecast estimation.

Table 18-1: Operating cost estimate

Item **	Units	Forecast Cost	Estimated cost * (Inc. 10% Conting)
Mining Uchucchacua			
Bench & Fill	US$ / t ore	54.79	60.27
Cut & Fill	US$ / t ore	62.51	68.76
Mining Yumpag			
Over Drift & Fill (ODF)	US$ / t ore	39.37	44.58
Bench & Fill (BF)	US$ / t ore	32.25	37.46
Overhand Sublevel Stoping (SARC) **	US$ / t ore	35.99	41.21
Plant Processing			
Circuit 1	US$ / t processed	27.76	30.54
Circuit 2	US$ / t processed	12.33	13.56
Circuit 1 (Yumpag)	US$ / t processed	27.86	30.65
G&A Mine Operations			
Uchucchacua	US$ / t processed	22.86	25.15
Yumpag	US$ / t processed	23.22	25.54
Sustaining CAPEX			
Processing	US$ / t processed	4.95	5.45
Off Site Cost (Corporate) ***	M US$ / year	18.83	18.83

Source: Buenaventura

* Some items, depending on the cost type, do not include a contingency. Contingency applied to mining cost of Yumpag is between 13% and 16%

** Estimation does not include selling expenses and some commercial costs stated by the contract with the trader. These costs are included directly in the Cashflow

*** Average forecast corporate cost (2024-2028) attributable to Uchucchacua mining unit

18.1.2 Capital Costs

Capital costs were estimated by Buenaventura based on infrastructure and investment requirements for the LoM plan.

A contingency of 15% was considered for the capital cost to cover any unpredictable factor or variation.

Capital costs for the LoM are summarized in Table 18-2. SRK does not have any additional details about the yearly amounts to support or conduct a detailed analysis on specific infrastructure or components.

Table 18-2: Capital cost estimation

	Capital Cost *	
Year	**Uchucchacua (MUS$)**	**Yumpag ** (MUS$)**
2022	7.60	29.80
2023 ***	21.80	25.70
2024	13.50	7.00
2025	11.07	0.00
2026	11.30	0.00
2027	7.90	0.00
Total	73.17	62.50

Source: Buenaventura, SRK

* It does not include contingency

** Corresponds to pre operational investment

*** Includes 5.5 MUS$ for repairs and spares to re-start the processing plant

18.1.3 Closure Costs

SRK has developed an estimation cost for the three stages of the closure process and an estimated cost for the water treatment system covering the following aspects:

- Progressive closure
- Final Closure
- Post Closure
- Water treatment

A contingency of 15% was considered for the closure cost to cover any unpredictable factor or variation.

The total closure cost distributed up to the year 2056 is 73.27 M US$ (without contingency and selling taxes). The detail of closure cost is shown in Table 18-3.

Table 18-3: Closure Cost

Year	Progressive closure		Final Closure		Post Closure		Water treatment	
	Direct (M US$)	Indirect (M US$)	Direct (M US$)	Indirect (M US$)	Direct (M US$)	Indirect (M US$)	Direct (M US$)	Indirect (M US$)
2022	2.25	0.39						
2023	2.25	0.39						
2024	2.25	0.39						
2025	2.25	0.39						
2026	2.25	0.39						
2027	2.25	0.39						
2028	2.25	0.39						
2029			2.99	1.58			4.78	
2030			2.99	1.58			4.78	
2031			2.99	1.58			4.78	
2032			2.99	1.58	0.02	0.01		2.50
2033			2.99	1.58	0.02	0.01		2.50
2034					0.02	0.01		2.50
2035					0.02	0.01		2.50
2036					0.02	0.01		2.50
2037					0.02	0.01		2.50
2038					0.02	0.01		0.45
2039					0.02	0.01		0.45
2040					0.02	0.01		0.45
2041					0.02	0.01		0.45
2042					0.02	0.01		0.02
2043					0.02	0.01		0.02
2044					0.02	0.01		0.02
2045					0.02	0.01		0.02
2046					0.02	0.01		0.02
2047					0.02	0.01		0.02
2048					0.02	0.01		0.02
2049					0.02	0.01		0.02
2050					0.02	0.01		0.02
2051					0.02	0.01		0.02
Total	15.73	2.71	14.96	7.91	0.44	0.18	14.34	17.00

Source: SRK

18.2 Basis and Accuracy Level for Cost Estimates

18.2.1 Basis and Premises for operating cost

According to the Life of Mine (LOM) plan, future operations will have conditions similar to those found in current operations.

The following premises and criteria were considered for the operating cost estimation:

- A 2018-2020 cost database was used for the forecast cost estimation. The cost estimation process began in May 2021, when information on reported 2021's costs was not available. At the moment, a comparison between the estimated forecast cost and 2021 results was made, resulting in a concordance above 90%;
- Mining operation used contractors and cost estimation considers the same schema. Also, it is assumed that new zone named Yumpag will be operated with contractors;
- Non-inflation rate was considered in the cost estimation;
- There are no royalties applicable to Uchucchacua mining operaton;
- Exploration costs related to brownfield targets are not included in the operating cost estimation;
- Differentiated cost for Uchucchacua and Yumpag were estimated;
- Costs estimation are based on mine plan and mining method planned to be used during the operational stage at each Zone (Uchucchacua and Yumpag).

Estimated operating costs included:

- Mining cost contractors
- Mining cycle activities (drilling, blasting, loading, hauling and ground support)
- Mine development and preparation adits cost
- Cost of auxiliary services
- Energy (mining, processing plant and facilities)
- Processing plant consumables
- Mine equipment maintenance
- Processing plant equipment maintenance
- Supervision and management
- Technical services
- Administrative costs (all areas)
- Environmental costs
- Community relations
- Safety

Operational parameters considered for cost estimation are listed in Table 18-4

Table 18-4: Operational parameters

Parameters	Units	Value
Mine production		
Underground	tpd	4,200
Plant Capacity		
Circuit 1 (High Mn)	tpd	3,000
Circuit 2	tpd	1,200

Source: Buenaventura

18.2.2 Basis and Premises for capital cost

The following premises and criteria were considered for the capital cost estimation:

- Capital cost of 5.50 MUS$ was considered for the re-start of the processing plant in 2024.

According to references from Buenaventura the estimated capital cost included:

- Mine support facilities and utilities;
- Backfill plant;
- Process plant sustaining investments;
- Tailings storage facilities (growth or elevation increase);
- Waste dump construction;
- Site support facilities and utilities;
- Site power distribution;
- Camps.

19 Economic Analysis

19.1 General Description

SRK prepared a cash flow model to evaluate Uchucchacua's ore reserves on a real basis. This model was prepared on an annual basis from the effective date of mineral reserves estimation to the effective date project for the exhaustion of mineral reserves. This section presents the main assumptions used in the cash flow model and the resulting indicative economics. The model results are presented in U.S. dollars (US$), unless otherwise stated.

Technical and cost information is presented on a 100% basis to assist the reader in developing a clear view of the fundamentals of the operation. Buenaventura's attributable portion of mineral resources and reserves is 100%.

As with the capital and operating cost forecasts, the economic analysis is inherently a forward-looking exercise. These estimates rely upon a range of assumptions and forecasts that are subject to change depending upon macroeconomic conditions, operating strategy and new data collected through future operations.

According rules S-K 1300, all inputs to the economic analysis are at the minimum of a pre-feasibility level of confidence and have an accuracy level of ±25% and a contingency range below 15%.

The financial analysis is based on an after-tax discount rate of 6.04%. All costs and prices are in unescalated "real" dollars expressed as Real US$ 2021. The currency used to document the cash flow is US$.

19.1.1 Financial Model Parameters

Key criteria used in the analysis are presented throughout this section. Financial model parameters are summarized in Table 19-1.

Table 19-1: Financial Model Parameters

Item	Value
TEM Time Zero Start Date	January 1st, 2022
Mine Life	5
Discount Rate	6.04%

Source: Buenaventura, SRK

The model continues after the 5th year to include the whole closure cost in the cash flow analysis.

Buenaventura set a discount rate of 6.04%.

19.1.2 External Factors

Exchange Rates

Uchucchacua's operations are located in the central Andes of Peru. The official currency in Peru is the "Peruvian Sol". However, in accordance with typical practices in the Peruvian mining industry, most of the payments for services, consumables and others are made directly in US dollars (US$). Only a minor portion of payments is made in local currency (for example, salaries or some independent services).

An official exchange rate is announced daily by the Peruvian Central Bank. The exchange rate in the last ten years has shown remarkable stability.

The operating and capital costs are modeled directly in US Dollar (US$)

Metal Prices

Modeled prices are based on the prices developed by CRU Group in the Market Study section of this report. CRU Group developed two metal prices set options, "Nominal USD" and "Real 2021 US$".

The financial model is based on Real 2021 US$ set price.

Table 19-2: Metal Prices forecast

Metal	Units	Projected Metal Prices					
		2022	2023	2024	2025	2026	2027
Cu	US$/t	9,010	8,201	7,752	8,104	8,448	8,244
Zn	US$/t	3,490	3,095	2,604	1,975	2,131	2,197
Pb	US$/t	2,227	2,152	2,155	2,163	2,170	2,152
Au	US$/oz	1,740	1,660	1,580	1,630	1,715	1,677
Ag	US$/oz	22.90	23.40	24.20	25.90	28.20	27.30

Metal	Units	Projected Metal Prices					
		2028	2029	2030	2031	2032	2033
Cu	US$/t	8,041	7,838	7,634	7,431	7,450	7,469
Zn	US$/t	2,264	2,330	2,397	2,463	2,469	2,475
Pb	US$/t	2,135	2,117	2,099	2,081	2,086	2,091
Au	US$/oz	1,639	1,603	1,567	1,532	1,498	1,465
Ag	US$/oz	26.50	25.60	24.80	24.10	23.30	22.60

Source: CRU Group, February 23rd, 2022

* Expressed as Real 2021 US$

Taxes and Royalties

As modeled, the operation is subject to a 29.50% income tax plus a special mining income tax (variable rate).

Tax depreciation depends on the investment type and is calculated annually on a percentage basis; this figure is used to estimate the income tax payable. Typical depreciation periods used are 5 years, 10 years and LoM.

There are no third party royalties applicable to Uchucchacua's operations

SRK notes that the mining units are being evaluated with a corporate structure cost, including the cost of corporate offices located in Lima. Office costs in Lima are distributed between all managed mining units.

Mining concession holders are obligated to pay a Special Mining Tax (IEM) to exploit metallic mineral resources. For income tax purposes, the IEM is considered an expense in the same year it is paid. IEM is determined on a quarterly basis and a percentage is applied to the quarterly operating profit.

Participation of workers in a profit-sharing scheme is a labor benefit that seeks to boost employee productivity. This charge is set at 8% of the operation's profit before taxes.

Working Capital

The assumptions used for working capital in this analysis are as follows:

- Accounts Receivable (A/R): 30 day delay
- Accounts Payable (A/P): 30 day delay
- Zero opening balance for A/R and A/P

19.1.3 Technical Factors

Mining Profile

The modeled mining profile was developed by Buenaventura in collaboration with SRK. The details of mining profile are outlined earlier in this report. The modeled profile is presented on a 100% basis in Figure 19-1.

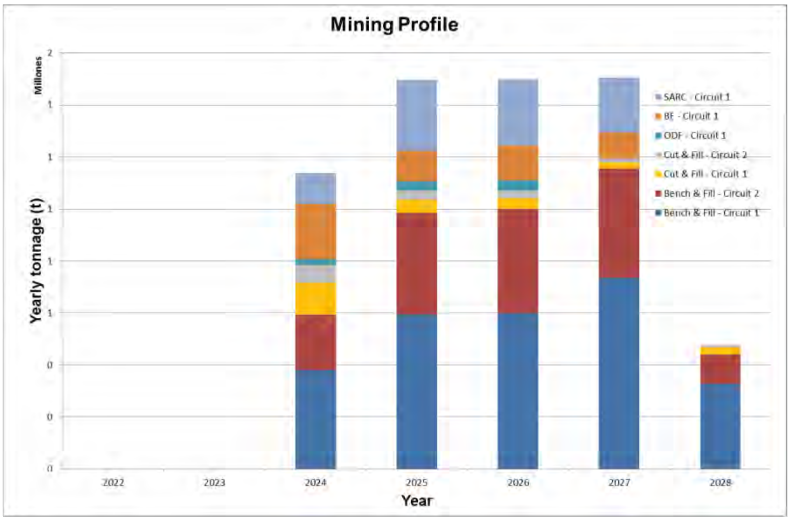


Figure 19-1: Uchucchacua Mining profile graphic

Souce: SRK, Buenaventura

A summary of the modeled life of mine mining profile is presented in Table 19-3.

Table 19-3: Uchucchacua Mining Summary

LOM Mining	Units	Value
Total UG Ore Mined	Mt	6.12

Source: SRK

Processing Profile

The processing profile was developed by Buenaventura in collaboration with SRK. No blending stockpile was considered in the analysis. The modeled profile is presented on a 100% basis in Figure 19-2.

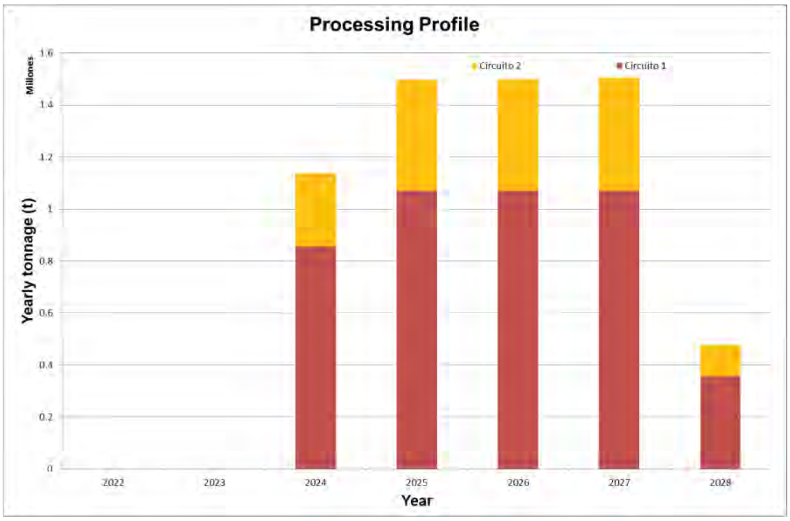


Figure 19-2: Uchucchacua Processing profile graphic

Source: SRK, Buenaventura

Yearly Estimated Costs

Main yearly costs were estimated outside of the Cash Flow template and incorporated to the Cash Flow template as a fixed cost on an annual basis.

Results for the mining cost, processing cost, and administrative cost estimation on an annual basis are shown in Table 19-4, Table 19-5, Table 19-6 and Table 19-7

Table 19-4: Reference unit cost for Yearly cost calculation

Rock / Material	Plant *	Reference Unit Cost **		
		Mining	Proc	G&A
Bench & Fill	Circuit 1	54.79	27.76	22.86
Bench & Fill	Circuit 2	54.79	12.33	22.86
Cut & Fill	Circuit 1	62.51	27.76	22.86
Cut & Fill	Circuit 2	62.51	12.33	22.86
ODF ***	Circuit 1	39.37	27.86	23.22
BF ***	Circuit 1	32.24	27.86	23.22
SARC ***	Circuit 1	35.99	27.86	23.22

Source: Buenaventura, SRK

* Destination of material
** Reference unit cost expressed as US$/t. It does not include a contingency percentage
*** Material from Yumpag Zone

Table 19-5: Yearly material movement (tonnage)

Rock / Material	Plant *	Production Year (Tonnage) (t)						
		2022	2023	2024	2025	2026	2027	2028
Bench & Fill	**Circuit 1**			**0.4**	**0.6**	**0.6**	**0.7**	**0.3**
Bench & Fill	**Circuit 2**			**0.2**	**0.4**	**0.4**	**0.4**	**0.1**

Rock / Material	Plant *	Production Year (Tonnage) (t)						
		2022	2023	2024	2025	2026	2027	2028
Cut & Fill	Circuit 1			0.1	0.1	0.0	0.0	0.0
Cut & Fill	Circuit 2			0.1	0.0	0.0	0.0	0.0
ODF ***	Circuit 1			0.0	0.0	0.0	0.0	0.0
BF ***	Circuit 1			0.2	0.1	0.1	0.1	0.0
SARC ***	Circuit 1			0.1	0.3	0.3	0.2	0.0

Source: Buenaventura, SRK

* Destination of material

** Reference unit cost expressed as US$/t. It does not include a contingency percentage

*** Material from Yumpag Zone

Table 19-6: Yearly Cost (No contingency)

Rock / Material	Units	Production Year (Yearly Cost)						
		2022	2023	2024	2025	2026	2027	2028
Mining Cost	MUS$	0.00	0.00	56.51	74.36	74.31	76.53	26.49
Processing Cost	MUS$	0.00	0.00	27.30	35.03	35.06	35.11	11.40
G&A Cost	MUS$	0.00	0.00	26.17	34.37	34.44	34.50	10.93

Source: Buenaventura, SRK

Table 19-7: Yearly cost (Including contingency 10%)

Rock / Material	Units	Production Year (Yearly Cost)						
		2022	2023	2024	2025	2026	2027	2028
Mining Cost (Cont)	MUS$	0.00	0.00	62.16	81.79	81.74	84.18	29.14
Processing Cost (Cont)	MUS$	0.00	0.00	30.03	38.53	38.57	38.62	12.54
G&A Cost (Cont)	MUS$	0.00	0.00	28.79	37.81	37.89	37.95	12.02

Source: Buenaventura, SRK

Capital Cost

Capital cost was estimated by Buenaventura on a yearly basis. No further detail is available.

A summary of capital costs is shown in Table 19-8.

Table 19-8: Yearly capital costs

Item	Units	Production Year						
		2022	2023	2024	2025	2026	2027	2028
Capital Cost LoM *	MUS$	37.4	47.5	20.5	11.1	11.3	7.9	0.0

Source: Buenaventura

* It does not include a contingency percentage

Corporate costs

Corporate cost, including the cost of administrative office in Lima, was estimated by Buenaventura on a yearly basis. No further detail is available.

A summary of corporate costs is shown in Table 19-9.

Table 19-9: Corporate cost

Item	Units	Production Year						
		2022	2023	2024	2025	2026	2027	2028
G&A Corporate	MUS$	0.0	0.0	19.0	24.8	24.7	19.8	5.8

Source: Buenaventura

19.2 Results

The economic analysis metrics are prepared on an annual after-tax basis in US$. The results of the analysis are presented in Table 19-4. Note that because the mine is operating and valued on a total project basis by treating prior costs as sunk, IRR and payback period analysis are not relevant metrics.

Table 19-10: Indicative Economic Results

	Units	Value
LoM Cash Flow (Unfinanced)		
Total Net Sales	M US$	1,105.85
Total Operating cost	M US$	651.76
Total Operating Income	M US$	183.35
Income Taxes Paid	M US$	22.80
EBITDA		
Free Cash Flow	M US$	321.94
NPV @ 6.04%	M US$	249.25
After Tax		
Free Cash Flow	M US$	40.78
NPV @ 6.04%	M US$	34.99

Source: BVN

Table 19-11: Cashflow Analysis on an Annualized Basis

Operational Indicators	2022	2023	2024	2025	2026	2027	2028
Ore Treated	**0**	**0**	**1,142,400**	**1,499,400**	**1,499,400**	**1,499,400**	**478,010**
Pb Head Grade (%)	-	-	1.05	1.08	1.12	1.01	1.61
Ag Head Grade (oz/tm)	-	-	12.06	11.32	10.19	8.55	8.45
Zn Head Grade (%)	-	-	1.05	1.08	1.12	1.01	1.61
Ag Fines (oz)	**0**	**0**	**11,503,102**	**14,156,268**	**12,719,316**	**10,733,178**	**3,286,036**
Pb Fines (mt)	**0**	**0**	**7,759**	**10,518**	**10,749**	**9,747**	**4,523**
Zn Fines (mt)	**0**	**0**	**8,727**	**13,070**	**12,809**	**11,098**	**5,771**
Operating Cost (US$/tm)	**-**	**-**	**106.2**	**105.6**	**105.5**	**106.9**	**112.3**
Mine Cost (US$/tm)	-	-	54.6	54.6	54.5	56.0	61.0
Plant Cost (US$/tm)	-	-	26.4	25.7	25.7	25.7	26.2
Services Cost (US$/tm)	-	-	25.3	25.3	25.3	25.2	25.2
D&A (US$/tm)	**-**	**-**	**29.6**	**25.7**	**27.4**	**26.8**	**0.8**
P&L (kUS$)							
Net Sales	**0**	**0**	**223,698**	**291,099**	**290,310**	**232,498**	**68,250**
- Mine	-	-	(62,159)	(81,793)	(81,736)	(84,181)	(29,136)
- Plant	-	-	(30,033)	(38,529)	(38,569)	(38,617)	(12,543)
- Services	-	-	(28,787)	(37,812)	(37,887)	(37,953)	(12,020)
Operating Cost	**-**	**-**	**(120,979)**	**(158,134)**	**(158,192)**	**(160,751)**	**53,698)**
D&A	**-**	**-**	**(33,780)**	**(38,495)**	**(41,042)**	**(40,229)**	**(366)**
Gross Income	**0**	**0**	**68,939**	**94,469**	**91,076**	**31,518**	**14,186**
Selling Expenses	-	-	(4,202)	(5,689)	(5,421)	(5,077)	(2,296)
G&A	-	-	(19,046)	(24,784)	(24,717)	(19,795)	(5,811)
Operating Income	**0**	**0**	**45,691**	**63,997**	**60,937**	**6,645**	**6,079**
Special Mining Tax *	-	-	(3,296)	(4,435)	(4,331)	(2,458)	(804)
FCF (kUS$)							
EBITDA	**0**	**0**	**76,175**	**98,057**	**97,648**	**44,417**	**5,641**
Workers Participation	-	-	(1,696)	(2,382)	(2,264)	(168)	(211)
Income Tax	-	-	(5,753)	(8,083)	(7,682)	(568)	(716)
CAPEX	**(43,010)**	**(54,625)**	**(23,575)**	**(12,731)**	**(12,995)**	**(9,085)**	**-**
Mine Closure	**(3,029)**	**(3,029)**	**(3,029)**	**(3,029)**	**(3,029)**	**(3,029)**	**(3,029)**
Free Cash Flow (kUS$) * **	**-46,039**	**-57,654**	**42,123**	**71,833**	**71,679**	**31,567**	**1,685**

** Corresponds to Special Mining Tax (IEM) or Windfall Tax.*
**** Cash flow and NPV calculation consider amounts up to 2051 to represent the post-closure period. Details of closure costs after 2028 can be found in Table Closure Costs (Section 18)*

19.3 Sensitivity Analysis

SRK performed a sensitivity analysis to determine the relative sensitivity of the operation's NPV to a number of key parameters. This is accomplished by flexing each parameter upwards and downwards by 10%. Within the constraints of this analysis, the operation appears to be most sensitive to: commodity prices, metallurgical recovery and ore grades.

SRK cautions that this sensitivity analysis is for informational purposes only and notes that these parameters were flexed in isolation within the model and are assumed to be uncorrelated; this may not be an accurate reflection of reality. Additionally, the amount of flex in the selected parameters may violate physical or environmental constraint that are present at the operation.

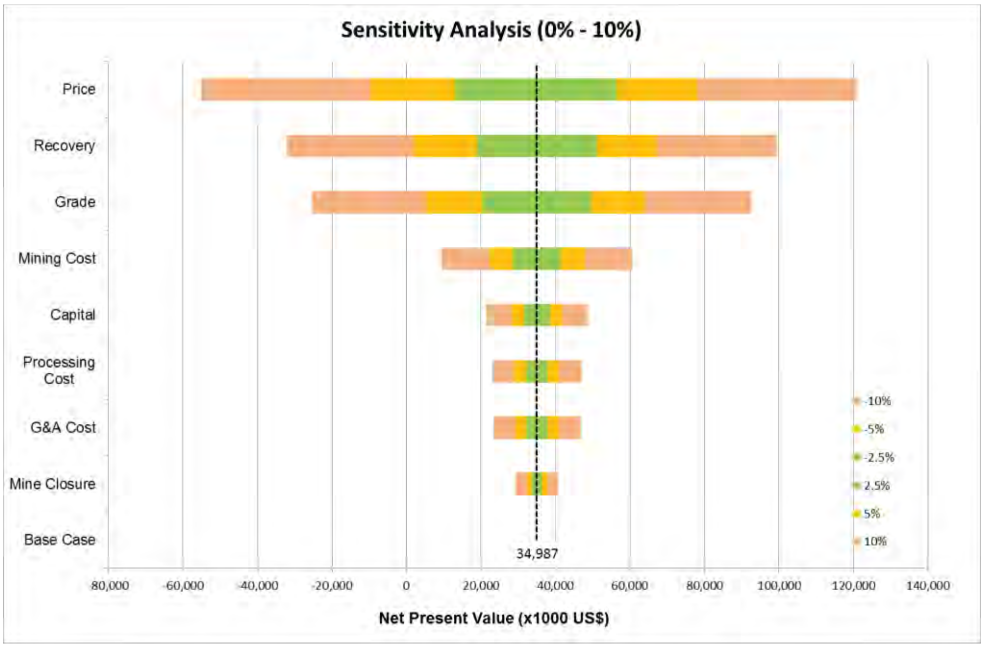


Figure 19-3: Uchucchacua NPV Sensitivity Analysis

Source: SRK

20 Adjacent Properties

Uchucchacua is located in the central Andes of Peru within the XXI metallogenic belt corresponding to Pb-Zn-Cu (Ag) Skarn type deposits and polymetallic deposits related to Miocene intrusives (Carlotto et al., 2009). Mines are currently in production in the vicinity of the Uchucchacua Mining Unit, which have similar geological and mineralization characteristics.

The nearest mining units include: Raura to the north and Iscaycruz to the south.

- Raura is a polymetallic mine. Located between the districts of San Miguel de Cauri (province of Lauricocha, department of Huánuco) and Oyón (province of Oyón, department of Lima), this mine is engaged in the mining and processing of copper, lead, silver and zinc concentrates. Raura has a treatment capacity of 2,500 tons per day (tpd), with an actual production of approximately 1,600 tons per day of ore (Annual Report, 2016).
- Iscaycruz is a polymetallic deposit located at an altitude of 4,700 masl, in the district of Pachangara, province of Oyón, department of Lima. It has four mines in production: Limpe, Chupa, Tinyag 1, and Tinyag 2, from which ore is mined, producing zinc, lead and, to a lesser extent, copper concentrates.

21 Other Relevant Data and Information

This Chapter is not relevant to this Report.

22 Interpretation and Conclusions

22.1 Geology and resources

22.1.1 Uchucchacua

Uchucchacua is a polymetallic deposit associated with replacement bodies and veins. Its mineralization (Ag, Zn, Pb, Fe and Mn) is located in a sequence of carbonate rocks of the Upper Cretaceous Jumasha Formation.

Uchucchacua is a polymetallic epithermal deposit of veins (fracture filling) and metasomatic replacement, emplaced in carbonate rocks of the Jumasha Formation. Mineralization is complex, occurring in multiple stages or pulses, controlled by well-defined vein structures, replacement bodies or shoots and skarn

SRK notes that the property is not at an early stage of exploration, and that results and interpretation from exploration data is generally supported in more detail by extensive drilling and by active mining exposure of the orebody in multiple underground works.

SRK used the available geological and drill hole data to review geological models.

The procedures used by the Uchucchacua team for drilling, logging, drillhole sampling, and information gathering are appropriate and follow the best practices of the international codes.

Geology and mineralization are well understood through decades of mining production, and SRK has used relevant and available data sources to accompany Compañía de Minas Buenaventura in the scale modeling effort of a long-term resource for public reporting. Additional data is likely to exist that could be used to drive a very small-scale interpretation but would have very little impact on mineral resources overall.

The mineral resources have been estimated by Compañía de Minas Buenaventura, who generated a 3D geological model informed by various types of data (mainly drill holes, mine channels, working mapping and section interpretation) to constrain and control the shapes of minerals. veins.

Drilling data was used within geological structures, the grades of Ag, Pb, Zn, Fe and Mn were interpolated into block models for the different zones of the mine using Ordinary Kriging and Inverse distance methods in its different veins. The results were validated visually and through various statistical comparisons; classified. Classified consistently with industry standards; and reviewed with Yumpag staff.

Mineral Resources have been reported using an optimized scenario, based on mining and economic assumptions to support reasonable potential for economic extraction of the resource. A cutoff has been derived from these economic parameters, and the resource has been reported above this cutoff.

In SRK's opinion, the mineral resources set forth herein are appropriate for public disclosure and meet the definitions of indicated and inferred resources established by SEC guidelines and industry standards.

22.1.2 Yumpag

SRK has used relevant and available data sources to accompany Compañía de Minas Buenaventura in the scale modeling effort of a long-term public reporting resource. Additional data is likely to exist that could be used to drive a very small-scale interpretation but would have very little impact on mineral resources overall.

The mineral resources have been estimated by Compañíа de Minas Buenaventura, who generated a 3D geological model informed by various types of data (mainly core drilling and section interpretation) to constrain and control their body shapes.

Drilling data was used within geological structures, the grades of Ag, Pb, Zn, Fe and Mn were interpolated into block models for the different zones of the mine using Ordinary Kriging and Inverse distance methods in its different veins. The results were validated visually and through various statistical comparisons. Classified consistently with industry standards and reviewed with Yumpag staff.

Mineral Resources have been reported using an optimized scenario, based on mining and economic assumptions to support reasonable potential for economic extraction of the resource. A cutoff has been derived from these economic parameters, and the resource has been reported above this cutoff.

In SRK's opinion, the mineral resources set forth herein are appropriate for public disclosure and meet the definitions of indicated and inferred resources established by SEC guidelines and industry standards.

22.2 QA/QC & data verification

SRK has conducted a comprehensive review of the available QA/QC data as part of the sample preparation, analysis, and security review. SRK believes that the QA/QC protocols are consistent with the best practices accepted in the industry.

In SRK's opinion, sample preparation, chemical analysis, quality control, and security procedures are sufficient to provide reliable data to support the estimation of Mineral Resources and Mineral Reserves.

In SRK's opinion, the database is consistent and acceptable for Mineral Resource Estimation.

SRK observed that the database has an insignificant quantity of findings or minor inconsistencies mainly related to historical information obtained from data migration. Although a complete reconciliation of the certificate information to the digital database could not be completed, SRK notes that most of the current resource is supported by modern information that which could be compared to original certificate information. The incidence of error for the data that could be compared was limited and not deemed material to the disclosure of mineral resources.

22.3 Mineral resource estimates

The block model consists of cells and sub-cells that fill the entire volume of interest. Each cell occupies a discrete volume that can be assigned whatever information is deemed necessary to accurately and precisely describe and interpret the deposit; the entire block model or fraction thereof can be evaluated, and tonnage and grades reported.

22.4 Uchucchacua resource report

Table 22-1: Uchucchacua Resource Report

Unit: Uchucchacua

Date: 25/11/2021

Resource Summary

Cut-off: differentiated

Zone	Category	Tonnage t	Ag Oz/t	Pb Pct	Zn Pct	Mn Pct	Fe Pct	NSR US$/t	AgEq Oz/t	OnzEquiv Millones Oz	Width m
Carmen	Measured	404,387	12.01	1.07	1.45	7.34	1.27	196.68	11.71	4.73	1.77
	Indicated	739,463	13.39	1.14	1.41	7.28	3.51	218.88	13.03	9.63	2.44
	Measured & Indicated	1,143,849	12.90	1.12	1.42	7.30	2.72	211.03	12.56	14.37	2.20
	Inferred	2,120,308	14.80	1.11	1.37	7.21	3.50	240.46	14.31	30.35	3.14
Casualidad	Measured	47,284	8.65	2.80	3.00	3.10	7.58	175.89	10.47	0.50	1.71
	Indicated	258,768	7.27	2.79	4.09	2.89	9.89	164.95	9.82	2.54	2.63
	Measured & Indicated	306,052	7.48	2.80	3.92	2.92	9.53	166.64	9.92	3.04	2.48
	Inferred	345,673	9.08	2.51	3.33	3.09	9.10	183.07	10.90	3.77	1.91
Huantajalla	Measured	37,840	19.63	1.97	2.48	3.44	10.22	336.12	20.01	0.76	1.85
	Indicated	257,757	16.27	1.80	2.27	5.64	10.62	279.17	16.62	4.28	2.09
	Measured & Indicated	295,597	16.70	1.83	2.29	5.36	10.57	286.46	17.05	5.04	2.05
	Inferred	746,874	14.91	2.08	2.51	4.15	11.28	262.66	15.63	11.68	2.07
Socorro	Measured	1,526,609	9.95	1.64	2.84	7.70	6.76	183.34	10.91	16.66	2.14
	Indicated	2,950,708	9.11	1.71	3.00	7.34	8.57	172.63	10.28	30.32	2.49
	Measured & Indicated	4,477,318	9.40	1.69	2.94	7.46	7.95	176.28	10.49	46.98	2.37
	Inferred	3,274,072	10.01	1.61	2.71	7.31	7.53	182.93	10.89	35.65	2.63
Total	Measured	2,016,120	10.52	1.56	2.56	7.44	5.74	188.71	11.23	22.65	2.05

Unit: Uchucchacua

Date: 25/11/2021

Resource Summary

Cut-off: differentiated

Zone	**Category**	**Tonnage**	**Ag**	**Pb**	**Zn**	**Mn**	**Fe**	**NSR**	**AgEq**	**OnzEquiv**	**Width**
		t	**Oz/t**	**Pct**	**Pct**	**Pct**	**Pct**	**US$/t**	**Oz/t**	**Millones Oz**	**m**
	Indicated	4,206,696	10.19	1.69	2.74	6.96	7.88	186.82	11.12	46.78	2.46
	Measured & Indicated	6,222,816	10.29	1.64	2.68	7.11	7.19	187.43	11.16	69.43	2.33
	Inferred	6,486,927	12.09	1.55	2.28	6.69	6.73	210.92	12.56	81.45	2.69

Note: Resources include reserves, no ore loss or dilution has been included
No envelopes have been used to report the resource

Prices used are US$ 20.00 per ounce Ag, US$ 1,900.00 per MT Pb, US$ 2,300.00 per MT Zn.

Source: BVN

22.5 Yumpag resource report

Table 22-2: Yumpag Resource Report

Resource Report as of August 31, 2021

Unit: Uchucchacua

Date: 10/13/2021

Zone: Yumpag

Cut-off: US$/t 150.0

Resource Summary

Zone	Category	Tonnage t	Ag Oz/t	Pb Pct	Zn Pct	Fe Pct	Mn Pct	NSR US$/t	Ounces Au Oz
01 Camila Body	Measured	66,000	32.27	0.80	1.55	6.11	22.74	1003.72	66.25
	Indicated	1,125,200	25.05	0.59	1.11	4.55	22.22	779.17	876.78
	Measured & Indicated	1,191,200	25.45	0.60	1.13	4.63	22.25	791.61	943.03
	Inferred	115,600	24.78	0.56	1.07	4.13	23.50	770.66	89.16
02 Candela Body	Measured	43,000	23.98	0.38	0.50	2.95	24.78	745.77	32.08
	Indicated	183,100	20.11	0.41	0.73	3.18	21.53	625.63	114.59
	Measured & Indicated	226,100	20.85	0.40	0.69	3.13	22.15	648.48	146.68
	Inferred	51,100	23.42	0.68	0.73	4.01	17.59	728.40	37.29
03 Carmela Body	Measured	2,000	16.95	0.47	0.57	2.95	19.08	527.06	1.10
	Indicated	32,500	17.77	0.31	0.34	2.86	18.74	552.57	18.00
	Measured & Indicated	34,600	17.72	0.32	0.35	2.87	18.76	551.03	19.10
	Inferred	10,300	14.15	0.14	0.11	2.59	8.08	440.21	4.54
07 Carolina Body	Measured	300	5.51	0.05	0.15	0.81	23.65	171.42	0.05
	Indicated	8,800	5.55	0.08	0.23	2.28	18.37	172.61	1.52
	Measured & Indicated	9,000	5.55	0.08	0.23	2.23	18.54	172.57	1.57

Resource Report as of August 31, 2021

Unit: Uchucchacua

Date: 10/13/2021

Zone: Yumpag

Cut-off: US$/t 150.0

Resource Summary

Zone	Category	Tonnage	Ag	Pb	Zn	Fe	Mn	NSR	Ounces Au
		t	Oz/t	Pct	Pct	Pct	Pct	US$/t	Oz
	Inferred	5,300	7.65	0.18	0.46	3.88	20.33	237.97	1.28
Total	Measured	111,300	28.71	0.63	1.12	4.82	23.46	893.04	99.48
	Indicated	1,349,600	24.08	0.55	1.03	4.30	22.02	748.91	1010.90
	Measured & Indicated	1,460,900	24.43	0.56	1.04	4.34	22.13	759.90	1110.38
	Inferred	182,300	23.29	0.56	0.90	4.00	20.88	724.45	132.27

Note: Resources include reserves, no ore loss or dilution has been included.

The prices used were US$ 1,600.00 per ounce Au and US$ 20.00 per ounce Ag.

Source: BVN

22.6 Mining methods

It should be noted that the Uchucchacua MU considers, within its scope as a mine, the Yumpagproject located 1 km north-east of its operations. Mining method selection considerations for both Uchucchacua and Yumpag are independent of one other.

The Uchucchacua mining unit applies two underground mining methods:

- Bench & Fill with long holes. This method corresponds to an adaptation of sublevel stoping(SLS).
- Overhand Cut & Fill (OCF) with stoping-like vertical raiseboring

Life of Project (LOM) with the estimated reserves as of December 2021, a LOM is estimated until 2028.

Table 22-3: LOM Uchucchacua

Description	2022-2023(*)	2024	2025	2026	2027	2028	Total
Ore Treated (DMT)		785,400	1,071,000	1,071,000	1,194,600	478,010	4,600,010
Ag grade (Oz/MT)		7.09	7.08	7.01	7.33	8.45	7.27
Pb Grade (%)		1.28	1.31	1.41	1.17	1.61	1.32
Zn Grade (%)		2.22	2.44	2.39	1.85	2.41	2.23
Mn Grade (%)		3.93	4.68	4.40	5.54	2.87	4.52
NSR		116	117	116	119	137	119
Ag Fines (Oz)		4,518,064	6,153,734	6,096,477	7,273,268	3,289,310	27,330,854
Pb Fines (FMT)		6,648	9,226	9,638	9,144	4,526	39,182
Zn Fines (FMT)		8,727	13,070	12,809	11,098	5,771	51,475

Source: Buenaventura

22.6.1 Yumpag Mining Plan

Table 22-4: LOM Yumpag

Description	2022-2023(*)	2024	2025	2026	2027	2028	Total
Ore Treated (DMT)		357,000	428,400	428,400	304,800		1,518,600
Ag grade (Oz/MT)		22.99	21.93	18.16	13.35		19.39
Pb Grade (%)		0.54	0.52	0.40	0.35		0.46
Zn Grade (%)		1.09	0.92	0.69	0.71		0.85
Mn Grade (%)		18.35	17.05	15.84	15.07		16.61
NSR		357	341	282	207		301
Ag Fines (Oz)		7,007,803	8,021,800	6,641,645	3,474,074		25,145,323
Pb Fines (FMT)		1,118	1,300	1,119	610		4,148
Zn Fines (FMT)		-	-	-	-		-

Source: Buenaventura

22.6.2 Development and preparation works - UCHUCCHACUA LOM

Table 22-5: Development and preparation works Uchucchacua

UCHUCCHACUA LOM								
Work (m)	2022	2023	2024	2025	2026	2027	2028	Total
Development	-	-	342	342	342	342	114	1,482
Preparation	-	4,900	22,443	30,606	30,606	34,135	6,833	129,523
Exploration	7,450	7,750	3,000	3,000	3,000	3,000	1,000	28,200
Total advances	7,450	12,650	25,785	33,948	33,948	37,477	7,947	159,205
DDH	80,000	80,400	86,400	86,400	86,400	86,400	28,800	534,800
RB	-	-	1,050	1,050	760	760	-	3,620

Source: Buenaventura

22.6.3 Development and preparation works - YUMPAG LOM

Table 22-6: Development and preparation works Yumpag

Work (m)	2022	2023	2024	2025	2026	2027	2028	Total
Development	2,917	2,582	1,891	14	-	-	-	7,403
Preparation	5,689	7,352	8,146	6,892	1,431	-	-	29,510
Exploration	-	-	-	-	-	-	-	-
Total advances	8,605	9,934	10,037	6,906	1,431	-	-	36,913
RB	946	974	1,114	-	-	-	-	3,034
Ch	1,080	1,080	1,080	450	-	-	-	3,690

Source: Buenaventura

22.7 Infrastructure

The Colquicocha waste rock management facility is located on top of a former tailings and waste rock management facility, which was closed as part of the PAMA program and rehabilitated in 2010.

Engineering studies on the rehabilitation and the management facility were developed by OM Ingeniería y laboratorio S.R.L. (OM) in 2010 and 2017, respectively. The facility design has an extension of 1.44 hectares for a storage of 40 K t of temporary ore and 10 k t of waste rock.

The geometric configuration of the facility considers an overall slope of 2.5(H):1(V) until reaching the maximum elevation of 4,447 MASL

The Huantajalla LVL 360 waste rock management facility is located in the Huantajalla Valley between 4,340 and 4,390 meters above sea level, downstream of the Huantajalla mine entrance.

The detailed engineering design was developed by JMF in 2014 considering an area of 40,950 m^2 for a storage volume of 745,000 m^3 and a material density of 2.4 t/m^3. The facility will be built in two stages, the first will consist of a 288,500 m^3 (0.69 Mt) storage volume, while the second stage foresees a volume of 456,500 m^3 (1.79 Mt). Its useful life considers periods of 11.4 years for the first stage and 29.3 years for the second stage.

Huantajalla Lvl 500-2014 waste rock management facility (DME) Level 500 belonging to the Uchucchacua mining unit, is located at the foot of level 500 mine entrance.

This facility's detailed engineering was conducted by OM Ingeniería y Laboratorio (OM) in 2014, covering an extension of 4 hectares with a storage capacity of 567,000 m³ for an estimated useful life of 4 months.

Uchucchacua Lvl 600, similar to Lvl 500 waste rock management facility (DME), this deposit is located at the foot of level 620 mine entrance.

This facility's detailed engineering was conducted by OM Ingeniería y Laboratorio (OM) in 2014, covering an area of 1 Ha, with a storage capacity of 48,800 m³ of waste rock, and an estimated useful life of 2 months.

The remaining capacity at Tailings Dam 3 up to elevation 4411.0 MASL is 0.25 Mt and up to elevation 4416.0 MASL would allow for 3.22 Mt of storage. Although Buenaventura plans to heighten the bunds to 4413.0 MASL, and later reach elevation 4416.0 MASL The heightening to 4429.0 MASL will provide Tailings Dam 3 with an additional storage capacity of 15.21 Mt, thus extending the operation of Uchucchacua Mining Unit until July 2032, with the possibility of having more capacity for increased reserves. At the end of the operation, the final capacity of Tailings Dam 3 will be 26.27 Mt, for an estimated density of conventional tailings of 1.26 t/m³ and for thickened tailings of 1.6 t/m³; discharge of thickened tailings will begin in 2024.

22.8 Market studies

Buenaventura’s zinc concentrates from Uchucchacua has very low zinc content and high levels of manganese. This means the material is sold at a discount and is a good match for traders with a large portfolio who can use the concentrate for blending. Buenaventura has been able to sell this concentrate on the back of the large amount of diverse zinc concentrates extracted in Peru, which allows for a variety of combinations which are attractive to the market once blended. Looking forward, Buenaventura has contracts in place covering 100% of Uchucchacua’s zinc concentrate production for 2022 and 2023, and 60% of production for 2024. Conversations with current buyers are constant and future production is likely to be secured when the time arrives.

As far as CRU understands, the leached material catalogued as “lixiviado” concentrate cannot be exported to China as, having been through additional chemical processes after being concentrated, it is no longer considered a concentrate. This, combined with the high arsenic content in the material, would mean this production will likely be used for blending and then exported to markets other than China. The material’s high silver content will also help increase its attractiveness in markets where silver is well-valued. Going forward, Buenaventura has secured sales for 80% and 76% of Uchucchacua’sproduction of its “lixiviado” material for 2022 and 2023, respectively. Conversations with current buyers are ongoing and future production is likely to be secured when the time comes.

23 Recommendations

a. Geological and Mineral Resources

Uchucchacua

- SRK recommends developing detailed geological and structural model to further support the modeling geology of the deposit.
- Only a minor percentage of density sampling information was available, SRK recommends that systematic density sampling programs be carried out covering all veins, adequately distributed along the length and height of the veins.
- The results of QAQC throughout the life of the mine have not been optimal, SRK recommends that the quality control program be adequately followed up, these inappropriate results generated the non-declaration of measured resources.
- SRK recommends implementing a reconciliation program that includes the different types of resource models, reserves, mine plans and plant results.

Yumpag

- SRK recommends developing detailed structural model to further support the modeling geology of the reservoir.
- Density sampling information for resource estimation was not complete, SRK recommends that systematic density sampling programs be carried out for all surveyed structures.

b. Sample Preparation, Analysis and Security

- In Uchucchacua mine, more frequent precision monitoring should be carried out (fine duplicates, coarse duplicates and twin samples) to detect problems or inconsistencies.
- In Uchucchacua mine, more frequent monitoring of accuracy (Zn) should be carried out in the internal laboratory to detect problems or inconsistencies.
- In Yumpag mine, more frequent precision monitoring (coarse duplicates) should be carried out to detect problems or inconsistencies.
- In Yumpag mine, more frequent monitoring of accuracy (Ag, Zn) should be carried out in the external ALS laboratory to detect problems or inconsistencies.
- In Yumpag mine, the percentage of inclusion of standards should be increased according to the best practices in the industry.

c. Data Verification

- In Uchucchacua and Yumpag mines, SRK recommends conducting is recommended to carry out internal validations of the database**;** verification of the data export process; and issuing of chemical analysis reports from the Internal Laboratory for future reviews and/or internal audits

d. Mining and Mineral Reserves

- Improvement of metallurgical recovery estimation through on-going performance control of plant operations and the execution of additional metallurgical tests. SRK finds that proposed functions are coherent with the current and future processing plant operations;

however, it is necessary to complete additional analysis. Recoveries for silver, lead and zinc in low grade ranges show limited information. Silver recovery for different products must be developed.

- Implement a systematic reconciliation process and improve the traceability of the fine contents. Following best practices in the industry, this process should involve the following areas mine operations: geology, mine planning and processing plant under an structured plan of implementation;
- Improvement of “unit value” calculation by means the parameters traceability and adding some level of differentiation in the commercial terms, separating commercial terms related to the metal or payable content and commercial terms related to the mass of the concentrate.
- Evaluate a simplification of saleable products and adecuate assignment of circuit destination for the in-situ materials.
- Geotechnical monitoring of underground operations and implement feedback process to incorporate the monitoring results into the geotechnical model used for underground design purposes.

e. Mineral Processing

- SRK is of the opinion that the Yumpag Project offers multiple opportunities to improve the Uchucchacua-Rio Seco integrated business. A good practice that will facilitate timely evaluation of the business’s potential would be to execute metallurgical testing immediately after obtaining Yumpag’s DDH geochemistry data.
- SRK is of the opinion that because Uchucchacua´s current mechanical condition, before restarting operations will require the followings:
- Refurbishment at a cost ranging between USD 7.0 million and USD 10.0 million, and
- To implement the refurbishment will take at least six months.
- Executing the refurbishment in advance of the operation restart will allow Uchucchacua to reinitiate production at or near full capacity, and better control costs.
- A successful plant start-up (or re-starting for this particular purpose) must be understood as one that simultaneously achieves: target instantaneous ore throughput (tonnes/hour), target mechanical availability (hours/day, hours/week, hours/month), and nominal concentrate production in terms of tonnage and quality over at least four consecutive months.
- Refurbishment of the plant brings the opportunity to modernize some of the equipment and ancillary systems.
- It is SRK’s opinion that Rio Seco has significant potential to become a custom refinery for third-party non-typical quality concentrates in the region.

f. Environmental, Permitting, and Social Considerations

- Continue executing the plans and programs related to:
  - Mine closure plans, including remediation and reclamation plans, and associated costs.
  - Social relations, commitments, and agreements with individuals and local groups.
  - Mine reclamation and closure.
  - Adequacy of plans (environmental, mine closure, local individuals and groups).
  - Commitments to Ensure Local Procurement and Hiring (local employment program, local goods and services acquisition program)

g. Capital and Operating Costs

- Development of additional technical studies for the mine closure process and to improve the accuracy of cost estimation. SRK believes that there are opportunities to improve and reduce the closure costs supported by technical studies;
- Trace and assign amounts of investment and operating costs correctly in the corresponding accounting items to ensure adequate control, structuring and sorting of the capital and operating cost.
- Additional support in the trace and assign commercial and selling expenses to the value of in-situ material
- Continuous monitoring of cost results (yearly, quarterly); these results should be used as feedback on the operating and capital cost estimation).

24 References

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25 Reliance on Information Provided by the Registrant

25.1 Introduction

The QPs fully relied on the registrant for the guidance in the areas noted in the following sub-sections. Buenaventura has active mining operations in Peru and has considerable experience in developing mining operations in the jurisdiction.

The QPs undertook checks that the information provided by the registrant was suitable to be used in the Report.

25.2 Macroeconomic Trends

Information relating to inflation, interest rates, discount rates, foreign exchange rates and taxes.

This information is used in the economic analysis in Chapter 19. It supports the mineral resource estimate in Chapter 11, and the mineral reserve estimate in Chapter 12.

25.3 Markets

Information relating to market studies/markets for product, market entry strategies, marketing and sales contracts, product valuation, product specifications, refining and treatment charges, transportation costs, agency relationships, material contracts (e.g., mining, concentrating, smelting, refining, transportation, handling, hedging arrangements, and forward sales contracts), and contract status (in place, renewals).

This information is used when discussing the market, commodity price and contract information in Chapter 16, and in the economic analysis in Chapter 19. It supports the mineral resource estimate in Chapter 11, and the mineral reserve estimate in Chapter 12.

25.4 Legal Matters

Information relating to the corporate ownership interest, the mineral tenure (concessions, payments to retain, obligation to meet expenditure/reporting of work conducted), surface rights, water rights (water take allowances), royalties, encumbrances, easements and rights-of-way, violations, and fines, permitting requirements, ability to maintain and renew permits

This information is used in support of the property ownership information in Chapter 3, the permitting and closure discussions in Chapter 17, and the economic analysis in Chapter 19. It supports the mineral resource estimate in Chapter 11, and the mineral reserve estimate in Chapter 12.

25.5 Environmental Matters

Information relating to baseline and supporting studies for environmental permitting, environmental permitting and monitoring requirements, ability to maintain and renew permits, emissions controls, closure planning, closure and reclamation bonding and bonding requirements, sustainability accommodations, and monitoring for and compliance with requirements relating to protected areas and protected species.

This information is used when discussing property ownership information in Chapter 3, the permitting and closure discussions in Chapter 17, and the economic analysis in Chapter 19. It supports the mineral resource estimate in Chapter 11, and the mineral reserve estimate in Chapter 12.

25.6 Stakeholder Accommodations

Information relating to social and stakeholder baseline and supporting studies, hiring and training policies for workforce from local communities, partnerships with stakeholders (including national, regional, and state mining associations; trade organizations; fishing organizations; state and local chambers of commerce; economic development organizations; non-government organizations; and regional and national governments), and the community relations plan.

This information is used in the social and community discussions in Chapter 17, and the economic analysis in Chapter 19. It supports the mineral resource estimate in Chapter 11, and the mineral reserve estimate in Chapter 12.

25.7 Governmental Factors

Information relating to taxation and royalty considerations at the Project level, monitoring requirements and monitoring frequency, bonding requirements.

This information is used in the economic analysis in Chapter 19. It supports the mineral resource estimate in Chapter 11, and the mineral reserve estimate in Chapter 12.

Appendices